

**MILITARY ENGINEER SERVICES**  
**COMMANDER WORKS ENGINEER**  
**CONTENTS**

**NAME OF WORK : SPL REPAIR TO BLDG NO P-25 AND P-24 AT RANIKHET UNDER GE**  
**RANIKHET**

S. No.	PARTICULARS	From	To
1.	Content page	-	1
2.	Forwarding letter including Instructions to the tenderers	02	06
3.	Notice of tender (IAFW-2162) and Appendix 'A' to notice of tender including amendment thereof.	07	14
4.	Contract for works required IAFW-1779 & 1779-A	15	28
5.	*Schedule of minimum fair wages		29
6.	*General conditions of contract IAFW-2249 (1989 Print)	30	62
7.	*Errata and amendments to General Conditions of contract IAFW-2249 (1989 Print)	63	87
8.	Special conditions.	88	93
9.	Particular specification including Appendices	94	136
10.	Errata / Amendment to tender documents.		
11.	Relevant correspondence.		
12.	Acceptance letter		
13.	Drawings.....Sheets		

Total pages

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\* These documents are not attached and can be seen in the Office of GE Ranikhet during working hours.

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer

Tele Mily: 2034

Garrison Engineer  
Military Engineer  
ServicesRanikhet,  
PIN – 900473 C/O  
56 APO

8022/ /E8

Mar 2026

M/S .....  
.....  
.....  
.....

**NAME OF WORK: SPL REPAIR TO BLDG NO P-25 AND P-24 AT RANIKHET UNDER GE RANIKHET**

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 on single stage two cover / two stage two cover / 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 physically form and any tender/bid received in such manner will be treated as non bonafide tender/bid.

3. Bid will be opened on due date and time fixed for opening in the presence of tenders/bidders of their authorized representative, who have uploaded their quotation bid and who wish to be present atthe time of opening the bids.

4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents and/or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, on or before as mentioned in critical dates. You are requested not to write piece meal points and forward you points duly consolidated before duedate as mentioned in critical dates.

5. Un-enlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to **NIT** alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal and submit the physical document in the office of GE (MES) Ranikhet 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.

a) Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.

(b) Contractor having not executed standing security bond and standing security deposit in any MES formation would be required to deposit individual security deposit on acceptance of tender which will be calculated with reference to the tendered cost as per scales laid down by MES for calculation of "EARNEST MONEY" enhanced by 25% subject to maximum of Rs. 1875000/- (Rupees Eighteen Lakhs seventy five thousand only.)

Contd.....

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 (MES) Ranikhet before date & time fixed for this purpose.
7. The contractor must ensure that the tender/bid on the proper form is uploaded 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 even if they are received in time.
8. In view of delays due to system failure or other communication related failures, it is suggested that the tender/bid be uploaded, if necessary, sufficiently in advance of the last due date and time fixed.
9. General conditions of contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule or 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 (MES) Ranikhet.
10. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITION, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.
11. (a) Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.
- (b) Contractor having not executed standing security bond and standing security deposit in any MES formation would be required to deposit individual security deposit on acceptance of tender which will be calculated with reference to the tendered cost as per scales laid down by MES for calculation of "EARNEST MONEY" enhanced by 25% subject to maximum of Rs, 1875000/- (Rupees Eighteen Lakhs seventy five thousand only).

Yours faithfully,

AGE (Contracts)  
For Accepting Officer

**Encls:-** (As Above)

Signature of Contractor

Dated:.....

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

Contractor (s) 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, alongwith their tender/bid:-

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

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 GE (MES) Ranikhet.

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

**2. SECURITY DEPOSIT**

In case the tender/bid submitted by such contractor who is not enlisted with MES is accepted, the contractor will be required to lodge with the Controller of Defence Accounts PERFORMANCE SECURITY DEPOSIT calculated with reference to the **CONTRACT SUM** as notified by the Accepting Officer. The amount is required to be lodged prior to place the work order No.01, the successful contractor shall deliver to the Accepting Officer a Performance Security in any of the forms as mention in **Condition 19** of General Condition of Contract (IAFW-2249).

**3. CONTRACTORS ENLISTED WITH CHIEF ENGINEER CENTRAL COMMAND/CWE (HILLS) PITHORAGARH AND WHO HAVE EXECUTED STANDING SECURITY BOND AND DEPOSITED STANDING SECURITY DEPOSIT BUT OF LOWER CLASS.**

The performance security shall be in favour of the Accepting Officer and shall be in any of the forms mentioned below. Work order No. 1 shall be placed only after submission of performance security of an amount equivalent to 5% of the contract sum by the contractor. In case a fixed deposit receipt of any bank is furnished by the contractor to the Government as part of the Performance Guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

**4. CONTRACTORS ENLISTED IN MES FORMATIONS OTHER THAN CE CENTRAL COMMAND / CWE (HILLS) PITHORAGARH**

Contractors whose names are on the approved list of any MES formation i.e. other than CE Central Command and who have deposited Standing Security and have executed Standing Security Bond may tender/bid without depositing Earnest Money with the bid and if the Accepting Officer decides to accept the tender/bid, such tenders will be required to be lodged Performance Security Deposit as notified by the Accepting Officer. The amount of performance security deposit is required to be lodged prior to placing Work Order No.01.

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD/-)****5. GENERAL INSTRUCTION FOR COMPLIANCE**

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

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

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

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

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

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

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

Hard copies of all above documents should be sent by the contractor to the GE (MES) Ranikhet well in advance to be received before the date & time fixed for the same.

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

The contractor shall employ Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to special condition 3 referred here in after and also conditions 24 & 25 of IAFW2249 (General conditions of contract).

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

**INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (CONTD/-)**

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

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

Site visit by the contractor before quoting the tender is compulsory. The department, in this regard, will not entertain any claim subsequently.

**6. REVOKATION / REVISION OF OFFER UPWARD / OFFERING VOLUNTARY REDUCTION, AFTER CLOSING OF BID SUBMISSION END DATE AND TIME BY LOWEST BIDDER**

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

**7. C P M (Critical Path Method)**

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

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

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

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

8. Site for execution of work shall be made available as soon as the work is awarded. In case, it is not possible for the department to make the entire site available on the date of award of the work, the contractor will have to arrange his programme accordingly. No claim whatsoever for not handing over the entire site on award of the work and for giving the site gradually will be tenable.

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

AGE (Contracts)  
For Accepting Officer

Signature of Contractor

Dated:.....

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

1. A tender is invited for the work as mentioned in Appendix 'A' to this NOTICE INVITING TENDER (NIT)
2. The work is estimated to cost as indicated in aforesaid Appendix 'A'. This estimate, however, is not a guarantee and is merely given as a rough guide and if the work cost more or less, a tenderer/bidder will have no claim on that account. The tender shall be based on as mentioned in aforesaid Appendix 'A'.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' in accordance with the phasing, if any, indicated in the tender from the date of handing over site, which will be on or about two weeks after the date of Acceptance of tender.
4. Normally contractors whose names are on the MES approved list for the area in which the work lies, and within whose financial category the estimated amount would fall, may tender/bid but in case of term contracts, contractors of categories SS to E may tender/bid. In case, where the tender amount is in excess of the financial limit of the contractor and the Accepting officer decides to accept the tender/bid, in which event the tenderer/bidder would be required to lodge performance security deposit as notified by the Accepting Officer in term of conditions of contract. Contractors whose names are on the MES approved list of any MES Formation and who have deposited standing security and have executed standing security bond may also tender / bid without depositing Earnest money along with the tender / bid and if the tender / bid submitted by such a tenderer / bidder is accepted, the contractor will be required to lodge with the Accepting Officer the amount of 'Performance security deposit' prior to placing Work Order No.01. In the case of term / running contracts, remaining sum shall be recovered from subsequent bill(s) of the contractor. Not more than one tender / bid shall be submitted / uploaded by one contractor or one firm of contractors. 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 contractor as separate competitors A breach of this condition will render the tenders/bids of both the parties liable for rejection.
5. The Office of GE (MES) Ranikhet 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 website defproc.gov.in for download and shall form part of contract agreement in case the tender/bid is accepted.
9. In case of contractor who has not executed the Standing Security Bond, the Cover-I shall be accompanied with by Earnest Money of amount as mentioned in Appendix 'A' in the form of deposit at call receipt in favour of concerned GE (MES) Ranikhet (see Appendix 'A') by a scheduled Bank or in receipted treasury Challan the amount being credited to the revenue deposit of the concerned GE (MES) Ranikhet (see Appendix 'A').

A contractor who is not enlisted for the area in which the work lies but whose name is in the MES approved list of any MES formation and who has deposited standing security and executed standing security Bond may bid without depositing earnest money along with the tender, but if the Accepting officer accepts the tender / bid, the contractor will be required to lodge with the Accepting Officer the amount of 'Performance security deposit'. **The performance security shall be in favour of the Accepting Officer and shall be in any of the forms mentioned here-in-after. Work order No. 1 shall be placed only after submission of performance security of an amount equivalent to 5% of the contract sum by the contractor.**

**NOTICE INVITING TENDER (NIT) (CONTD/-)**

A contractor who has executed standing security Bond but not corresponding to the appropriate class as mentioned above, shall lodge with the Accepting Officer, Performance Security Deposit as notified by the Accepting Officer prior to placing Work Order No.01.

The GE (MES) Ranikhet 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 production by the tenderer, bidder a certificate of the Accepting Officer that a bonafide tender/bid was received and all documents were returned.

The GE (MES) Ranikhet will either return the Earnest Money to the successful tenderer/bidder by endorsing an authority on the deposit-at-call Receipt for its refund on receipt of an appropriate amount of Security Deposit or will retain the same in part or full on account of security deposit if such a transaction is feasible.

Copies of the drawings and other documents pertaining to the work signed for the purpose of identification by the Accepting Officer or his accredited representative, sample of materials and stores to be supplied by the contractor will also be available for inspection by the tenderer/bidder at the office of Accepting Officer and concerned GE (MES) Ranikhet during working hours.

It is mandatory for the contractors to upload their GST IN Number alongwith 'T' bid. Contractor who does not upload GST IN Number shall be disqualified in the 'T' bid evaluation and his Financial bid shall not be opened.

During evaluation of 'T' bid (Cover-1) of e-tendering uploading of copy of **Provident Fund code** number is mandatory. Without uploading Provident Code Number Bidder shall be disqualified in 'T' bid evaluation and his financial bid shall not be opened.

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 GE (MES) Ranikhet during working hours. The bidder is advised to visit the site of work by making prior appointment with (MES) Ranikhet, who is the Executing Agency of the work (see Appendix 'A'). The bidder shall be deemed to have full knowledge of all relevant documents, samples, site etc whether he has inspected them or not.

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

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

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

15. The tenderers/bidders are advised to visit the site of work by making prior appointment with GE (MES) Ranikhet Project Manager who is also the Executing Agency of the work (see appendix 'A'). The tenderers/ bidders are deemed to have full knowledge of all relevant documents, samples, site etc, whether they have inspected them or not.

**NOTICE INVITING TENDER (NIT) (CONTD/-)**

16. Invitation for e – tender does not constitute any guarantee for validation of 'T' bid and subsequent opening of finance bid of any applicant/bidder, even of enlisted contractors of appropriate class, merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the 'T' bid and not open the finance bid of any applicant/bidder. 'T' bid validation shall be decided by the Accepting Officer based on, inter alia, capability of the firm as per criteria given in Appx 'A' to this NIT. The applicant contractor/bidder will be informed regarding non-validation of his 'T' bid assigning reasons thereof through the eprocurement website. The applicant contractor/bidder if he so desires may appeal to the next higher Engineer Authority viz HQ CWE (H) Pithoragarh on email [jd\\_pghhls3-mes@nic.in](mailto:jd_pghhls3-mes@nic.in) with copy to the Accepting Officer on email before the scheduled date of opening of Finance Bid. The decision of the Next Higher Engineer Authority (NHEA) shall be final and binding. The contractor/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

17. The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking, giving a price 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 from such tender/bidder whose tender/bid is rejected.

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

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

20. This **Notice Inviting Tender (NIT)** including Appendix 'A' shall form part of the contract.

Signature of contractor  
Dated :

AGE (Contracts)  
for Accepting Officer

**NOTICE INVITING TENDER (NIT) (CONTD/-)**

1	Name of work	SPL REPAIR TO BLDG NO P-25 AND P-24 AT RANIKHET UNDER GE RANIKHET
2	Estimated cost	<b>Rs. 38.10 Lakhs</b>
3	Period of completion	<b>06 (Six) Months</b>
4	Cost of tender documents	<b>Rs. 500/-</b> in the shape of DD/ Bankers cheque from any schedule Bank in favour of <b>GE Ranikhet</b> and payable at Ranikhet (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	<a href="http://www.defproc.gov.in">www.defproc.gov.in</a> and <a href="http://www.mes.gov.in">www.mes.gov.in</a>
6	Type of contract	The tender shall be based on IAFW-1779-A and General Condition of contracts (IAFW-2249) with schedule 'A' (List of items of work) Rate of each item of BOQ to be quoted by tenderer.
7	Information & Details:	
	Bid submission start date	} Please refer <a href="http://www.defproc.gov.in">www.defproc.gov.in</a>
	Last date of bid submission	
	Date of bid opening	
8	Eligible Criteria	
	(A) For MES enlisted contractors	All contractors enlisted with MES in Class 'D' and above and category a (i) shall be considered qualified provided they do not carry adverse remarks in WLR of competent engineer authority.
	(B) (B) For Contractors not enlisted with MES	(i) Contractor not enlisted with MES should meet the Enlistment criteria of 'D' Class and a (i) category contractor with regard to satisfactorily completion of requisite value works with Central/State Government/ Central/ State PSUs/ AWHO/ AFNHB/ CGEWHO/DGMAP, annual turnover, bank solvency, working capital and other requirements given in Para 1.4 & 1.5 of Section 1 of MES Manual of Contracts 2020 as available in all MES formations as well as MES website ( <a href="http://www.mes.gov.in">www.mes.gov.in</a> ).  (ii) Not carrying adverse remarks in Work Load Report (WLR) or any other similar report circulated by any competent authority, if already working in MES.  (iii) Not suspended / debarred / blacklisted (either permanently or temporarily) from participating in any bid or for business dealings by any Central / State (Government Department or any Central / State Government PSU or any Autonomous Body under Central / State Government or any Local Body as on the bid submission end date.
9	Tender issuing and Accepting Officer	GE Ranikhet
10	Executing agency	GE Ranikhet
11	Earnest Money	Rs. 76,200.00 in favour of GE Ranikhet

Contd..

**NOTICE INVITING TENDER (NIT)(CONTD/-)****Notes:**

1. After opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT is less than 7 (Seven), applications in respect of MES contractors of one class or two classes (In case of remote and difficult areas to be decided as per list circulated by CE commend / ADG) below the eligible class shall also be considered subject to fulfillment of other eligibility criteria given in the NIT. Therefore MES contractors one class below (Two classes below in case of remote and difficult area) may also bid for this tender. Such contractors (contractors of one / two classes below the eligible class) shall not be considered in case their present residual work in hand is more than FIVE TIME their present tendering limit. However in case such contractors fulfill the criteria of upgradation to the stipulated eligible class based on past experience of completed works (individual work experience and/ or average annual turnover, as applicable) and financial soundness (solvency/ financial soundness and working capital), the ceiling of present residual work will not apply and they will be considered for issue of tender. Such bidders shall upload in their Cover-I bid details related to residual work in hand like details of works in hand showing names of work, names of Accepting Officers, Contract amounts, dates of commencement and completion (stipulated) and progress as on bid submission date. Such contractors, if claim to fulfill the criteria of upgradation shall also upload the requisite information/ documents in support of upgradation. These details shall be verified by the tender issuing authority from concerned formations in case bids of such contractors are considered for evaluation.
2. In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT, are 7 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of 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. Contractor's enlisted with MES will upload following documents in Cover 1 for checking eligibility:-
  - (a) Application for tender on Firm's Letterhead.
  - (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.
  - (c) Scanned copy of DD / Bankers Cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.
  - (d) Any other documents required as described in this Appendix.
5. Contractors not enlisted with MES will be required to upload following documents in Cover 1 for checking eligibility.
  - (a). Application for tender on Firm's letterhead.
  - (b). Scanned copy of DD/ Bankers cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
  - (c). Copy of Police Verification Report/Police Clearance Certificate/ Character Certificate from the Police Authority of the area where the registered office of the firm is located/notarized copy of valid passport of Proprietor/each Partner/each Director.
  - (d). All documents required for enlistment in MES for the class mentioned in Para 8(b) Above and as per Para 1.5 of Section 1 of MES Manual on Contract 2020.
  - (e). Details of works being executed in MES, if any.
  - (f). Any other documents required as described in this Appendix.

**NOTICE INVITING TENDER (NIT) (CONTD/-)**

6. Tenders not accompanied by scanned copies of requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover I shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.
7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach in the office of Accepting Officer **within 10 days** from the date of bid submission end date, failing which following action will be taken against the defaulter bidders:-
- (a) In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD / Bankers Cheque towards cost of tenderer have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of **six months commencing from the date of opening of Financial Bid** (Cover 2).
- (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 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will not be opened. Name of such contractors along with complete address shall be circulated for not opening of their bids for a period of six months commencing from the date of opening of Financial bid (Cover 2).
- (c) In case of tenders from enlisted and un-enlisted contractors, where scanned copies of instruments for Earnest Money Deposit (as applicable) have been uploaded in Cover I but the same are not received in physical form within stipulated period, such tenders shall not qualify for opening of financial bid (Cover 2).
8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party/another firm on his behalf. However, a contractor can execute the work through power of attorney to sons / daughters / spouse of Proprietor/Partner/Director and firm's own employees, director, project manager **provided they are not having a separate enlisted firm in MES in their name as Proprietor/Partner/Director**.
9. After opening of Cover I and during its technical evaluation, in case any deficiency is noticed in the documents required to be uploaded by the tenderers as per NIT, a communication in the form of e-mail/SMS/Speed Post etc shall be sent to the contractor to rectify the deficiency within a period of seven days from date of communication failing which their financial bid (Cover 2) shall not be opened and contractor shall not have any claim on the same.
10. Invitation for e-tender does not constitute any guarantee for validation of Technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the Technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the Accepting Officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/ bidder will be informed regarding non-validation of his Technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website. Such tenderer, if desires, may appeal to the next higher Engineer Authority (NHEA) viz HQ CWE(Hills) Pithoragarh on email id [pghhls3-mes@nic.in](mailto:pghhls3-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-I of the bid and shall be checked/ verified by the Accepting Officer.

**NOTICE INVITING TENDER (NIT) (CONTD/-)**

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

13. Revoking the offer or revising the rates upward or offering voluntary reduction by the lowest tenderer after opening of Cover 2 shall be considered as a willful default. For this default a penalty of an amount equal to Earnest Money shall be levied. In case of an un-enlisted tenderer. Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the 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 restored to in a transparent and fair manner and the defaulting tenderer and his related firm if any, shall not be eligible for this tender in second call or subsequent calls.

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

(Signature of Contractor)

(Jayant Charan)  
Maj  
Accepting Officer

File No: 8022/ /E8

Garrison Engineer  
Military Engineer Services  
Ranikhet  
PIN – 900473

Dated : Mar 2026

**Distribution :-****(For display on your Notice board)**

1. CE Bareilly Zone, Bareilly	10. GE(E) Bareilly	18. GE Pithoragarh
2. CWE Bareilly	11. GE (W) Bareilly	19. GE 871 EWS C/O 56 APO
3. CWE Dehradun	12. GE Roorkee	20. AGE (I) R&D Pithoragarh
4. CWE (H) Dehradun	13. GE (N) Meerut	21. AGE (I) Raiwala
5. CWE Meerut	14. GE (U) Meerut	22. AGE (I) Lansdown
6. CWE(H) Pithoragarh	15. AGE (MES) Shahjahanpur	23. GE(P) Dehradun
7. GE Premnagar	16. Notice Board	24. GE C/Town Dehradun
8. Employment Exchange Haldwani/Nainital/Ranikhet/Almora	17. Executive Engineer, PWD MallRoad, Ranikhet/ Almora/ Haldwani /Nainital	25. All Sub Div of GE Ranikhet
9. CEO, Cantonment Board Ranikhet / Nainital		26. Superintending Engineer, PWD, 1st circle Mall Road Almora/Haldwani/ Nainital
<b><u>REGISTERED</u></b>	<b><u>REGISTERED</u></b>	<b><u>REGISTERED</u></b>
27. Honey Secretary MES BldgAssociation of India (Roorkee Branch) 100 Nehru Nagar Roorkee	28. Hony Secy, MES BAI, 807, Sahyog 58, Nehru Palace, New Delhi	29. Honey Secretary MES BldrsAssociation of India, A-7, Sarswati Vihar, Rajpur Road, Dehradun
30. Hony Secy, MES BAI, 163 Patel Puri, Kanker Khera, Meerut-250001 (UP)	31. Sh Rajeev Sharma, Hony Secretary, 110-B, Civil Lines, NearPrabha Talkies, Bareilly Flats, Stadium Road, Bareilly	32. NIT Folder

(To be used in conjunction with General Conditions of Contracts)  
(IAFW-2249 - 1989 PRINT)

Tele: 260186

Garrison Engineer  
Military Engineer Services  
Ranikhet, PIN – 900473.  
C/ O 56 APO

8022/ / E8

Mar 2026

**NAME OF WORK : SPL REPAIR TO BLDG NO P-25 AND P-24 AT RANIKHET UNDER GE  
RANIKHET**

1. S'Shri/Shri/M/s \_\_\_\_\_ of \_\_\_\_\_  
\_\_\_\_\_ are/is hereby authorized to tender  
for the above work, subject to fulfillment of conditions laid hereinbefore. The technical and price bid (cover  
1 and 2) are to be uploaded in the "[www.defproc.gov.in](http://www.defproc.gov.in)" site on or before date and time mentioned for the  
purpose in the same website.
2. Any correspondence concerning this tender should be addressed as indicated at the top of this  
sheet, quoting reference as given.

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

(Signature of Officer issuing the documents)

Signature of Officer  
Issuing the tender documents.  
Appointment: AGE (Contracts)  
For accepting Officer

Signature of contractor  
Dated :

**SCHEDULE "A" NOTES**( contd....)**NOTES: -**

1. **SCOPE OF WORK** : This contract comprises the following Job/work :-  
**SPL REPAIR TO BLDG NO P-25 AND P-24 AT RANIKHET UNDER GE RANIKHET**
2. The quantities given under column 3 are Approximate and are inserted only as guidance. These shall however not be varied beyond the limits laid down in condition 7 of IAFW-2249 (General Conditions of Contracts).
- 3 The unit rate quoted by the tenderer shall be deemed to be inclusive of:-
  - (i) Provision of necessary materials & labour, supply & fixing, installation, commissioning, 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.
  - (ii) **Govt of India has implemented GST wef 01 Jul 2017, accordingly certain type of taxes have been merged with GST and the tenderer shall be deemed to consider the same while quoting the tender. Contractor shall be quote considering all statutory levies/duties, construction labour welfare tax, if applicable including GST on works contracts as applicable. It may be noted that conditional tender will not be considered and shall be liable to be REJECTED.**
4. The unit rates quoted by the tenderers shall be deemed to allow for "minor extras" which are not specifically specified but are essential required for the execution of work in 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.
5. The rates quoted by the contractor shall also include all taxes / duties, viz GST, Building and other construction workers welfare cess and any other taxes / duties as applicable. Form 3D, 31 and 32 or any other form shall not be issued by MES. This is an express condition of this contract that no claim of the contractor shall be entertained by MES on this account.
6. Special conditions in MES schedule Part II (Rates – 2020) and preambles to items given in MES schedule Part II (Rates – 2020) under respective trades shall be applicable, If any provision in the description of items of schedule A and/or particular specifications of this tender documents is at variance with the provisions given in special conditions in MES schedule Part II and preambles to MES schedule part II (Rates – 2020), provisions in schedule 'A' and/or particular specifications shall take precedence there over.
7. Unit rates against each item of schedule 'A' shall be quoted in figures in column No 5 by contractor.
8. Total amount at the end of column No. 7 (in figures) is not firm but will be treated as "contract sum" as referred in IAFW-2249 (General Conditions of Contracts). The Contract Sum will be derived after deduction of amount of Schedule of Credit.
9. **PERIOD OF COMPLETION: -** The entire work under this contract shall be completed within **06 (Six months)** from the date of commencement as per work order No 1.
10. The unit RM, Cum or CUM, Sqm or SQM, Per 10 RM, Qtl and Per 10 Sqm wherever mentioned in the tender documents denotes the unit running metre, cubic metre, square metre, per ten running metre, per quintal and per ten square metre respectively.
11. Demolition and dismantling shall be carried out as directed by Engineer-in-Charge without causing and damage or loss of serviceable materials and/or adjoining structure or building. Any loss or damage caused to structure, building or serviceable material shall be made good by the contractor at his own cost to the entire satisfaction of Engineer-in-Charge.

**SCHEDULE "A" NOTES**( contd....)

12. Demolished and / or dismantled materials as shown in 'Schedule of credit' shall be contractor's property. Other serviceable materials obtained from demolition and / or dismantling shall be Govt.'s property and contractor shall deposit the same in MES store yard without extra cost to the department.
13. If any item is repeated in Schedule 'A' / particular part of Schedule 'A' and contractor quotes different rates for the same, the lowest rate quoted by the contractor shall be considered for the purpose of payment. No claim whatsoever shall be entertained on this account.
14. Contractor shall ensure that all the workers deployed by him are enrolled as members of Provident Fund and should possess the Universal Account Number (UAN).
15. The contractor will submit certificate along with RAR/FB that all workers employed directly or indirectly by him are registered for EPF and the due contribution have been credited into their account. This shall be prerequisite to any sort of payment claimed from the department.
16. It is incumbent on the part of tenderers to hold GST number and deposit the GST to the concerned authorities directly. Contractor will produce the proof of submission of GST as and when demanded by the GE.
17. All the materials to be incorporated in the work shall be got tested as per the latest relevant IS codes and the cost of the same shall be deemed to be included in the unit rates quoted.
18. Wherever in Sch 'A' / anywhere else in the tender document, it is mentioned "or equivalent" in the makes, the equivalent makes shall only be provided on in case the makes mentioned does not manufacture the respective item. The makes shall be as approved by GE.
19. The payments due to the contractor shall only be made by e-payments. The contractor shall provide all the necessary details including bank account number, IFSC code etc to the GE. If, however, the mode of payment is changed, no claim on this account shall be entertained.
20. Work beyond scope of CA shall not be executed by the contractor without written approval of GE. No payment will be made to the contractor in RAR/Final bill for works executed without written approval of GE. In this regard General condition 7 of IAFW-2249 be also referred.
21. A tenderer is supposed to check if any revised BOQ has been uploaded, and quote in Revised BOQ only. Thus uploading quotation in pre-revised BQO shall be considered as a willful negligence by the bidder and his quotation shall be considered non-bonafide.
22. Contractor not in possession of Provident Fund Code Number shall be disqualified in 'T' bid evaluation and his financial bid shall not be opened. The Contractor shall upload fund code number documents in the respective envelope.
23. Quoted sum shall be arrived at after deducting amount of schedule of credit from the total amount of the BOQ.
24. **Employees provident fund :-** Immediately after acceptance of work, the contractor will also get all employees and labours registered with EPF authorities. GE will ensure that contractor and his employees and labour details have been entered in EPF portal. Payment due to the contractor after first RAR shall be made only after verifying that the statutory PF payments have been made by him.
25. Contractor/firms shall submitted proof of payment of wages to his workmen. NO payments will be made unless proof of the same is submitted by the contractor/ firms. In case payments are made in current coins or currency notes, certificate will be submitted by the contractor/ firm along with undertaken by the concerned workmen asking for payment other than by cheque or by crediting in the bank account of the employee/workmen.
26. Special conditions in MES schedule Part II (Rates-2020) and preambles to items given in MES schedule Part II (Rates-2020) under respective trades shall be applicable, If any provision in the description of items of schedule A and/or particular specifications of this tender documents is at variance with the provisions given in special conditions in MES schedule Part II and preambles to MES schedule part II (Rates-2020), provisions in schedule 'A' and/or particular specifications shall take precedence there over.

**SCHEDULE "A" NOTES**( contd....)

27. 'M & L' and 'S & F' terms wherever occurs on tender documents, shall mean 'Material and labour' and 'Supply and fixing' respectively.

**28. PERFORMANCE SECURITY**

28.1 The performance security shall be in favour of the Accepting Officer and shall be in any of the forms mentioned below. **Work order No. 1 shall be placed only after submission of performance security of an amount equivalent to 5% of the contract sum** by the contractor. In case a fixed deposit receipt of any bank is furnished by the contractor to the Government as part of the Performance Guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

- (a) A Bank Guarantee in the prescribed form.
- (b) Government Securities, FDR or any other Government Instruments stipulated by the Accepting Officer.

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

28.3 Failure of the contractor to comply with the requirements of sub clause **28.1** shall constitute sufficient grounds for cancellation of the award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor, amount equal to the earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

28.4 All compensation or other sums of money payable by the contractor to the Government under the terms of this contract or under any other contract with Government may be deducted from, or paid by the sale of sufficient part of the Performance Security or from the interest arising there from or from any sums which may be due or become due to the contractor by the Government on any account whatsoever and in the event of his Performance security being reduced by reason of any such deduction, or sale as aforesaid, the contractor shall within ten days thereafter make good encash or securities, endorsed as aforesaid, any sum or sums which may have been deducted from or realized by the sale of his Performance Securities or any part thereof. Government shall not be responsible for any loss of securities or any depreciation in the value of securities while in their charge nor for loss of interest thereon.

28.5 In the event of contract being cancelled, under Condition 52, 53 & 54 of General Conditions of Contract, the Performance Security shall be forfeited in full and shall be credited into consolidated fund of India.

**29. Defect Liability period shall be of "Twenty four calendar months" after the works handed over to Government.**

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

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

30.2 Draft Star Rate shall be made based on market enquiry through telephonic enquiry/quotations / email / rate lists / internet based sources, material & labour constants available in various 'Civil Engineering Books' and record available in respect of 'Star Rates' approved in the past for similar items of work etc. The contractor may also assist GE's Office in preparation of 'Draft Star Rate'.

SCHEDULE "A" NOTES( contd....)

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

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

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

31. In case of no makes specified in the tender documents for a particular item, BIS marked / approved items from BIS approved manufacturers shall be incorporated / provided at site. No extra payment shall be paid to the contractor on this account.

32. 'M & L', 'S & F' and 'S&F in repairs' terms wherever occurs on tender documents, shall mean 'Material and labour', 'Supply and fixing' and 'Supply & fixing of new one item after demolition / dismantling of old unserviceable' respectively.

33. The rate quoted by contractor shall include use of all scaffolding, trestles, ladders, cradles, etc necessary for execution of work and protective measures.

34. Prior to commencement of work contractor shall undertake to either obtain valid Electrical Licence of required class in its name or engage an agency having valid Electrical Licence of required class through MoU (Memorandum of Understanding) for execution of all electrical works as well as works under category (c) [including its sub categories (i) to (vii)] and the category (d)(v) to the extent Rule 29 under Part III of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations, 2010 is applicable either in full or part of the scope of work of contract awarded to him and that all such electrical works shall be executed by him through such agency only (either self or other agency) having valid Electrical Licence of required class from State /Union Territory Authorities where works are to be executed.

Signature of contractor  
Dated

AGE (Contracts)  
For Accepting Officer

SCHEDULE OF CREDIT FOR OLD DEMOLISHED / DISMANTLED / TAKING DOWN MATERIALS					
Ser No	Description of old unserviceable materials	Unit	Approx quantities	Rate per Unit (Rs)	Amount (Rs)
1	2	3	4	5	6
1	Old unserviceable sheets of any type	Sqm	555.8	55	30569
2	Old unserviceable Ceiling board incl snap grid	Sqm	145	12	1740
3	Old unserviceable chowkats with shutter exceeding 1.5 Sqm	Each	10	300	3000
4	Old unserviceable chowkats with shutter exceeding 1.5 Sqm but n.exc 4.Sqm	Each	6	350	2100
5	Old unserviceable hydraulic door closer	Each	6	110	660
6	Old unserviceable Curtain rods	RM	17.7	6	106.2
7	Old unserviceable Brick masonry	Cum	88	400	35200
8	Old unserviceable PCC block masonry	Cum	74.3	300	22290
9	Old unserviceable structural steel/other iron work	Kg	5009	20	100180
10	Old unserviceable PVC tank of 1000 ltr capacity	Each	1	400	400
11	Old unserviceable GI pipes obtained from taking down 15mm.	RM	10	15	150
12	Old unserviceable Gate valve of any description	Each	1	50	50
13	Old unserviceable point wiring of any type / size including all fittings etc.	Per Point	87	40	3480
14	Old unserviceable sub main wirings of any size.	RM	79	10	790
15	Old unserviceable main switches, socket, ceiling rose, lamp holder, call bell, bell push of any type.	Each	174	2	348
16	Old unserviceable MCBs, SP, DP, TPN of any type and make.	Each	29	1	29
17	Old unserviceable DBs of any type and any capacity.	Each	5	15	75
18	Old unserviceable LED light fitting of any type and any capacity.	Each	29	10	290
19	Old unserviceable Bldg security light, of any type make and capacity.	Each	5	40	200
20	Old unserviceable cable	RM	55	16	880
TOT				Rs	202537.2

**Note :-**

1. The material obtained from dismantling / demolition / taking down listed in this schedule of credit shall become the contractor's property.
2. Tenderers are advised to physically verify the materials listed in this schedule with regard to their quality and serviceability etc
3. Credit on account of old retrieved materials listed in this schedule shall be recovered from advance payments to the
4. In case of material other listed in Schedule of Credit which obtained during dismantling, the same shall become the property of the department and to be removed to MES store yard for which no additional payment shall be paid. The contractor shall be fully responsible to safe guard these materials against losses/theft/deterioration etc, till the same and returned by him in MES store yard or reused in work and such material shall be notified/listed specifically by the EIC.
5. In case, materials to be returned to MES store yard or to be re-used in the work are lost or damaged while in the custody of contractor, the Govt shall recover the cost there of at double of market rates as prevailing on the date of detection of such loss of damage of old/new materials
6. Recovery shall be made for gross quantity of demolished and / or dismantled materials, as measured and not for the net quantity of retrieved materials.
7. The materials shall be removed from site only after written permission of the Engineer-in-Charge.

Signature of Contractor (s)

AGE (Contracts)  
For Accepting Officer

**SCHEDULE 'B'**  
**LIST OF MATERIALS TO BE ISSUED BY THE DEPARTMENT**  
**(SEE CONDITION 10 OF IAFW-2249)**

Srl No	Description of item	Unit	Rate	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**  
**(SEE CONDITION 15, 34 & 35 OF IAFW-2249)**

Srl. No.	Particulars	Details of MES Crew supplied	Hire Charges per unit per day	Stand by charges per unit per off day	Place of issue by name	Remarks
1	2	3	4	5	6	7

----- NIL -----

**SCHEDULE 'D'**  
**(TRANSPORT TO BE HIRED TO THE CONTRACTOR)**  
**(SEE CONDITION 16 AND 35 OF IAFW- 2249)**

Srl No.	Quantity	Particulars	Rate per unit per working day	Place of issued by name	Remarks
1	2	3	4	5	6

----- NIL -----

(Signature of Contractor)

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

AGE(Contracts)  
for Accepting Officer

## TENDER

TO

THE PRESIDENT OF INDIA

Having examined and perused the following documents:-

1. Specifications signed by AGE ( Contracts)
2. Drawings detailed in the particular specifications.
3. Schedule 'A', 'B', 'C', 'D' attached thereto.
4. MES Standard Schedule of rates Part I (Specifications)-2009 and Part II (Rates)-2020 (here-in-after and in IAFW-2249 referred to as the "MES Schedule".), together with errata/ amendments **Nos. 1 to 3 for SSR Part-I (2009) and 1 to 122 for SSR Part II.**
5. **General conditions of contracts, I.A.F.W.-2249(1989 Print) together with errata 1 to 20 and amendments 1 to 49.**
6. **Water**-condition 31 of I.A.F.W-2249 General conditions of contracts.  
Water will be supplied by MES and the same shall be paid by the contractor @ Rs. 3.75 per Rs. 1000.00 worth of work done priced at contract rates.
7. 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 the security deposits or be refunded by the Government on receipt of the appropriate amount of security deposit all as per condition 19 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained/referred to therein and as at the item rates contained in the aforesaid schedule 'A' or at such other rates as may be fixed under the provision of condition 62 of IAFW-2249 and to carry out such deviations as may be ordered vide conditions 7 of IAFW-2249 up to maximum **10% (TEN PERCENT)** and further agree to refer all disputes as required by condition 70 of IAFW-2249 to the Sole Arbitrator officer of MES not below the rank of Director/ Col/ Director (Contracts) (having done at least one executive tenure of minimum two years or having at least two years experience of handling contracts matters) to be appointed by Chief Engineer Central Command or in his absence the officer officiating as Chief Engineer Central Command if powers specifically delegated in writing by Chief Engineer Central Command subject to receipt of written consent from both the parties in terms of the provision under section 12 (5) of the ACA, whose decision shall be final, conclusive and binding.

\* To be deleted where not applicable.

TENDER (CONTD....)

Signature.....in the capacity of ..... Name of signatory.....duly authorised to sign the tender for and on behalf of M/S.....(IN BLOCK LETTERS) Dated.....

Witness..... Postal Address..... M/S..... Telephone No..... Address..... Telegraphic Address..... Telephone No.....

ACCEPTANCE

.....Alterations have been made to the documents and as evidence that these alterations were made before execution of the Contract Agreement; they have been initialed by the contractor and Sh Devraj Singh Pangti, AGE (Contracts). The said officer is hereby authorised to sign and initial on my behalf the documents forming part of this contract.

The above tender was accepted by me on the.....day of.....2025 on behalf of the president of India at the item rates contained for the contract sum of Rs..... (Rupees.....only)

Signed on.....Day of..... 2025.

Maj Appointment: GARRISON ENGINEER RANIKHET ACCEPTING OFFICER (FOR AND ON BEHALF OF THE PRESIDENT OF INDIA)

**SCHEDULE OF MINIMUM WAGES**

It is, hereby, agreed that the "Schedule of Minimum wages" as published by Government of India/State Govt./Govt. Local authorities whichever is highest and which specifies minimum rates of wages for various categories of workmen as applicable on the last due date of receipt of this tender shall form part of these tender documents.

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

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer

**GENERAL CONDITIONS OF CONTRACTS (IAFW-2249: PRINT - 1989) FOR**

**\* LUMP SUM CONTRACTS (IAFW-2159)**

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

**\*TERM CONTRACTS (IAFW-1821)**

A copy of the MES GENERAL CONDITIONS OF CONTRACTS (IAFW-2249: Print-1989) with errata and amendments has been supplied to me/us and is in my/our possession. I/We have read and understood the Provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/We agree that I/We shall abide by the terms and conditions thereof.

It is hereby further agreed and declared by me/us, that the MES General Conditions of Contracts (IAFW-2249: Print - 1989) including Condition 70 thereof pertaining to settlement of disputes by Arbitration containing 33 pages (Serial page Nos. 30 to 62) with errata 1 to 20 and amendment Nos. **1 to 49** containing 25 pages (Serial page Nos. 63 to 87) shall form part of these tender documents.

\* DELETE WHICHEVER IS NOT APPLICABLE

AGE (Contracts)  
For Accepting Officer

(Signature of Contractor)  
Dated.....

**SPECIAL CONDITION**

1. **GENERAL** : The following Special Conditions shall be read in conjunction with the general Conditions of Contracts, IAFW-2249 and IAFW-1779-A including 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. The term General specification used in any of the documents forming part of the contract refers to the specification contained in the MES Schedule.

2. **INSPECTION OF SITE**

(a) The tenderers are advised to inspect the site by prior appointment with GE to ascertain the nature of site, working conditions and labour rates prevalent in the area, in fact all matters effecting his price in the tender for execution & completion of the work. The tenderers shall be deemed to have full knowledge of the site (s) whether or not they / he actually visit (s) it / these. For the purpose of collection of materials and the execution of the works, the site will be considered as laying in "RESTRICTED AREA".

3. **CONDITIONS FOR WORKING**

3.1 (a) The work lies in **RESTRICTED AREA**. However, the contractor, his agents, working people and vehicles may pass through the unit lines in which case the Engineer-in-Charge shall, at his discretion, have the right to issue passes to control their admission to the site of work or any part thereof. The contractor shall on demand by the Engineer-in-Charge submit a list of personnel's, etc. concerned and shall satisfy the Engineer-in-Charge as to the bonafides of such people having been checked. Passes shall be returned at any time on demand by the Engineer-in Charge and in any case on completion of work.

(b) The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the area in which the work is to be carried out e.g. prohibition of smoking, lighting and fire precaution, search of persons at entry and exit, keeping specified routes, restricted hours of working etc. Any person found violating the security rules laid down by the authority, shall be immediately expelled from the area without assigning any reasons whatsoever and the contractor shall have no claim on this account. Nothing shall be admissible for any man hours lost on this account.

(c) Verification of antecedents of contractor's representatives/labour deployed at site in connection with execution of work under the contract, as per security requirement of user unit/installation shall be the responsibility of contractor and all expenses in connection with verification of antecedents by Police Authority/Security Agency shall be born by the contractor.

4. **(A) SECURITY AND PASSES**

Contractor(s) attention is invited to condition 25 of IAFW-2249. The contractor shall on demand by the Engineer-in-Charge, submit a list of his agents, employees and working people concerned and shall satisfy the Engineer-in-Charge as to the bonafides of such people.

The Engineer-in-Charge shall, at his discretion have the right to issue passes as per rule and regulations of the installation/area in force to control the admission of the contractor's agents, employees and work people to the site of the work or any part thereof. Passes shall be returned at any time on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of work.

The contractor and his agents, employees and work people shall observe all the rules promulgated by the authorities controlling installation/area in which work is to be carried e.g. prohibition of smoking and lighting, fire precautions, search of persons on entry and exit, keeping to specific route, observing specified timings, etc. Nothing extra shall be admissible for any manhours etc, lost on this account.

**(B) POLICE VERIFICATION OF ANTECEDENTS OF CONTRACTOR'S REPRESENTATIVE / LABOUR**

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

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**5. ACCEPTABLE QUALITY OF WORK AND FINISHES**

(i) To determine the acceptable standard of materials and workmanship/final finishes and layout of fittings etc, the contractor shall execute stages of work viz excavation, foundation concrete, walling upto plinth/lintel/roof levels, roofing, flooring, joinery, built in items, finishes and the like and services i.e. internal electrification, water supply, plumbing, sanitary fittings as directed by the GE under the close supervision of Engineer-in-Charge and shall get it approved by the GE. The workmanship of various trades, finishes and fittings shall serve as guiding samples.

(ii) Approval of the stages and workmanship of sample finishes and fittings shall be separately entered and approved in stage passing register giving reference for easy identification even at a later date.

**6. WORK ON HOLIDAY**

The contractor shall not carryout any work on gazetted holidays except when he is specially authorised in writing to do so by GE. The GE may at his sole discretion declare any day as holiday or non-working day without assigning any reason for such declaration.

**7. RECORD OF CONSUMPTION OF CEMENT**

7.1 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, used in the 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 the 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.

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

7.3 On completion of the work the contractor shall deposit the cement register with the Engineer-in-Charge for record.

**8. MINIMUM WAGES PAYABLE (REFER CONDITION 58 OF IAFW-2249)**

8.1 Refer condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages including allowances for labour as fixed by Govt. of India/State Govt. OR Union Territory whichever is higher.

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

**9. ROYALTIES**

Refer condition 14 of general condition of contracts (IAFW-2249). Quarries on defence land are not available.

**10 PROPRIETARY BRANDED MATERIALS AND PURCHASE VOUCHERS OF OTHER MATERIALS**

Proprietary branded materials, such as, Water proofing compound, Paints etc. quantity of which, can not be checked after incorporation in the work and other materials like cement and steel shall, when collected at site be recorded in measurements book and signed both by the MES representative and Contractor as a check to ensure that the required quantity has been brought at site for incorporation in the work and shall also submit purchase vouchers of these items.

The contractor shall obtain, proprietary / branded materials from manufacturer's authorised stockiest where such authorized stockiest have been appointed. The contractor shall produce original receipted vouchers/ invoices of supplies to the GE, if called upon, to ensure that the contractor has actually brought the required quantity and quality of the material from the authorized dealers/manufacturer and also to find out the rates thereof. These vouchers shall be endorsed dated and authorised by the Engineer-in-Charge giving the Contract Number and Name of Work. Certified copy of each voucher signed by Engineer-in-Charge and Contractor, shall be kept on record.

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When the cost of each category of materials is less than Rs. 500.00 production of vouchers may not be insisted upon, if the GE is otherwise satisfied with the capacity and quantity of materials.

#### 11. WATER

11.1 Refer condition 31 of General Conditions of Contracts (IAFW-2249) and clause 1.13 of MES Schedule Part I.

#### 12 ELECTRIC SUPPLY

Electric supply required for the work up to a maximum 5 KW single phase for office and labour camp lighting purpose only shall be made available by the MES at point(s) shown on site plan. The exact location of the electric point(s) will be shown by the 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. The contractor will be charged for the electric energy consumed for execution of work at the following rates: -

(a) At Rupees **12.61 (RUPEES TWELVE AND PAISE SIXTY ONE ONLY)** per unit for lighting.

12.1 No three phase electricity will be given by MES for operating plant and equipments.

12.2. Electric supply required for works shall be made available by MES at the point(s) to be ascertained from the GE by the contractor. The main switch and KWP meter to register supply shall be provided with all necessary connection, cables, fittings etc. from main switch in order to ensure a proper and suitable supply of electricity for the execution of works.

12.2 MES do not guarantee availability / continuity of supply of full quantity of electricity required, demanded by the contractor. Electricity will be supply to the extent available with the department. No compensation whatsoever shall be allowed for supply being intermittent or for break down in the system or for non-supply of electricity at all.

#### 13. TIME AND PROGRESS CHART

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

13.2. During currency of the work, the contractor is expected to adhere to the time Schedule and this adherence will be a part of his/their performance under the contract. During the execution of the work, the contractor is expected to participate in the reviews and updating of the network undertaken by the GE, either as a periodical appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the time Schedule as result of the review will be submitted by the contractor to the GE within a week for his approval after due scrutiny.

13.3. 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.

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13.4. Contractor shall mobilise and employ sufficient resources to achieve the progress, detailed within the broad framework 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 department.

14. **SAMPLE OF MATERIALS**

14.1 Refer condition 10 of IAFW-2249.

14.2 All manufactured materials / articles other than those manufactured in contractor's workshop / fabricated at site shall bear IS certification mark, unless specifically mentioned otherwise.

14.3 Item conforming to ISS shall be accepted only when ISI marked or otherwise specified in relevant clause of particular specifications materials are not manufactured in the country. Materials which are superior to ISS such as particular type of paint, distemper, glazed earth ware tiles, AC sheets and AC rain water pipe etc. May be used without any extra cost of Govt. However, before incorporating such materials/items to be incorporated in the work conform to relevant ISS and/or are superior to ISS.

14.4 Materials provided by the contractor for incorporation in the works shall unless otherwise specified in the particular specifications be ISI marked. IB means Indian Standards as issued by the Bureau of Indian Standards. Wherever in the specifications IS is referred to, it means the edition with all amendments, current on the due date of receipt of the tender documents.

14.5 The contractor shall not procure materials unless the samples are first approved by the AGE in writing.

14.6 The quantity of materials such as paving bitumen, bituminous primer, paint, water proofing compound (powder), chemical for anti-termite treatment, distemper cement based paint and the like (as applicable) as directed by Engineer-in-Charge (the quantity of which can not be checked after incorporation in the work) shall be recorded in MB 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.

14.7 Materials brought to site shall be stored as directed by the Engineer-in-charge and those already recorded in the MB shall be suitably marked for identification.

14.8 The contractor required to be produce vouchers / invoices / bills for the materials as demanded by the Engr-in-Charge and the materials which are claimed in RAR as "Material lying at site". Purchase vouchers in respect of balance items will not be required be submitted. However purchase vouchers in respect of cement, steel, major E/M equipments like transformers, DG Set, Pump, Motors, AC and lift equipments will be submitted invariably. However, Engineer-in-charge will be held responsible for quality of materials, which is / are produced by the contractor.

14.9 The cost of testing of all materials shall be borne by the contractor. While quoting their lump sum, this aspect should be kept in mind and nothing extra shall be admissible on this account.

15. **PERIOD FOR KEEPING THE TENDER OPEN**

The tender shall remain open for acceptance for a period of **60 (SIXTY)** days from the date on which the tenders are due to be submitted.

16. **VALUATION OF DEVIATIONS**

16.1 Reference shall be made to condition 62 of "General condition of contracts" i.e. IAFW-2249.

17. **SECURITY OF CLASSIFIED DOCUMENTS**

Contractor's special attention is drawn to conditions 2-A and 3 of IAFW-2249 (General Condition of Contracts). The contractor shall not communicate any classified information regarding the work either to sub-contractors or another person without the prior approval of the Engineer-in-Charge. The contractor shall not make copies of the design/drawings and other documents furnished to him in respect of the work, and shall return all documents on completion of the works or earlier on termination 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 Contracts).

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18. **OFFICIAL SECRETS ACT**: The contractor shall be bound by the Official Secrets Act -1923.

19. **SIGNING OF CONTRACT DOCUMENTS**

19.1 The person signing tender on behalf of another or on behalf of a firm shall attached with the tender a power of attorney duly executed in his favour by other person or by all the partners, staffing that he has authority to bind such other persons of the firm as the case may be in all matters pertaining to the contract including the arbitration clause.

20. **RELEASE OF PERFORMANCE & OTHER SECURITY DEPOSIT**

20.1 Refer conditions 19 and 68 of IAFW-2249.

20.2 The contractor, in case he has to deposit additional security for the contract, is advised to deposit additional security in two equal parts so as to facilitate its release in accordance with condition 68 of IAFW-2249.

21. **CLEANING DOWN** Refer Condition 49 of IAFW-2249, General Condition of Contracts : -

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 therewith and leave the whole premises clean and tidy before handing over the completed work.

22. **SAFETY PRECAUTION**

22.1 The contractor shall take every/precaution to control traffic on road keeping danger boards, necessary lighting arrangements, fencing and watchman to avoid any damage. In case due to excavation or others the road is to be blocked the contractor shall, without any extra cost to the Govt, provide separate by pass so that normal traffic is not disturbed.

22.2 **Any damage to the existing road/building etc**, shall be made good by the contractor with the same specifications as per existing work, without any extra cost to the Govt. In the event of contractor not fully complying with the above provisions to the satisfaction of the GE, the GE may provide the same for which the expenses incurred will be recovered from the contractor.

23. **EMPLOYMENT OF PERSONAL**

23.1 The contractor shall employ only Indian Nationals as his representatives servants and workman and verify their antecedents and loyalty before employing them for the work. He shall ensure that no person of doubtful antecedent and Nationality in any way is associated with the works. If for reason of technical collaboration or after considerable the employment of a foreign national is unavoidable. The contractor shall furnish particulars to this effect to the Accepting Officer at the time of submission of tender.

24. **RE-IMBURSEMENT/REFUND ON VARIATION IN 'TAXES DIRECTLY RELATED TO CONTRACT VALUE' :-**

25 **TRADE TAX (SALES TAX)** Consequent to introduction of GST on works contracts have since come into force WEF 01Jul 2017. Tenderer are advised to take this fact into account while quoting their rates. No claim or compensation or adjustment what so ever would be admissible to the contractor on this account. Deduction of GST shall be made at source as per GST act as intimated by GST authority from time to time, form Contractor's RAR and Final Bill and the amount so deducted shall be deposited with the GST authority. Final adjustment i.e, refund/ balance payment as due to the GST authority shall however be the responsibility of the contractor. In case of balance payment becoming due, the contractor will be liable to deposit the same with GST authority within 15 days of instructions issued to him by the ST authority/GE. In case of contractor's failure to meet this requirement , the said amount will be recovered from any payment due to the contractor's and the same will be deposited with GST authority against their demand. The contractor will have no claim whatsoever on this account.

26 **GOODS AND SERVICES TAX**

(a) The liability of GST rests with the contractor. Accordingly, amount quoted in the contract/tender shall be deemed to include the element of GST and no reimbursement shall be made on this account.

(b) From 1<sup>st</sup> Jul 2017 the rate of GST shall be as per Gazette Notification issued by concerned department inclusive of applicable cess. The rate of Service Tax if revised at later date shall be applicable only after notification in this regard is issued by the Govt.

(ii) The Contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further 'taxes directly related Contract value', give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating there to which he may be in a position to supply. The Contractors shall submit the other documentary proof/ informations as the GE may require.

(iii) The Contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other informations as the GE may require.

(iv) Re-imburement for increase in percentage rates imposition of 'taxes directly related to Contract value' shall be made only if the Contractor necessary & 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.

27. **Qualified tradesmen (Applicable for works costing Rupees one crore or more)**

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

28. **LABOUR REGULATION AND ABOLITION ACT**

28.1 Contract labour (Regulation and abolition) Act 1970 i.e. applicable to MES contracts, rates quoted by the tenderer shall be deemed to take in to account the cost etc. required to comply with the provisions contained in the said Act and the rules framed under said Act.

29. **ADVANCES ON ACCOUNT**

29.1 Refer condition 64 of IAFW-2249 (General Conditions of Contract).

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**1. GENERAL**

- 1.1 The work under this contract shall be carried out in accordance with the description in Schedule 'A'(BOQ). Particular specifications, drawings (if any), general specifications and other provisions in the MES Standard Schedule of Rates shall be read in conjunction with each other.
- 1.2 The term general specifications referred to in clause 1.1 above and in IAFW-2249 shall mean the specifications contained in the MES Schedule 2009 Part-I and 2010 Part-II including erratas and amendments thereto, ISS and any other standard Engineering Books.
- 1.3 General rules, specifications, special conditions, method of measurements, preambles and all other provisions in the MES Schedule shall be deemed to apply to the works under this contract unless other wise mentioned in these tenders documents.
- 1.4 Particulars specifications given hereinafter shall be applicable to all the works covered in Schedule 'A' and they are in brief and emphasise the specifications given in MES Schedule which are not repeated here.
- 1.5 Where specifications/provisions given in these specifications are at variance with the specifications provisions given in the MES schedule, the specification/provisions given in these particular specifications shall be followed.
- 1.6 In the absence of any reference in particular specifications with regard to the item mentioned in Schedule 'A', the work shall be executed to the specification given in the MES Schedule in preference to the local trade practice.
- 1.7 Where specifications for any item of work is not given in MES Schedule or in these particular specifications, the specifications given in relevant Indian Standard specifications or code of practice shall be followed. Specification given for the items not included in this tender shall be deemed to have been deleted for the purpose of this tender.
- 1.8 The IS mentioned in the MES Schedule and in the other documents shall be deemed to be changed/modified as per latest amendments issued to IS upto date of receipt of tender.
- 1.9 Information plaque (Tablet)  
All building / structure shall be provided with plaque (Tablet) furnishing the following information in plaster engraving in and painted as directed by GE.
- (i) Job No., CA No. & Year and name of work.
  - (ii) Name of contractor, GE and Engineer-in-Charge.
  - (iii) Date of commencement, completion & expiry of defects liability period.
  - (iv) Plaster shall be 20mm thick in cement mortar 1:4.
  - (v) Location of plaque shall be as directed by GE.

**2. MATERIALS TO BE SUPPLIED BY CONTRACTOR**

- 2.1 Refer condition 10 of IAFW-2249 (General Conditions of Contracts).
- 2.2 The tenderer is advised to inspect materials which are displayed in the office of GE MES, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials, he is required to incorporate in the work irrespective of whether, he has actually inspected them or not. The materials to be incorporated in the work by the contractor shall conform to or shall be superior in quality samples displayed and shall comply with the specifications given here-in-before/after
- 2.3 All materials shall be ISI marked. Where ISI marked materials/products are not available, these shall conform to relevant IS. Specifications or to BS Specifications, where IS is not existing. In absence of any IS/BS specifications, these shall be as approved by GE.
- 2.4 Sample of all materials, fittings & fixture, accessories etc to be supplied by the contractor shall be submitted to Engineer-in-Charge for approval of GE. The contractor shall not commence the work until the samples are approved in writing by GE. The contractor shall ensure that all the materials as incorporated in the work are identical in all respects. Samples approved and samples destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.
- 2.5 All manufactured articles required for incorporation in the work shall be brought to site in the manufacturer's original packing with seal intact.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

2.6 Approved names/brands of products to be incorporated in works are given in appendix 'A' to these particulars specifications. The product shall be any of the makes, subject to approval of the GE.

**3. EXCAVATION AND EARTH WORK**

3.1 The Contractor shall excavate to the specified depths and as directed by the Engineer-in-Charge. Excavation made to depth more than the required depth shall be made good by the Contractor at his own expense with lean 1:5:10 cement concrete. No extra payment shall be made for extra depth excavated and filled by the Contractor. The Contractor shall familiarize himself with the site and the cost of any shoring/benching and dewatering shall be deemed to included in the cost of excavation and no extra payment shall be made.

3.2 Also refer relevant clauses of section 3 of MES SSR – 2009, Part-I Specifications.

**4. DISPOSAL OF SURPLUS SPOIL & RUBBISH ETC OBTAINED FROM DISMANTLING /DEMOLITION**

4.1 All the surplus spoil, each, rubbish etc obtained from excavation/dismantling/ demolition shall be disposed off to outside Ministry of Defence land at any distance at Contractor's cost otherwise specifically not mentioned in Sch 'A'. Serviceable material if any obtained shall be deposited to MES store yard of Engineer-in-Charge.

**4.2. HARD CORE**

4.2.1 Hard core shall be of hard burnt broken bricks / broken stone aggregate etc not exceeding 63mm gauge and shall be provided all as per specification laid down in para 3.27 of MES Sch part-I. Thickness of hard core shall be as directed and shall be measured after consolidation. Hard core shall be blended with finer material of hard burnt broken brick aggregate. It shall be well watered and consolidated by hand ramming. Where thickness of hard core is not indicated, it shall be of 100mm consolidated thickness.

**5. DEMOLITION/DISMANTLING/TAKING DOWN AND MAKING GOOD**

5.1 Dismantling/demolition/taking down to the extent as specified shall be carried out all as specified in section 21 of MES Schedule. Particular precaution shall be taken to prevent damage to the part of structures to be left intact and adjacent structure. If any damage caused to the structures due to carelessness and negligence on the part of the contractor shall be made good by the contractor at his own expense.

5.2 Rubbish shall be disposed off to a distance not exc 100 meter as directed by the Engineer-in-Charge.

5.3 All works in any trade dismantled/demolished/taking down in excess of the requirements given in contract due to mistake/carelessness of contractor or his workman or any case whatsoever shall be made good by the contractor to the original specifications at his own cost.

**6. CONCRETE WORK**

**6.1 CEMENT**

6.1.1 **GENERAL:** Cement required for the entire work under the concrete shall be procured, supplied and incorporated in the works by the contractor under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the drawings, MES Schedules, IS specification as amended and particular specifications given here-in-after.

6.1.2. Type of cement for the subject work shall Ordinary Portland cement of Grade 43 (Forty Three) in accordance with IS-8112 of 1989 or Portland Pozzolana Cement (IS: 1489-1991) as mentioned in notes of Structural drawings. Mixing of OPC & PPC shall not be allowed in the work.

6.1.2.1 Blank

6.1.3. While using the PPC, following requirement shall be met by the contractor:-

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

- (a) PPC shall meet the strength criteria of 43 Grade OPC as laid down in IS : 1489-1991.
- (b) The minimum period before striking formwork given in clause 11.3.1 of IS : 456 of 2000 shall be increased at site by 03 days. The contractor shall not claim anything extra on this account.
- (c) Wet curing shall be done for a period of 14 days, wet curing of columns shall be done through Hessians cloth wrapped on the columns.
- (d) The contractor shall submit the following certificates 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 has been used.
- (iv) The fly ash received from thermal power plant using high temperature combustion above 1000°C has only been used.
- (e) The compressive strength of cement at 03 days, 07 days and 28 days shall not be less than 23 Mpa, 33 Mpa and 43 Mpa respectively. Each lot of cement brought at site shall be tested for compliance by the GE before acceptance.
- (f) In cold climate regions, where temperature is lower than 15°C, OPC shall be used (However during working seasons in cold climate regions, where OPC is not available use of PPC may be permitted provided it shall be ensured that while using PPC, atmospheric temperature should be more than 15°C).
- (g) Mixing of OPC and PPC shall not be allowed in a work. However with the strict control of the ground executives, different buildings can have different types of cement.

**6.1.4. SOURCES OF PROCUREMENT**

- 6.1.4. (a) Cement shall be procured by the contractor directly from any of the following main producers of cement (for OPC & PPC) as given below :-

(i)	ACC	(vii)	Ramco	(xiii)	JK	All grades
(ii)	Ultra Tech	(viii)	Mangalam	(xiv)	JK Laxmi	
(iii)	The India Cement	(ix)	Birla	(xv)	Jaypee	
(iv)	Dalmia Infra Pro	(x)	Orient	(xvi)	Ambuja	
(v)	Century Cement	(xi)	Nuvoco			
(vi)	Saurashtra	(xii)	Shree			

(i)	Sartaj	(iv)	JSW OPC 43	(vii)	Wonder Cement	OPC 43
(ii)	Parasakti Cement	(v)	Sagar			
(iii)	Chettinad Cement	(vi)	Maha Cement			

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

(i)	JSW OPC 53	(iii)	Sanghi			OPC 53
(ii)	Sagar	(iv)	Wonder Cement			

(i)	Sartaj	(iv)	Sagar	(vii)	Wonder Cement	PPC
(ii)	Parasakti Cement	(v)	Sanghi			
(iii)	Chettinad Cement	(vi)	Maha Cement			

(b) However, where the quantity of cement required is less than 1200 bags, same may be procured from authorised distributors/dealers of approved manufacturer's, if so, permitted by GE in writing. Testing of cement shall in variably be got done before incorporation in work. The contractor shall submit test certificate for each batch of cement issued by the manufacturer.

(c) The contractor shall furnish the particulars of the manufacturer of cement along with the date of manufacture to the GE for every lot of cement separately. The cement so brought shall be fresh and in no case older than 90 days from the date of manufacture. The GE shall verify the document in support of the purchase of cement. Before placing order for supply of cement by the contractor, he shall obtain written approval from the GE regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirements of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of IS specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the GE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content of cement per bag shall be 50 Kg only subject to tolerance given in Clause 9.2.1.1 and Annexure 'B' of IS-8112 and Clause 10.2.1.1 and Annexure 'B' of IS – 1489 for OPC and PPC respectively.

#### 6.1.5. **TESTING OF CEMENT**

6.1.5. (a) The contractor shall submit the manufacturer's test certificate in original alongwith test sheets giving the results of each physical test as applicable in accordance with relevant IS provision and the chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer with each consignment, as per the following IS provision :-

- (i) Method of sampling hydraulic cement as per IS : 3535-1986.
- (ii) Method of physical test of hydraulic cement as per IS-4031.
- (iii) Method of chemical analysis of hydraulic cement as per IS-4032-1985.

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

(c) The contractor shall however, organize setting time and a compressive strength test of cement through designated laboratory on samples collected from the lot brought at site before incorporation in work. The contractor will be allowed to use the cement only after satisfactory compressive strength of seven days. To meet this requirement contractor is required to keep minimum 10 days stock before any new lot is brought at site, which can be used, in the work. The contractor shall be required to remove the cement not meeting the requirement from site within 24 hours. Seven days strength test will be relied upon to accept the lot of cement to commence the work. 28 days compressive strength test will be the final criteria to accept/reject the lot.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

(d) The random samples as per relevant IS shall be selected by GE before carrying out testing. The record of such samples selected by the GE for testing shall be properly maintained in the cement testing register giving cross reference to relevant consignment of cement and quantity received etc.

(e) Cost of transportation of samples to the approved laboratory/test house and all testing charges including cost of sample shall be borne by the contractor.

(f) The contractor shall be required to set up adequate testing facilities at site to the entire satisfaction of GE for conducting setting time test and compressive strength test as per IS codes referred to here-in-before for the samples collected from the lot brought at site. These tests shall be carried out within 07 days of receipt of cement at site. The tests can alternatively be carried out at the Zonal laboratory, or any other recognized laboratory so designated by GE.

(g) The GE shall carryout independent testing as per the tests mentioned in the 'CEMENT SUPPLY AND ACCEPTANCE REGISTER' (as per **Annexure 'I'**) of random samples of cement drawn from various lots, if sample fails in 7 days compressive strength. The testing shall be carried out through National Test House, SEMT, CME, Regional Research Laboratories, Govt. approved Laboratories, Zonal laboratories/ IIT's 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) referred to above. The decision as to where the testing of cement is to be done shall be taken by GE. In case the cement is not of requisite standard despite manufacturer's test certificate, the contractor shall remove the total consignment from the site at his own cost after written rejection order of the consignment by the GE. The cost of test shall be borne by the contractor irrespective of the results of testing.

(h) The contractor shall submit original purchase vouchers for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the GE alongwith the relevant documents to ensure the requirements as mentioned here-in-before, before acceptance, the original purchase vouchers and the test certificates shall be verified for subject contract and defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross reference to the consignment/ control number recorded in the 'Cement Acceptance Register'. The Cement Acceptance Register shall be signed by the JE (Civil), Engineer-in-Charge, GE and the contractor. The contractor shall maintain schedule of supply of cement for each consignment.

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

**6.1.6. STORAGE/ACCOUNTING/PRESERVATION OF CEMENT**

(a) Cement shall be stored in covered godown over dry platform at least 20 cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store room the stack should be at least 20 cm away from floors and 60 cm from walls. The stacking of cement shall be done as specified in relevant IS. The storage, accounting and preservation of cement supplied by the contractor shall be done as per standard Engineering practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/ amount quoted by the tenderer. The Engineer-in-Charge shall inspect once a day to verify that cement lying at site is stored, accounted, preserved and maintained as per the norms. The cement shall be stored so as to differentiate each tested and untested consignment separately with distinct identification. If the GE is not satisfied with the storage/preservation of cement, he may order for any test (s) of cement as applicable for that consignment to ensure its conformity to the quality mentioned in the manufacturer's test certificate. The contractor shall bear the cost of necessary testing (s) in this regard and no claim whatsoever shall be entertained.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

- (b) Stacking of cement shall be done as per relevant IS and as under :-
- (i) Each cement consignment shall be stacked separately and removal shall be made on the basis of First in First out.
  - (ii) Adequate top cover will be provided.
  - (iii) Stacks in no case shall be higher than 12 bags. The maximum width of each stack shall be 3.0 m. If the stack is more than 07 or 08 bags high, the bags shall be arranged in header and stretcher fashion, i.e. alternatively lengthwise and crosswise so as to pile together and avoid topping over.
  - (iv) Adequate space shall be kept between two stacks.
- (c) Cement godown shall be provided with two locks on each door. The key of one lock at each door shall remain with Engineer-in-Charge or his representative and that of the other lock with the contractor's authorized agent at site of works so that cement is removed from the godown only according to daily requirement with the knowledge of both the parties. During the period of storage, if any cement bag (s) is found to be in damaged condition due to whatsoever reason, the same shall be removed from the cement godown on written orders of the GE and suitable replacement for the cement bag (s) so removed shall be made and no claim whatsoever shall be admissible on this account.
- (d) In case more than one type of cement is used in the work i.e. Ordinary Portland cement or Portland Pozzolona Cement, both type of cement shall be stored separately as directed by the Engineer-in-Charge to avoid mixing of these type of cement. Separate record shall be maintained including the location/ items where this type of cement is used.
- (e) Cement shall be removed from the store only according to daily requirement with the knowledge of both the parties and the Engineer-in-Charge and the contractor shall record daily consumption of cement in cement consumption register, which shall be signed. Cement constants given in Appendix 'A' to E-in-C's branch letter No. 19280/E8 dated 03 May 1976 shall form the basis of consumption of cement for various items of works unless specifically indicated otherwise.
- (f) In case the consumption of cement as per cement consumption register is found to be more than the estimated quantity of cement due to whatsoever reason, the contractor shall not have any claim whatsoever for such excess consumption of cement.

**6.1.7. SCHEDULE OF SUPPLY**

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

**6.1.8. MEASUREMENTS AND PAYMENT OF CEMENT**

- 6.1.8. (a) The entire quantity of cement 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.
- (b) The payment shall only be allowed after production of original purchase voucher, certified copies of test certificates from manufacturer for each consignment and results of testing carried out in laboratory on receipt of cement (07 days compressive test) are found

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

satisfactory as per condition 64 of IAFW-2249. Rate of payment given in SSR shall be applicable for cement irrespective of type and grade of cement specified for use in the work.

**Annexure 'I'**

**CEMENT SUPPLY AND ACCEPTANCE REGISTER**

01. CA No. & Name of work :
02. Control No.\* :
03. Name of Manufacturer/Brand Name/Grade of Cement :-
  - (a) Manufacturer :
  - (b) Brand :
  - (c) Grade :
04. Qty of cement & Lot No./Week No. (in Bags) :-
  - (a) Quantity :
  - (b) Lot No./Week No. :
05. Manufacturer's test Certificates No. :
06. Random Test Details :-
  - (a) Physical test report from \_\_\_\_\_ vide their letter No. \_\_\_\_\_  
(Name of approved Lab/Engineering College)
  - (b) Chemical test report from \_\_\_\_\_ vide their letter No. \_\_\_\_\_  
(Name of approved Lab/Engineering College)
07. **Details of Physical & Chemical properties :-**

	Physical Requirements (as per IS-4031)							Chemical Requirements (As per IS-4032)									
	Specific (Sqm/Kg)	Surface Area	Soundness by Le Chatelier	Soundness by Auto Clave	Initial Setting Time (Minutes)	Final Setting Time (Minutes)	Compressive Strengths (Mpa)	Temp during testing °C	Standard Consistency (%)	Lime Saturation Factor (Ratio)	Alumina Iron Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride (%)	Loss on Ignition (%)	Alkalies (%)	Chlorides (%)
As per relevant IS							03 Days	07 Days	28 Days								
As per manufacturer's test certificate																	
As per random test certificate																	

Remarks with Signature

**Contractor**

**Junior Engineer**

**Engineer-in-Charge**

**Accepted / Rejected**

**Garrison Engineer**

Remarks of BOO / Inspecting Officer / CWE

\* To be allotted serially by GE consignment wise

- 6.2. **Fine Aggregate.** Fine aggregate for concrete work shall conform to material specifications and gradings within the limits of Grading Zones II to III all as specified in clause 4.4 of MES Schedule 2009 Part-I.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

6.3. **Coarse Aggregate**. Refer Clause 4.4 of MES Schedule Part I. Coarse aggregate for all plain cement concrete shall be graded crushed stone at contractor's options. For all RCC work, the coarse aggregate shall be graded crushed stone.

6.3.1. **Grading of Coarse Aggregate**. Graded Aggregate of nominal sizes given herein under shall be used, unless specified otherwise hereinafter : -

(a) **Plain or reinforced cement concrete except in foundation of Brick or stone Walls/Pillars, Floors and Sub base to Floors.**

(i) For structural elements of depth/thickness more than 50 mm - 20 mm.

(ii) For structural elements of depth/thickness less than 50 mm - 12.5 mm.

(b) **Plain Cement concrete in Foundation of Brick/stone Walls, Pillars, Floors and Sub Base to Floors.**

(i) Under 30 mm thickness : 12.5 mm

(ii) 30 to 80 mm thickness : 20 mm

(iii) Exceeding 80 mm thickness : 40 mm

6.4. **Water**. Water shall conform to the requirement stipulated in IS 456 and as per clause 4.9 of MES Schedule Part I.

6.5. **Mix of Concrete**. Mix of cement concrete in various situations shall be as under : -

Srl No	Situation	Mix of Concrete
	<b><u>Type of concrete</u></b>	
(a)	Foundation concrete for all buildings, under brick and lean concrete under plinth/beam and steps, in gaps between plinth/Column under footing, sunken portion filling, foundation for ramps/steps.	: PCC (1:5:10) type E-2 (By volume)
(b)	Foundation concrete under column footing	: PCC (1:4:8) type D-2 (By volume)
(c)	PCC in plinth protection, drain and channel, PCC cills and PCC block for hold fasts, back of pressed steel frames and plugging for scaffolding holes.	: PCC (1:3:6) type C-1 (By volume)
(d)	All RCC work except water retaining structure	: Grade M 25 (Design mix as per IS 456-2000)
(e)	PCC in bed plate, benching, coping, DPC and pre-cast articles and plain cement concrete not mentioned above.	: PCC (1:2:4) type B-1 (by volume)
(f)	All RCC work for water retaining structure	Grade M-30 (Design) mix as per IS 456-2000

6.6 BLANK

**6.7 FORM WORK**

6.7.1 Form work shall comply with requirements of clause 4.11.6, 4.11.6.1 to 4.11.6.5 and 7.15 of MES Schedule part-I.

6.7.2 Form work shall be of steel or plywood of adequate strength at the option of the Contractor. However deformed steel sheet shall not be permitted for use as form work. In case of any deviation involving form work to surfaces exposed to view the pricing shall be done at the rates of timber form work for fair finish.

**6.7 FINISHING TO EXPOSED SURFACE OF CONCRETE**

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

Refer to clause 4.11.16.1 4.11.16.2(a) to (e) and 4.11.16.3 of MES Schedule Part-I. If thickness of plaster in cement mortar (1:3) as specified in clause 4.11.16.2(b) of MES Schedule Part-I, is required to be increased in excess of 5mm to achieve fair and even surface it shall be provided by the Contractor without any price adjustment.

6.8 **PRECAST CONCRETE ARTICLES.** Cement concrete lintels with or without integrally cast chajjas up to 1.5 m clear span, shelves, bed blocks/plates, covers slabs, fencing posts, fins and Jali and the like may either be pre-cast or cast-in-situ at the contractor's option, unless otherwise shown on drawings. If pre-cast, these shall be set in cement mortar (1:4). In case of deviation involving these items, pricing shall be done on the basis of cast-in-situ work. In case of continuous lintels even spanning less than 1.5 m shall be considered as if it is exceeding 1.5 m for the purpose of deviation orders.

**7 BRICK WORK**

**7.1 MATERIALS:-**

7.1.1 **Cement:** - Refer Para 4.3 of SSR Part –I.

7.1.2 **Sand for masonry mortar:-** Refer Para 5.4 of SSR Part I. It shall be natural conforming to IS-2116. Sea sand shall not be used in any case.

7.1.3 **Common Burnt clay building Bricks:-** Refer Para 5.6 of SSR Part I. The compressive strength of bricks shall be not less than 100 Kg/Sq cm for class A and 75 Kg/Sq cm for Class B. The rates given in SSR shall be deemed for the same. These shall be well burnt old size bricks. The nominal size of bricks shall be 230x113x75 mm. The tolerance shall be not more than +/- 8%. Water absorption shall not exceed 20 %.

7.1.4 **Bituminous Bonding Materials:-** Refer Para 5.16 of SSR Part-I. Blown bitumen shall be conforming to IS-712.

7.1.5 **Bitumen Primer:** - Refer Para 5.17 of SSR Part I. It shall be conforming to IS-3384.

7.2. **WORKMANSHIP** :-Refer Para 5.19 to 5.56 of SSR part I.

7.2.1 **Proportioning:** - Refer Para 5.19.1 of SSR Part I.

7.2.2 **Preparation of cement Mortar:-**Refer Para 5.19.2 of SSR Part I. unless specified otherwise cement mortar shall be of mixes not leaner than 1:6. Mixing shall be done in mechanical mixer.

7.2.3 **Laying of bricks:-** Refer Para 5.23 of SSR Part I. Top courses of all plinths, Parapets, steps and top of walls below roof/ floor slab shall be laid with brick on edge. Bearing of floors, roofs etc.: - Refer Para 5.34.14. Of SSR Part I. Tops of walls bearing, the edges of RCC floors, roof slabs, beams or lintels shall be finished with 15 mm thick rendering of cement and sand mortar 1:4 mix.

7.2.4 **Half brick thick walls:-** Refer Para 5.37 of SSR part I. Mix of mortar for half brick thick walls shall be 1:4 and shall be reinforced with 2 No 8 mm dia. Deformed bars at every 4<sup>th</sup> course , securely embedded in adjoining structure.

7.2.5 In the event of deviations, brick work as specified above, shall be priced at the applicable rates in MES schedule (Part-II) for M&L with sub class 'B' bricks, subject to concrete percentage, as applicable irrespective of strength of bricks specified.

7.2.6 Width of concrete lintels beams cills columns and the like coming in contact/connection with brick walls / pillars shall be kept to the actual width of brick work of that places unless of sets have been specifically shown, in which case, the width as shown on drawings shall be maintained.

7.2.7 : **FLY ASH BRICKS** : Fly ash bricks shall be of Class A and designation 7.5. The specification approved manufactures or can be produced at work site with prior approval of accepting officer. The old size bricks shall be used. Fly ash bricks shall be conforming to IS 12894 – 2002 with technical specifications as under :-

7.2.8 **Compressive Strength.** The minimum average wet compressive strength of any individual brick shall not fall below the minimum average wet compressive strength specified for the corresponding class of bricks by more than 20 percent as mentioned in table 1 in IS 12894 when tested as described in IS 3495 (Part I).

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

7.2.9 **Drying Shrinkage.** The average drying shrinkage of the bricks when tested by the method described in IS-4139, being the average of three units, shall not exceed 0.15 percent.

7.2.10 **Efflorescence Test.** The bricks when tested in accordance with the procedure laid down in IS 3495 (Part 3) shall have the rating of efflorescence not more than 'moderate' upto class 12.5 and slight for higher classes.

7.2.11 **Water absorption.** The bricks when tested in accordance with the procedure laid down in IS 3495 (Part 2) after immersion in cold water for 24 hour, shall have average water absorption not more than 20 percent by mass upto class 12.5 and 15 percent by mass for higher classes.

7.2.12 **Cement.** Refer Annexure I to Appendix 'B' to Particular specifications (List of manufacturers).

7.2.13 Fly ash bricks shall be procured from the following Make/Sources.

- (a) M/s Aditi Infra works/resources Bareilly.
- (b) Power bricks corporation, Ghaziabad.
- (c) Any other make approved by Accepting Officer.

**7.2.14 SAND FOR MASONRY MORTAR :-** Refer Para 5.4 of SSR Part I. It shall be natural conforming to IS-2116. Sea sand shall not be used in any case.

7.2.15. **TESTING OF BRICKS** :- The contractor shall make all arrangements for testing of bricks as per IS and shall bear all costs including transportation of bricks to Govt approved Lab and get it tested in the presence of his representative and the EIC. The results shall be recorded by the EIC and signed by both the parties.

8. **RANDOM RUBBLE MASONRY :-**

8.1 **DIMENSIONS OF STONE :-** Stone for random rubble masonry shall be not less than 15cm in any directions and all as described in clause 6.2, 6.2.4 of SSR Part-I.

**8.1.1 PRECAST PCC SOLID BLOCK WALLING**

(a) PCC solid blocks shall conform to IS-2185.

(b) **Type of mix**

The precast PCC solid blocks shall be of PCC (1:3:6), Type C-1 using 20 mm graded crushed stone aggregate for height of blocks less than 150 mm and PCC (1:3:6) Type C-2 using 40 mm graded crushed stone aggregate for height of blocks more than 150 mm. The concrete shall be mixed as laid down in IS-456. The solid concrete block shall be of grade D-5 as per IS-2185 (Part-I)- 1975-Reaffirmed-1998.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

(c) Size:- The size of blocks shall be one of the followings:-

Size Designation	Nominal size in cm			Actual size in cm		
	Length	Breadth	Height	Length	Breadth	Height
A	40	30	20	39	30	19
B	40	20	20	39	20	19
C	40	10	20	39	10	19
D	20	20	20			
E	20	20	10			

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

(d) **Material (Aggregate)**

(i) **Coarse aggregate** ; This shall be crushed or natural aggregate 20 mm and down size of approved quality and shall conform to IS-383.

(ii) **Fine aggregate (Sand)**: This shall be free from dust and well graded having fineness modulus 3.6 and 4 of combined aggregate conforming to IS-383.

(e) **Manufacturing of Blocks.**

(i) The blocks shall be machine made. The mixing of concrete, the manufacturing of block, curing and drying shall be in accordance with para 6 to 10 under IS-2185.

(ii) Faces of the blocks shall be flat and rectangular.

(iii) Mixing: Concrete shall be mixed in mechanical mixer. Mixing shall be continued until there is a uniform distribution of materials and the mix is uniform in colour and consistency.

(iv) **Placing and compaction**

(aa) In case of mechanical compaction, the mould shall be filled up to overflow, vibrated or mechanically tamped and struck off level.

(ab) After demoulding, the block shall be protected until they are sufficiently hardened to permit handling.

(v) **Curing**: The block hardened as mentioned herein before shall then be cured in a curing water tank or in curing yard and shall be kept continuously moist for at least 14 days. Where the blocks are cured in an immersion tank, the water of the tank shall be changed at least every 4 days.

**Note:** Curing yard is a paved yard sub-divided by shallow drain 4 to 5 meter square platform, which are provided with water fountains in the center. The blocks are stacked on the platform around the fountains that work continuously. The fountains are connected to an elevated water storage tank.

(vi) **Drying:-** After curing , the blocks shall be dried for a period of 4 weeks before being used in the work. They shall be stacked with voids horizontal to facilitate thorough passage for air. The dimensioned stability of concrete block is greatly affected by variation in their moisture content. Since the shrinkage of the block is much greater at the time it dries for the first time than due to subsequent wetting and redrying, it is necessary to ensure that the blocks are dried so that initial shrinkage is completed before they are delivered to use. Further, their moisture content should not exceed 25% of their maximum water absorption capacity. If the blocks are to be used in the situation where the relative humidity of air average more than 60% the blocks can be dried to a moisture content of 40% of their maximum water absorption capacity.

(f) **Physical Requirement.**

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

- (i) **General:** All blocks shall be sound and free from cracks or any other defects which interfere with proper placing of the blocks or impair the strength or performance of the construction. Minor chipping resulting from the customary methods of handling during delivery shall not be deemed ground for rejection.
- (ii) **Tolerances:** The maximum variation in the dimension of the units shall not be more than  $\pm 5$  mm for length and maximum variation in height and width of units not more than  $\pm 3$  mm.
- (iii) **Block density:** The block density shall be as per para 4 of IS-2185. For solid PCC block, it shall not be less than 1800 Kg/M<sup>3</sup>.
- (iv) **Compressive strength:** The average compressive strength of eight blocks when determined in the manner described in IS-2185 shall not be less than 50 Kg/Sqcm of gross area. The strength of lowest individual blocks shall be not less than 80% of the average compressive strength of eight blocks.
- (v) **Water Absorption:** The water absorption shall be as per IS-2185.
- (vi) Drying, shrinkage and moisture movement shall be as per IS-2185.
- (g) **TESTS:-** Tests as described in appendices 'A' to 'F' of IS-2185 shall be conducted on samples of blocks selected according to the sampling procedure given in para 1 (c) of IS-2185 to ensure conformity with the physical requirement laid down in para 8 of IS-2185. Cost of testing such as transportation, casting of block, testing fees and other expenses shall be borne by the contractor.

The tests listed in Appx 'A' to IS-2185 shall be conducted from the laboratory as approved by GE.

## **9 WOODWORKS AND JOINERY**

### **9.1 MATERIALS**

9.1.1 Type of timber shall be all as described in Sch 'A'/as directed and as specified in section 7 of MES Schedule 1991 (Part-I). and other material viz ply wood, block board, veneere particle board, nails & screw, glue etc shall be as per para 8.6 to 8.10 on page 8-1 of MES Schedule 1991 (Part-I).

9.1.2 Unless otherwise specified else wherein Sch 'A' or specification, timber shall be second class hard wood (SAL) for chowkhat doors, windows and ventilators while timber for shutter of doors, windows and ventilators shall be of 2nd class hard wood (Except Mango) as ordered by the Engineer-in-Charge/ mentioned in Sch 'A' or specifications. However the Contractor may use 1st class hard wood shisham for shutters at his own without any price adjustment after written approval from GE.

### **9.2 WORKMANSHIP**

9.2.1 Surface of wood and joinery in contact with or embedded in concrete work shall be clean sawn. All other surfaces of joinery and wood work shall be wrought on all faces.

9.2.1 Surface of wood and joinery in contact with or embedded in concrete work shall be clean sawn. All other surfaces of joinery and wood work shall be wrought on all faces.

9.2.2 Use of nails in joinery is prohibited. Bamboo/hard wood pins or appropriate size shall be used.

9.2.3 Tolerance for wrought faces of carpenter's work and joinery shall be allowed as indicated in the MES Schedule with this exception of the following for which no tolerance shall be allowed :-

(a) Thickness of planks and panels in paneled joinery.

(b) Overall sizes of doors.

9.2.4 Bolt head of hold fasts shall be stopped with tight fitted wooden plugs finished flush with surrounding surfaces.

9.2.5 Exposed edges of timber frames, styles, bars, boards and the like head not be rounded but these shall be neatly finished.

9.2.6 The joints in timber frames shall be either mortice and tenon or devetos joints at contractor's option.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**9.3 PRESERVATION OF TIMBER**

9.3.1 Preservation anti termite treatment shall be carried out to all wood work and joinery fabricated by the Contractor at site. Factory made ply boards and factory made wooden shutters are deemed to be provided with anti termite treatment.

9.3.2 Chemical used for anti termite treatment to wood work and joinery shall be copper NAPTHANATE, ASCU or any other chemical specified in IS 401, applied in any one of the manners specified in ibid IS.

**9.4. PANELLED/GLAZED / GAUGED/FLUSH SHUTTERS**

9.4.1 Unless otherwise mentioned in Sch 'A' shutters shall be made locally and fixed in locations shown on drawings/ or as directed by Engineer-in-Charge. Shutters shall be as specified in para 8.21 on page 160 & 161 of MES Schedule 2009 (Part-I). The size of rails and stiles shall be as specified in para 8.24 on page 161 of MES Sch 2009 (Part-I). The moisture contents of wood for any type of shutters to be provided under the contract shall not be more than 12%.

9.4.2 Unless described otherwise in Sch 'A' glazed shutters for windows and ventilators shall be manufactured locally as specified in MES Schedule 2009. (Part-I)

**9.5. SOLID PVC JOINERY**

9.5.1 Solid PVC joinery work shall be carried out as described in Sch 'A' and as specified in clause 8.34 to 8.34.7 of SSR Part-I on page 165 to 170

**9.6. ANODISED ALUMINIUM DOOR WINDOW ETC**

9.6.1 Refer Para 10.37 of SSR Part I. The shape and size of Aluminium sections shall be as directed / shown in drawings. The overall sizes of doors/ windows/ ventilators/ fixed glazing etc. shall be as directed/ shown in drawings.

9.6.2 Glazing clips, rubber packing, aluminium snap beadings, screws etc. shall be provided to all doors/windows/ventilators, fixed glazing etc. as required. However, where Aluminium section are specified to be powder coated, these shall be epoxy powder coated wet thickness not less than 70 micron.

**9.6 Workmanship:-Generally:-**

9.6.1 Refer clause 10.9, 10.10 to 10.16 of SSR Part I. Straightening of steel by hammer blows is not permitted. Unless otherwise indicated, welding shall be done by metal arc process. The type of welding shall be as indicated in Schedule "A"/ shown in drawings, failing which it shall be as directed by EIC.

**9.6.2 Fixing/Placing of reinforcement:-**

**9.6.2.1** Refer Clause /Para 10.18, 10.19, 10.20 and 10.22 of SSR Part I.

**9.6.2.3 Fixing of windows etc.-**Refer relevant clause of SSR Part I. These shall be fixed in the manner as directed/ shown in drawings/ specified elsewhere.

**9.7 STEEL DOOR WINDOW AND VENTILATOR**

9.7.1 Steel door window and ventilator shall comply with IS 1038 – 1983. for fabrication fixing etc refer clause No 10.25.1 to 10.25.12 of SSR Part-I on Page No 209 to 2011.

**9.8. PARTICLE/MDF BOARDS/PRELAMINATED PARTICLE BOARDS.**

9.8.1. Particle boards shall be flat pressed three layers or multi layers or graded veneered particle board bonded with BWP grade synthetic resin adhesive and shall conform to exterior grade of IS-3097. Medium density fiber (MDF) boards where indicated on drawings shall be of flat pressed single layer of exterior grade conforming to IS 13806. Veneered particle/MDF Board used on exposed surfaces of built-in furniture shall be of decorative type provided with laminated decorative surfaces and shall conform to IS 12823. Prelaminated particle board shall be BWP type, exterior grade, phenol formaldehyde bonded, flat pressed, 3 layered, pre-laminated melamine faced, grade I quality having desired decorative shade on one face and balancing white lamination on other face or both faces with desired decorative shade as shown on drawings and shall be ISI marked with IS-3087 (1985) or IS-12823 (1990) having bond strength not less than 12 Kg/Cm. Sq.

9.8.2. Shutters, shelves and partitions of built-in furniture, where indicated on drawings of particle/MDF boards, shall be of decorative type boards laminated on both side all as specified here-in-before.

9.8.3. Edges of shutters/partitions/shelves/tops pelmet boxes and the like where indicated on drawing to be of particle/MDF boards, shall be provided with 6 mm thick edging of wood specified hereinbefore.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

9.8.4. Ply Wood. All ply woods where indicated on drawings shall be BWR grade conforming to IS-303. Decorative plywood where indicated in drawing shall conform to IS-1328. The thickness of plywood wherever not indicated in drgs shall be 6 mm.

9.8.5. Decorative laminates. Decorative laminates where indicated on drawings shall be 1 mm thick plastic laminated sheet type I as specified in clause 12.7 of MES Schedule. The laminates shall be fixed to base with approved adhesive as per manufacturer's instructions.

**10. BUILDERS HARDWARE:-**

**10.1 MATERIALS:**

10.1.1 Refer Para 9.2 of SSR Part I. Articles of builders hardware, unless specified otherwise in Schedule "A"/ particulars specifications herein after shall be of aluminium anodized of required size as directed by EIC. Mild steel articles may be stove enameled.

10.1.2 Unless specifically mentioned otherwise, all builder hardware shall be ISI marked and shall be an approved product of Bureau of Indian standard.

10.1.3 Tower Bolts: - Refer Para 9.3 of SSR Part I. Tower bolts up to 125 mm size shall have 10 mm dia. Bolt and 150 mm and above shall have 12 mm dia. Bolt.

10.1.4 Sliding door bolts:-Refer Para 9.5 of SSR Part I.The rates given in SSR Part II for mild steel sliding door bolts shall be deemed for the same and no price adjustment shall be made on this account.

10.1.5 Hinges:-Refer Para 9.7 of SSR Part I. Irrespective of whatever is specified elsewhere Mild steel butt hinges shall be Medium weight.

10.1.6 Double Acting door springs: - Refer Para 9.7.8 of SSR Part I. These shall be conforming to relevant IS.

10.1.7 Hasp and staples:-Refer Para 9.10 of SSR Part I. These shall be conforming to relevant IS. Irrespective of what ever is specified, hasp and staple shall be of safety type

10.1.8 Handles:-Refer Para 9.11 of SSR Part I. These shall be conforming to relevant IS.

10.1.9 Door closers ( Hydraulically Regulated ) :- Refer Para 9.16 of SSR Part I.These shall be ISI marked an approved product of BIS and shall have ISI certification Mark- ISI-3564. It shall be of designation 2 or 3 as required. It shall be of Aluminium anodized body. It shall be universal type.

10.1.10 Floor door stoppers :-Refer Para 9.15 of SSR Part I.

**11.0 CORRUGATED AND SEMI-CORRUGATED ASBESTOS CEMENT SHEETS: -**

11.1 AC sheets shall comply with IS 459-1992; Specification for unreinforced corrugated and semicorrugated asbestos cement sheet and shall not be pigmented . AC sheets shall have a rectangular shape, smooth surface on the exposed side, a good appearance and shall be free from visible defects. The corrugations shall be true and regular. The edges of the sheets shall be straight and clean. Ridge covering and other AC accessories shall be of the same quality as of the sheets

**12. GALVALUME STEEL SHEET**

**12.1 PROFILED BARE GALVALUME (ER-32-251) STEEL SHEETS**

0.47/.55/.60mm (TCT), high strength (550 MPA yield stress minimum) anti-corrosive Bare Galvalume steel sheets coated with alloy of 55% aluminium, 43.5% zinc and 1.5% silicon of 150 grams per sq. meter mass of coating (As per ASTM792) shall be used. The profiled sheets shall have overall width of 1090mm and laid width of 1006m, with five crests of 32mm spaced at 251mm centers and with two stiffening ribs of 20mm in the gap of 44mm in each valley of the sheet with anti capillary flute at end lap full return leg at end lap.

**12.2 COLOR COATED PROFILED GALVALUME (ER-32-251) STEEL SHEETS**

0.45 (TCT), high strength (550 MPA yield stress minimum) anti-corrosive Galvalume steel sheets coated with alloy of 55% aluminium, 43.5% zinc and 1.5% silicon and finished with resin coat on both surfaces to 150 grams per sq. meter mass of coating (total both side as per Australian standard 1397 & ASTM-A792) shall be used. The sheets will have the coating of 20 micron of Regular modified polyester coating system over the primer of 5 micron on top side of sheet & coat of 5-7 micron of paint over primer on rear side of the sheets. The profiled sheets with anti capillary flute at end lap full return leg at end lap manufactured by Everest Industries Ltd. Ridge / Flashing / Gutter providing and fixing of formed ridges, gutters, flashings, etc. Also available in size of 8 ft, 10ft, 12 ft and 14 ft respectively.

**12.3 COLOR COATED PROFILED GALVALUME (ER-32-251) STEEL SHEETS**

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

0.50/0.55/0.60mm (TCT), high strength (550 MPA yield stress minimum) anti-corrosive Galvalume steel sheets coated with alloy of 55% aluminum, 43.5% zinc and 1.5% silicon and finished with resin coat of both surfaces to 150 grams per sq. meter mass of coating (total both side as per Australian standard 1397 & ASTM – A792) shall be used. The sheets will have the coating of 20 micron of Regular modified polyester coating system over the primer of 5 micron on top side of sheet & coat of 5-7 micron or paint over primer on rear side of the sheets. The profiled sheets shall have overall width of 1090 mm and laid width of 1006mm, with five crests of 32mm spaced at 251 mm centers and with two stiffening ribs of 20mm in the gap of 44mm in each valley of the sheet with anti capillary flute at end lap full return leg at end lap Ridge / Flashing / Gutter Providing and fixing of formed ridges, gutters, flashings, etc.

**12.4 COLOR COATED PROFILED GALVALUME (ER-32-251) STEEL (IPPGI) SHEETS**

0.50/0.55/0.60mm (TCT), formed out of CR steel as per IS-513 having the galvanization of 120 GSM (Total on both side) as per IS-277, The sheets will have the coating on top side with 5-7 micron primer and min 20-22 micron of Regular Modified Polyester (RMP) and on rear side of the sheet 5-7 micron Primer and 5-7 micron Polyester Paint, having overall width of 1090mm and laid width of 1006mm, with five crests of 32mm spaced at 251 mm centers and with two stiffening ribs of 20mm in the gap of 44mm in each valley of the sheet, with anti capillary flute at end lap full return leg at end lap. Ridge / Flashing / Gutter Providing and fixing of formed ridges, gutters, flashings, etc.

.11.5 Fasteners for steel sheet, Al sheets and AC sheets:- L-types and J-type hook bolts and nuts, mushroom head roofing bolts and nuts, and bituminous felt and steel washers shall conform to IS 730-1978. Specification for Hook-bolts for corrugated sheet roofing. Steel bolts, nuts and washers shall be galvanised. However washers for aluminium sheet shall be of plain aluminium sheet of same quality as that of corrugated sheet.I.

**13 CEILING AND LINING:-**

**13.1 MATERIALS:-**

13.1.1 White, pre-premiered, self embossed, Reinforced Designer Board:- These shall be conforming to IS-14862 and ISO-8336:1993(E). Unless mentioned otherwise in Schedule 'A', these shall be 4 mm thick of size 605x605 mm size.

13.1.2 Frame work for White, pre-premiered, self embossed, Reinforced Designer Board:- Unless specified otherwise in Schedule 'A', the size of Aluminum frame work shall be 610mmx610mm. T-Section shall be 35mmx24mmx1.5mm, cross T-section 24x24x1.5mm, Wall angle 24mmx24mmx1.5mm. Galvanized mild steel hanger with adjustable screws shall be of 6 mm dia.

13.1.3 Nails and screws:- Refer Para 12.17 of SSR Part I. Nails shall be conforming to IS 723 and screws shall be conforming to IS 451.

**13.2 WORKMANSHIP:-**

13.2.1 Fixing of False ceiling Frame work and White, pre-premiered, self embossed, Reinforced Designer Board:- Perimeter 'L' section along the wall with suitable expansion fasteners, T section from ceiling with galvanized 6 mm dia bar hangers duly fitted with nuts. Hangers shall be threaded at one end at least 30 mm. These shall be fixed to ceiling at 1220 mm c/c both ways. Main 'T' Section at 1220 mm C/C, Cross 'T' at 610 mm c/c fixed with main 'T' (runners) using brackets and rivets, and 610 mm long Cross 'T' to form a frame work of 610x610mm shall be fixed at the desired height of false ceiling. White pre-premiered, self embossed, and Reinforced Designer Board cut to size as per grid requirement shall be placed inside the frame work. Bottom of false ceiling shall be leveled with spirit level.

**14 . WATER PROOFING COMPOUND**

Water proofing compound shall conform to IS-2645. Specifications for integral water proofing compound. The quantity of water proofing compound shall be as recommended by the manufacturer. However, in the event of deviations the quantity of water proofing compound shall be considered 3% by weight of cement.

**15 . WATER PROOFING TREATMENT TO RCC ROOFS**

15.1.1 Primer for Roof treatment: - It shall be polymeric bitumen primer of brand/ make as approved by EIC/GE.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

15.1.2 Polymerized modified bitumen:-It shall be polymerized bitumen modified of brand/ make as approved by EIC/GE.

15.2 **Polymeric water proofing membrane**: -

15.2.1 Standard Membrane: - It shall be of grade of 3 mm, 3Kg/Sqm. The membrane shall meet the following characteristics and specifications:-

SI No.	Characteristics	
01	Softening point not less than	150 <sup>0</sup> Centigrade
02	Penetration at 25 <sup>0</sup> Centigrade, 100g , 5 sec, d mm	20-35
03	Pliability	2 <sup>0</sup> Centigrade to 5 <sup>0</sup> C Does not Break
04	Heat Resistance	Does not drip at 125 <sup>0</sup> C
05	Tensile strength Lengthwise, N/5 cm Crosswise, N/5 cm	> 115 > 105
06	Elongation Lengthwise,%Crosswise, %	> 300 > 300
07	Tear Strength Lengthwise, N Crosswise, N	> 20 N > 25 N
08	Reinforcement	HMHDPE Film
09	Thickness of Center core	100 micron +/- 10 Micron

15.3 **WORKMANSHIP**:-

15.3.1 Roofing Generally:-RCC roof slab shall be laid 1:20 slope, unless specified otherwise.

15.3.2 Water Proofing Treatment to RCC Roof: -

15.3.3 Hyperplas Water Proofing Treatment to RCC Roof - Refer clause No 11.43 and 11.44 of SSR Part I (2009) and as described in succeeding paras :-

15.3.4 Preparation of top of concrete surfaces:- Surfaces of RCC roof slab shall be wire brushed cleaned of all dirt, dust & foreign materials.

15.3.5 **APPLICATION OF RENDERING COAT** :-After surfaces are thoroughly cleaned and dried , surfaces of RCC roof /concrete shall be applied with one coat of 15 mm thick rendering in cement and sand mortar 1:3 mixed with water proofing compound ( Integral) and top surfaces finished even and smooth without using extra cement.

15.3.5.1 Application of primer and tack coat :- This shall be followed by one coat of hyper plus primer @ 0.30 Kg/sqm and a tack coat of hot blown bitumen 85/25 @ 1.20 Kg/sqm.

15.3.5.2 Laying of polymeric membrane shall be done as per manufacturers instructions and laying procedure as under:-The membrane shall normally be laid in length at right angle to direction of the runoff gradient, commencing at the lowest level and working up to the crest. The membrane shall be first cut to required lengths, brushed cleaned of dusting materials and laid out flat on the roof. Each length of membrane prepared for laying shall be laid in position and rolled up for a distance of half of its length. The hot binding material shall be laid on the roof across the full width of the rolled membrane as the later is steadily rolled out and pressed. The excess bonding squeezed out in the ends shall be removed as laying proceeds. When the first half of the membrane has been bonded to the roof, the other half shall be rolled up and then unrolled on to the hot bonding material in the same way as per Para above. The minimum overlaps of 100 mm shall be given at the ends and sides of strips polymeric membrane. All the overlaps shall be firmly bonded by heating and fusing the layer of asphalt and melting the protective plastic film, but taking care not to overheat this, as too much heat can harm the central polyethylene film/core, which essential for water proofing function. Keep the overlap open with the help of trowel and the direct the flame uniformly inside an towards both membrane. Working the flame in opposite direction to the advance of the applicator. When the asphalt starts to flow, the applicator should press both membranes with his foot, on the opposite side to the hand holding the torch, until a thin string of fluid asphalt appears, indicating correct fusing and bonding. During these phases, the trowel should be worked with a back and forth, lengthwise motion, to homogenize the bonded area. Rest procedure may follow as per manufacturer's instructions.

15.3.5.3 Laying topping:- Roof treatment shall be carried out under strict supervision of the EIC. To ensure that the treatment is leak proof, it shall be tested by ponding just after completion of the curing period of each building. Mud mortar fillets bunds shall be made longitudinally one meter apart over

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

entire roof to form ponds of suitable size as directed by EIC. These ponds shall be filled with potable water so that an average 50 mm (Min 25 mm and Max 75 mm) height of water is maintained during the test period. Test shall be carried out for 72 Hours. The contractor shall rectify any seepage noticed by making good the defective portion to the entire satisfaction of EIC/GE. Mud mortar fillets bunds shall be removed and surface made clean and tidy after completion of satisfactory testing. Satisfactory completion of test shall not absolve the contractor from his responsibility of rectification of defects, which may arise during defects liability period.

**15.4 SECURITY DEPOSIT TOWARDS WATER PROOFING TREATMENT TO ROOF**

(a) 1 The Contractor shall furnish guarantee in favour of GE for effectiveness of WPT during the guarantee period. The guarantee period shall be 10(Ten) years from the certified date of completion of the work as per contract. Any leakage/Seepage in the roof noticed during this period shall be carried out by the Contractor forthwith on demand in writing from the GE specifying the roof of building (s) effected. Notwithstanding that the water proofing treatment to the roof might have been inadvertently passed, certified & paid for, the Contractor shall carry out the rectification of the leakage, if any in roof at his own expense during the guarantee period to be specified by the GE in this demand aforesaid. The GE shall undertake such rectification work at the risk & cost of the Contractor in case of default on rectification by him.

(b) The amount calculated as per table given below shall be retained from the contractor's final bill amount as security deposit towards effectiveness of the water proofing treatment and the same shall be released after satisfactory completion of guarantee period by the GE provided there are no leakage/seepage in the buildings & the Contractor first have been paid final bill & have rendered a "No demand certificate" (IAFW-451) Conditions 16, 46 & 68 of IAFW -2249 (General Conditions of Contract) shall be deemed to be amended to the extent mentioned above. The contractor may alternatively submit fixed deposit receipt for the said sum from Scheduled Bank in lieu of the sum to be retained out of the final bill :-

<b>S. No.</b>	<b>Amount of water proofing treatment to roof at contract rate</b>	<b>Amount to be retained from contractor's dues</b>
(i)	Up to Rs. 50.00 lakhs	2% of amount subject a to minimum of Rs. 5000.00 and enhanced by 25%
(ii)	Over Rs. 50.00 lakhs and upto Rs 100.00 lakhs	Rs 100,000.00 plus 1.50% of amount beyond Rs 50.00 lakh and enhanced by 25 %
(iii)	Over Rs 100.00 lakhs	Rs. 1,75,000.00 plus 1% of amount beyond Rs 100.00 Lakhs and enhanced by 25%"

**15.5. WATER PROOFING TREATMENT AT JUNCTION OF ROOF/PARAPET:-**

Coved fillet in PCC (1:2:4) type B-O shall be provided at the junction of roof and chimney stack, flue pipe or terracing pedestal protruding over the roof and surface painted with hot blown grade bitumen conforming to IS : 702 at the rate of 1.2 Kgs per sqm over a coat of primer conforming to IS 3384 at the rate of 0.30 liters per sqm and blinded with pea gravel as specified in MES Schedule.

**15.6 WATER PIPES.**

15.6.1. Rain water pipes and fittings, at locations indicated in the drawings, shall be of PVC to withstand continuous internal hydraulic pressure of 4 Kg / Sqcm conforming to IS-4985, 110 mm dia size unless otherwise shown in drawings. Pipes and fittings shall be secured to wall just below joints of pipe with MS flat clamps embedded in cement concrete blocks 100mm x 100mm x 100 mm (1:2:4) type B-1. MS clamps shall be made from FI 40x6mm and fixed 100mm away from wall. Pipes and fittings shall be jointed with epoxy resin or compound as recommended by manufacturers.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

15.6.2. The grating shall be of CI, round type, weighing not less than 0.5 Kg each, provided and fixed at the inlet of rain water pipes.

**15.7. SPOUTS:-** Spouts shall be of galvanised steel water tubes of light grade and of length as shown in drawings. Where spout are not indicated it shall be taken as passing through out the width of parapet or fascia or railing and projecting 60cm from outer face of the wall and of 50 mm dia light grade.

**15.8 TESTING OF WATER PROOFING TREATMENT: -**

15.8.1 Test shall be done by ponding. For this purpose, mud, mortar, fillet ponds shall be made longitudinally one metre apart over entire treated surfaces of roof slab to form ponds of suitable size as directed by the Engineer-in-Charge. These ponds shall be filled with potable water so that an average 50 mm (minimum 25 mm and maximum 75 mm) height of water is maintained during the test period.

15.8.2 Test shall be carried out continuously for a period of 72 hours. Any seepage notified shall be rectified by the contractor and the defective portion made good to entire satisfaction of the GE without any extra cost. GE shall pass this stage.

15.8.3 All mud fillet ponds shall be removed and surface made clean and tidy after completion of satisfactory testing.

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

16 . **STEEL AND IRON WORK :**

16.1 **TYPE OF STEEL :** All steel to be incorporated in the work shall be procured & supplied by the Contractor under his own arrangements and at his own cost. Steel for various types of work shall be of following quality / grade: -

16.1.1 **REINFORCEMENT STEEL :** High strength deformed steel bars produced by Thermo Mechanical Treatment Process (TMT steel bars of grade Fe-500 D) meeting all other requirements of IS-1786.

16.1.2 **STRUCTURAL STEEL:**

(a) Definition of structural steel as given in Clause 10.4 of SSR Part-I (2009) shall be applicable.

(b) Following types of structural steel shall be used in the work:-

(i) Standard quality steel Fe-410-W conforming to IS-2062 for all types of steel structures including those subject to dynamic loading.

(ii) Ordinary quality steel Fe-310-S conforming to IS 1977 for frame of gauged/panelled doors, windows, guard bars, grills, hand railing, fencing posts etc.

16.1.3 **GALVANISED STEEL SHEETS:** ISI marked GI sheets (Plain and corrugated) of grade 'O' with 120 gm/sqm galvanized coating conforming to IS-277-1992 shall be used where ever shown on drawings.

16.1.4 **FABRIC REINFORCEMENT FOR CONCRETE :** It shall be conforming to IS-1566.

16.2 **SUPPLY OF STEEL :** All steel to be incorporated in the work shall be procured & supplied by the Contractor under his own arrangements and at his own cost.

16.3 **PROCUREMENT OF STEEL:-**

(A) **STRUCTURAL STEEL:-**

(i) The structural steel sections shall be ISI marked and shall be procured directly from main producers of steel viz. SAIL / RINL / TISCO / IISCO and other Primary Producers approved by E-in-C's Branch only. No price adjustment shall be done if the steel is procured from other Primary Producers approved by E-in-C's Branch. In case of non-availability with main producers, the structural steel can be procured from approved secondary producers with a reduction of 5% (Five Percent) of the accepted rate of structural steel. In case the desired section of structural steel is not rolled/ manufactured by the main producers, there shall be no price adjustment in use of structural steel procured from approved secondary producers. Galvanised steel sheets and fabric reinforcement for concrete shall be procured

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

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

**LIST OF APPROVED SECONDARY PRODUCERS**

**Annexure III**

1.	M/s Kashi Vishwanth Steel Ltd.Narain Nagar, Bazpur Road,Kashipur - 244 713 U.S. Nagar (Uttaranchal)(Ph: 05947-262109, 262138, Fax: 05947-262103)(E-mail : kvs_ksi@datainfosys.net, kvscorporate@kvsl.com Visit us at : <a href="http://www.kvsl.com">www.kvsl.com</a>
2.	M/s Shyam Steel Industries Ltd.White Towers, 115 College Street,1st floor, Kolkata – 12Tele : 033-22373333, 22373311
3.	M/S K L Steel Pvt Ltd Post Box No. 61, Lal Kuan,Bulandshahar Road, Ghaziabad (UP) Tele : 0120 – 2867911, 2867915 Fax : 0120 – 2867917
4.	M/S Shri Badrinarain Alloys & Steels Ltd 95, Stephen House, 4 B B D Bag Kolkata 700001Tele : 033 2220 5381 / 2248 1601 FAX : 033 2248 8664
5.	M/S Pushpak Steel Industries Pvt Ltd Gate No. 119, Alandi Markai Road, Dhanore, Tah Khed, PuneTele – Fax 020-26444700 / 070
6.	M/s Amba Shakti Ispat Ltd.Plot No. 06, Phase-II Industrial Area, Kala Amb, Distt – Sirmour (HP) Tele : 01734-309983, 309986
7.	M/s SRMB Srijan Pvt. Ltd.46, BB Ganguli Street Kolkata – 700012Phone – 033 -2236999
8.	M/s Shree Parashnath Re-Rolling Mills Ltd 4C, Maharshi Devendre Road 3rd floor Kolkata –700 007 Phone : 033-2274 0045/4475, Fax : 033-2274 0039
9.	M/S Tata Steel Industries Tata Steel – Tube Division Jeevan Tara Building, 1st floor 5, Sansad Marg, New Delhi – 110001 Tele : 99111 2334, 264601734, 309983, 309986
10.	M/S K L Concast Pvt Ltd Z-18, Naraina, New Delhi
11.	M/S Karam Steel Corp Nasrali, Road, PO Box No. 56, Mandi Gobind Garh - 147301

**(B) Reinforcement Steel:-**

(a) It shall be of TMT Grade Fe-500 as shown in drawings and the rates given in SSR Part-II shall be treated for TMT Steel of Grade as shown in the drawings. The grade of steel shall be Fe-500. Reinforcement steel consisting of high strength deformed steel bars produced by TMT process of all sizes shall be procured directly from main producer's viz. SAIL/ RINL/ TISCO/ following Primary producers approved by E-IN-C' Branch.

1.	RINL	TMT Bars all grades/ sizes
2.	TATA	
3.	SAIL	
4.	Balaji Shakti	TMT Bars grade Fe 500 & Fe 500D
5.	Shyam	
6.	Simhadri TMT	
7.	Jindal Panther	
8.	SRMB	
9.	Goel TMT (8-32 mm)	
10.	GK TMT (8-36 mm)	
11.	Super Shakti	
12.	Gallant TMX (8-32 mm)	
13.	Rashmi TMT(8-25 mm)	
14.	SEL (Fe 500D only) (8-32 mm)	
15.	Elegant TMT	
16.	Nakoda TMT(8-32 mm)	
17.	Neosteel (8-40 mm Fe 500D only)	
18.	Kamachi (8-40 mm)	

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

19	ET TMT (8-36 mm)	
20	Jindal Panther (8-40 mm)	TMT Bars grade Fe 550 & Fe 550D
21	SRMB (8-32 mm)	
22	Super Shakti (8-32 mm Fe 550 only)	
23	Rashmi TMT (8-25 mm Fe 550D only)	
24	Elegant TMT (Fe 500D)	
25	Neosteel (8-40 mm Fe 550D only)	
26	Kamachi (8-40 mm)	
27	Shyam	TMT Bars grade CRS
28	Gallant TMX (8-32 mm)	
29	Neosteel (8-40 mm)	
30	ET TMT (8-36 mm)	
31	Simhadri TMT	TMT Bars grade HSCRM
32	Kamachi (8-40 mm)	

In case reinforcement steel procured from above primary producers approved by E-IN-C' Branch. An independent testing is mandatory and shall be got carried out by GE on random samples of steel drawn from various lots from a National Test House, SEMT CME, Regional Research Labs, Govt. approved Labs, Zonal labs etc. as per frequency listed in tender documents. For the elongation test, the elongation shall not be less than 18%. Testing charges shall be borne by the contractor irrespective of the outcome of test results. In that case the contractor at his own cost shall provide all facilities required for the testing and cost of material consumed in tests which shall be borne by the contractor.

(b) All finished steel shall be well and clearly rolled to the dimensions, sections and weights specified. The finished materials shall be reasonably free from cracks, surface flaws, laminations, rough, jagged and imperfect edges and any other harmful defects and shall be finished in a proper manner. Tolerance on size and weight of reinforcement bars shall not be more than that specified in clause No. 10.17.4 and 10.17.5 of SSR Part-I (2009) and as specified in IS-1786 and other relevant IS Codes.

(c) TMT bars shall have embossing/engraved marking of trade name of producer at regular intervals

(d) Reinforcement Steel, Structural steel and Galvanised Steel Sheets & Fabric reinforcement for concrete may be permitted from authorised dealers of main producers in case the total requirement of steel is less than 5 tonnes

(e) Steel sections for railings, gates, fencing, guard bars, grills, steel chowkhat, holdfasts etc., which do not constitute structural members, can be procured from main producers/ secondary producers/BIS marked manufacturers or their authorised dealers at the option of Contractor without any minus price adjustment. Tests will not be insisted upon for such steel sections

**16.3.1 TESTING OF STEEL :-**

(a) The manufacturer is to carry out inspection and testing of steel in accordance with the relevant BIS provisions. The Contractor shall submit the manufacturer's test certificate in original alongwith the test sheet giving the results of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in Steel Acceptance Register as given in **Annexure IV** after due verification.

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

(ii) Independent testing of reinforcement and structural steel by the GE shall be mandatory in case of procurement of steel from secondary producers and testing charges shall be borne by the contractor irrespective of the outcome of test results. In both the cases the contractor at his own cost shall provide all facilities required for the testing and cost of material consumed in tests which shall be borne by the contractor.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

(iii) In case structural steel are procured from secondary producers, independent testing shall be got carried out by GE on random samples of steel drawn from various lots from a National Test House, SEMT CME, Regional Research Labs, Govt. approved Labs, Zonal labs etc. as per frequency given below :-

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

	Nominal Size	Quantity
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**Steel for Reinforcement**

1	Bar size less than 10 mm	1 Sample (3 specimens) for each test for every 25 tonnes or part thereof.
2	Bar size 10 mm to 16 mm	: 1 Sample (3 specimens) for each test for every 35 tonnes or part thereof.
	Bar size over 16 mm	: 1 Sample (3 specimens) for each test for every 45 tonnes or part thereof.

**Structural Steel**

Tensile Test : for every 25 tonnes of steel or part thereof.

Bend Test : for every 10 tonnes of steel or part thereof

**NOTE :-**

- (i) For various tests, acceptance criteria, tolerance etc, refer to Annexure 'B' and relevant BIS Codes.
- (ii) In case of procurement of structural steel from secondary producers, testing by GE as per above frequency is mandatory. In such case, no payment shall be released to the Contractor for any consignment or part thereof and steel shall not be incorporated in the work unless satisfactory test results are obtained and the consignment is passed by GE. Schedule of procurement shall be prepared keeping in view the time lost in activities related to testing. Any items of steel, not meeting the requirements, shall be rejected and the particular consignment removed from the site by the Contractor at his own cost. The Contractor will have no claim on this account.
- (iii) Three samples (3.00 m long) of each section of each consignment shall be retained at the project site till completion of the work. These samples shall be suitably marked and properly preserved.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

Annexure 'IV'

**STEEL SUPPLY AND ACCEPTANCE REGISTER**

1. CA No. and Name of Work : \_\_\_\_\_ :
2. Contract No. : \_\_\_\_\_
3. Name of Manufacturer's T.C. No. : \_\_\_\_\_
4. Manufacturer : \_\_\_\_\_
5. Random Test details (a) Physical test report from \_\_\_\_\_ vide their letter No.  
(Name of approved Lab / Engg College)
- (b) Chemical test report from \_\_\_\_\_ vide their letter No.  
(Name of approved Lab / Engg College)
6. Types of steel, Dia & Qty
  - (a) Type - TMT / CRS
  - (b) Dia – mm
  - (c) Actual Wt-MT
  - (d) Conversion Wt - MT

	Chemical test						Mechanical test						
	Carbon%	Sulphur%	osphorous%	anganese%	Silicon%	osion resistant element	wt per metre	(N/mm <sup>2</sup> ) 0.2% proof	nsile strength (N/mm <sup>2</sup> )	longation %	Bend Test	tebend Test	Remarks
As per IS 1786													
As per manufacturer's test certificate													
As per independent test													

Remarks with Signature

Accepted /Rejected

Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**16.3.2 DOCUMENTATION:-**

- (a) The Contractor shall submit original machine numbered purchase vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the GE alongwith relevant documents before acceptance. The original vouchers and test certificates shall be defaced by the Engineer-in-Charge duly indicating the CA No. and particulars of work for which used and shall be kept on record in the office of GE duly authenticated and with cross reference to the control number recorded in Steel Acceptance Register. Two separate files may be maintained in GE office duly serially numbered for maintaining original vouchers and manufacturer's test certificates in original alongwith test sheets in original or an authenticated copy thereof.
- (b) The Steel Acceptance Register will be signed by JE, Engineer-in-Charge, GE and Contractor and shall be maintained by GE.
- (c) A Steel Test Register containing results of independent and additional testing done by GE, field testing done by GE /CWE, random check done by CWE etc shall be maintained by GE.
- (d) The Accepting Officer may also order a Board of Officers for random check of steel and verification of connected documents. Hence a register containing records of surprise checks and checks done by Board of Officers shall also be maintained by GE.
- (e) The entire quantity of 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 Engineer-in-Charge and the Contractor duly checked by GE.
- (f) Certified true copies of vouchers and test certificates including test sheets shall also be maintained by Engineer-in-Charge after defacing, with cross reference to the control No. recorded in the Steel Acceptance Register.

**16.3.3 (a) STORAGE:**

- (i) Steel of different grades and sizes shall be stacked separately. For each class of steel separate areas shall be earmarked. Steel shall be marked with distinct painting marks for easy identification and it shall be always stacked at least 15 cm above the GL.
- (ii) 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 for any other reason, the same shall be removed from site by Contractor at his own cost.
- (iii) Steel sections which are not likely to be used before onset of monsoon shall be given cement slurry wash so as to ensure scale and rust free steel. Also steel sections which are procured during monsoon and are not likely to be used within a week from the date of procurement shall be given cement slurry wash immediately.

**(b) SAFETY OF STEEL**

It shall be the responsibility of Contractor to make sure that all possible arrangements are made for safe custody of the steel. In case of any loss of steel, the Contractor only will be responsible and the loss shall be made good by him without any delay and no claim whatsoever would be entertained on this account.

**16.3.4 SCHEDULING AND SUPPLYING**

Schedule of supply of steel will be finalised by GE in consultation with Contractor and the same shall be incorporated in CPM chart so that supply of steel is monitored in a way to avoid any delay in completion of work. GE shall ensure that Contractor places the demand(s)/requisition(s) of steel with adequate time lead. The schedule of supply of steel shall be vetted by CWE from time to time.

**16.3.5. PROCEDURE FOR MAKING PAYMENTS FOR STEEL INCLUDING MEASUREMENTS, CONVERSION WEIGHT ETC.**

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

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

out to be more than the weight obtained by standard conversion factor. For making adjustment, arising out of reinforcement bars, the length of each bar for the purpose of calculation of laps shall be taken as 10 meters.

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

(c) Payment for the steel brought by the Contractor shall be released by GE only after following actions are taken by GE and Engineer-in-Charge:-

- (i) Physical verification of steel to confirm the actual quantity of steel as well as to verify the aspects brought out in clause 7.3 above.
- (ii) Receipt of original machine numbered purchase vouchers of manufacturer(s) from Contractor.
- (iii) Receipt of manufacturer's test certificates (in original) alongwith test sheet giving result of each mechanical test and chemical composition of steel or authenticated copy thereof duly signed by manufacturer.
- (iv) Receipt of satisfactory test results for independent testing on random samples of steel in terms of clause 7.3.1(b) above.
- (v) Satisfactory test result in case of field testing done by GE/CWE in case of TMT steel manufactured by secondary producers.

16.3.6 **ACCEPTANCE/REJECTION OF STEEL:** The Contractor shall keep a separate stack of steel brought at site for inspection, away from the accepted stack of steel. In case, the consignment does not meet any of the requirements of the relevant IS codes, the steel shall be rejected by the GE, and it shall be removed from the site within 24 hours at the cost of the Contractor.

16.4. **WELDING.**

(a) Refer clause 10.15 of MES Schedule Part I and shall be carried out by metal arc process all as per IS-816 and IS-823.

(b) Unless, otherwise specified here-in-after or shown on drgs welding shall be 6 mm thick continuous fillet weld and shall cover the joint.

**17.0 FLOOR FINISHES AND PAVING :**

**17.1 Materials:-**

**17.1.1 White cement:** - Refer Para 13.2.1 of SSR Part I. IT shall be an approved product of Bureau of Indian Standard (BIS) and shall be of make specified hereinafter.

**17.1.2 Pigments:-** Refer Para 13.8 of SSR Part I.

**17.1.3 Ceramic tiles:-** Ceramic tiles shall be conforming to relevant IS. Unless specified otherwise in Schedule "A"/ shown in drawings the size of tiles shall be 200x300 mm ( Classic/premium of Somany or equivalent of other make specified ) for walls and 300x300mm ( Somany express or equivalent of other make specified ) for floors. Ceramic tiles shall be of make as specified hereinafter. These shall be conforming to IS-13753 for flooring and IS-13755 for walls. Tiles shall meet the requirement of IS-13630 or relevant EN.

**17.1.4 Vitrified tiles :-** These shall be fully vitrified , having water absorption less than 0.50 %, modulus of rupture  $\geq 35 \text{ N/mm}^2$  and resistance to deep Abrasion  $\leq 175\text{mm}^3$  as required for group B 1 a of International standard for ceramic tiles ISO 13006:1998(E) when tested as per BS EN 1so 10545. Colour / shade and sizes of tiles shall be as specified. Tiles shall be of Granite series (group-III).

**17.2 Workmanship:-**

**17.2.1 Cement concrete sub floors, base or sub base:-**Refer Para 13.27 of SSR Part I. **Mix of cement concrete** shall be 1:5:10 type E2, unless specified otherwise in Schedule "A". In case contractor uses cement slurry before laying floors, nothing extra shall be paid to contractor for the same. The thickness of concrete for the sub base shall be 75 mm if not specified otherwise else where.

**17.2.2 Cement Concrete flooring Cast in situ:-**Refer Para 13.32 of SSR Part I. Floor and sub floor shall not be laid monolithic. 200 mm wide border shall be provided in all rooms. The size of panel shall not exceed 2.00x2.00 m in any case. In case glass strips are provided, wooden forms are not required and no price adjustment shall be made on account of non-provision of wooden forms. Glass strips shall be paid separately at S&F rates. PCC floors shall be 40 mm thick, 1:2:4 type B1 in residential buildings and 50 mm thick in other nonresidential buildings. Top shall be finished even and smooth using extra cement, unless specified otherwise in Schedule "A". Glass strips shall be 3 mm thick x full thickness of floors.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**17.2.3 Ceramic tiles flooring/dado/skirting:-**Refer Para 13.40 of SSR Part I. Ceramic tiles in flooring shall be laid/bedded in neat cement slurry @ 3 Kg/sqm over 15 mm thick screeding of mix 1:6, applied over 30 mm thick PCC type B0. Sub base shall be 75 mm thick in PCC type E2, unless specified otherwise in Schedule "A" specifically or elsewhere. In case of dado/ skirting, tiles shall be smeared with cement slurry @ 3 Kg/sqm and bedded over 10 mm thick screeding of Mix 1:4. The joints of tiles shall be finished in cement to match with the colour of tiles. Unless specified otherwise, tiles shall be white colour (First quality) of make specified hereinafter. The tiles provided at corners shall be mitred and fixed and no unglazed portion shall be visible. The rates quoted by contractor /or given SSR for respective items shall be deemed included for the same.

**17.2.4 KOTA STONE SLABS:-**The slab shall be of selected quality, hard, sound, dense and homogeneous in texture free from cracks, decay, weathering and flaws. These shall be hand or machine cut to the requisite thickness. These shall be of colour as directed. The slabs shall have the top (exposed) face polished before being brought to site. The sample shall be got approved before incorporation in work. The tolerance +/- 2 % shall be allowed for the thickness. Unless specified elsewhere otherwise/ shown in drawings kota stone slab shall be of size not less than 550mmx550mmX20to25 mm thick, unless stone slab of lesser sizes required due to site requirement (vary specified size is not accommodating).

**17.2.5 GRANITE STONE SLABS:-**The granite slab shall be of selected quality, hard, sound, dense, durable and homogeneous in texture and free from cracks, decay, weathering and defects like cavities, crack flaws, sand holes, patches of loose/ soft materials and other similar defects that may adversely affect its strength and appearance. It shall be of uniform colour and texture as directed. These shall be hand or machine cut to the requisite thickness. The slabs shall have the top (exposed) face polished before being brought to site. The sample shall be got approved before incorporation in work. The tolerance +/- 2 % shall be allowed for the thickness. Granite stone slab shall be of size not less than 550mmx550mmX18 to 20 mm thick, unless stone slab of lesser sizes required due to site requirement (where specified size is not accommodating).

**17.2.6 KOTA STONE FLOORING:** - Refer Para 13.47 of SSR Part I. It shall be laid in the manner as specified in SSR Part I Para 13.47. The edges of the slabs to be jointed shall be buttered with grey cement, with admixture of pigment to match the slab. Kota stone slab be granite finish (Mirror) polished (07 process of grinding). Kota stone flooring shall be constructed with providing 16 to 18mm thick, 100mm wide white marble stone border (if specified in Schedule 'A') to the pattern and design as directed by the GE and contractor's quoted rates for kota stone flooring in any location shall be deemed to include this provision without any extra cost to the government irrespective of the provision is specified or not specified, elsewhere in these tender documents.

**17.2.7 GRANITE / MARBLE STONE SLAB FLOORING**

18mm-20mm thick polished granite / marble stone slab shall be laid over 20 mm thick bedding layer of CM 1:4 over base as specified hereinbefore. Unless specified otherwise in Schedule "A",

**18.0 PLASTERING AND POINTING:-**

**18.1 Materials:-**

**18.1.1 Sand:-** Refer Para 14.5 of SSR Part I. It shall be conforming to IS-1542.

**18.2 Workmanship:-**

**18.2.1 Rendering:-** Refer Para 14.12,14.14 and 14.16 of SSR Part I. Unless specified otherwise in Schedule "A", mix of mortar for rendering shall be 1:6, single coat, top surfaces finished fair and even all as directed.

**18.2.2 The rates of SI-2051 and 2052 or SI-2057 and SI-2058** shall be payable proportionally in cases where the plaster thickness is less than "10mm" and '12 mm' respectively subject to contractor's percentage. This clause is applicable for measurable contracts (except item rate contracts)

**18.2.3 Repairs to Plastered surfaces:-** Refer Para 14.12,14.16,14.14 and 14.28 of SSR Part I. Unless otherwise specified in Schedule "A" mix of mortar shall be 1:6, single coat work, top surfaces finished fair and even.

**18.2.4 The rates of SI-2051 and 2052 or SI-2057 and SI-2058** shall be payable proportionally in cases where the plaster thickness is less than "10mm" and '12 mm' respectively subject to contractor's percentage. This clause is applicable for measurable contracts (except item rate contracts)

**19 WHITE WASHING/COLOUR WASHING/ DISTEMPERING :-**

**19.1 MATERIALS:-**

**19.1.1 Lime:-** Refer Para 15.2 of SSR Part I. It shall be conforming to IS-712.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**19.1.2 Yellow and red Ochre:-** Refer Para 15.3 of SSR Part I.

**19.1.3 Blue ochre:-** Refer Para 15.4 of SSR Part I.

**19.1.4 Dry distemper:-** Refer Para 15.5 of SSR Part I. It shall be of first quality, any of the make specified hereinafter.

**19.1.5 Oil Emulsion distemper:-** Refer Para 15.6 of SSR Part I. It shall be of first quality and shall be one of the brands specified hereinafter.

**19.1.6 Cement base paint:-** Refer Para 15.7 of SSR Part I. It shall be of make as specified hereinafter.

**19.1.7 Wall Care putty: -** It shall be white cement based one of the Make specified hereafter for internal / external use. Compressive strength at 28 days, tensile adhesion strength at 28 days and surface hardness shall be 13.46 N/mm<sup>2</sup>, 3.0N and 2.26 N/MM<sup>2</sup> respectively.

**19.2 Workmanship:-**

**19.2.1 General:-** Refer Para 15.10 and 15.11 of SSR Part I.

**19.2.2 White washing:-**Refer Para 15.12 of SSR Part I. The quantities of lime, water, gum Sodium chloride and blue etc. shall be as specified in Para 15.12 of SSR Part I. Unless specified otherwise in Schedule "A", new plastered surfaces / unplastered surfaces shall be treated with three coats of White wash White wash shall strictly be carried out as per Para 15.12.5 of SSR Part I. Old surfaces shall be treated with one or more coats as indicated in Schedule "A".

**19.2.3 Colour washing:-**Refer Para 15.12 of SSR Part I. The quantities of lime, water, gum, Sodium chloride, blue and mineral colour etc. shall be as specified in Para 15.12 of SSR Part I. Mineral colour shall be added to extent required to achieve required shade/tint. Unless specified otherwise in Sch"A: new plastered /un-plastered surfaces shall be treated with two coats of colour wash over one coat of White wash and old surfaces shall be applied with one or more coats as indicated. Colour washing/white washing shall be applied strictly as per Para 15.12.5 of SSR Part I.

**19.2.4 Wall Care Putty: -** Wall care putty shall be applied to concrete/ rendered surfaces where specifically specified.

**19.2.4.1 Surface Preparation and application of putty:-** Remove all the loosely adhering material from the wall/ concrete / rendered surfaces with the help of emery stone, putty blade or wire brush. Moisten the surfaces with sufficient quantities of clean water.

**19.2.4.2** Wall care putty shall be mixed with water (35-40%) slowly to make paste. Continue the mixing of material for 10-15 minutes till a uniform paste is formed.

**19.2.4.3** Apply first coat of "wall care putty" uniformly on already moistened surfaces with the help of putty blade or trowel. Allow the surface to dry for at least three hours and then apply a second coat of putty. Leave the surface to dry completely. Always prepare the required quantity of 'wall care' Putty. And use it within 03 Hours of mixing with water. The total thickness of both the coats should be 1 to 1.5 mm ( . After complete drying of the surface, if needed, the surface should be rubbed with fine water proof emery paper. The surface is ready for further application of required finishes.

**19.3 Application of Finishes Through paint Manufacturers/ Authorised Applicators:-** The work shall be executed through paint manufacturer/ authorised manufacturer's applicator only.

**19.3.1** Tenderers shall enter into necessary MoU between tenderer, said manufacturers of paint and their authorised applicator before execution of work.

**19.3.2** Authorised Applicators of paint manufacturers shall have valid authorisation letter from the manufacturer (minimum regional HQs) issued not earlier than 30 days from start date of the said finishing work. The authorization letter needs to be validated for the complete period of execution.

**19.3.3** Preparation of plastered or un-plastered surface or removal of existing treatment by scrapping of walls, ceiling, chajjas, fins, fascias, parapets etc shall be done by using mechanical sander with internal dust extraction system for clean environment certified by the manufacturer. After preparation of surface, approval shall be obtained from Engineer-in-Charge before applying primer and further treatment/ coat. Building wise stage passing register shall be maintained.

**19.3.4** Finishes i.e. cement based paint, oil bound distemper, acrylic water based interior grade primer, interior acrylic water based exterior grade primer, water based premium smooth exterior emulsion etc to surface of walls, ceiling, chajjas, fins, fascias, parapets etc shall be applied using airless spray technology and capable of operating single spray gun with a suitable hose length. The spray machine should be reputed manufacturer with pro-guard technology and capability of tracking pressure as well as paint & primer usage.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**19.3.5** These equipment shall be certified by approved manufacturer.

**19.3.6** The accessories for applying the finishes shall be able to spray in hard to reach areas and penetration of finish on the surface so as achieve uniform application and quality surface finish.

**20 GLAZING:-**

**20.1 Materials:-**

**20.1.1 Sheet Glass:-** Refer Para 16.2 of SSR Part I. Sheet glass shall be conforming to IS-2835. Unless specified otherwise it shall be of OQ, 3mm nominal thickness.

**20.1.2 Putty:-** Refer Para 16.5 of SSR Part I. It shall be conforming to IS-419.

**20.2 Workmanship:-**

**20.2.1 Glazing with putty:-** Refer Para 16.6 to 16.9 and 16.13 of SSR Part I.

**20.2.2 Glazing with beads:-** Refer Para 16.6 to 16.8 and 16.13 of SSR Part I. Beads shall be fixed with screws.

**20.2.3 Glazing in steel surrounds:-** Refer Para 16.6 to 16.8, 16.10 and 16.13 of SSR Part I. Beads shall be fixed with screws.

**20.3 PAINTING:-**

**20.3.1 Materials:-** Refer Para 17.2 of SSR Part I.

**20.3.2 Plastic emulsion Paints:-** It shall be conforming to IS 5411, Out of one of the makes /brand specified hereinafter.

**20.3.3 Synthetic Enamel Paint:-** It shall be conforming to IS-2932 and shall be one of the make specified hereinafter.

**20.3.4 Red oxide Zinc Chrome Primer:-** It shall be conforming to IS-2074. It shall be one of the makes/ brands specified hereinafter. It shall be of the same make as that of finishing / under coat.

**20.3.5 Coal tar Black:-** It shall be of grade "A" conforming to IS 290 and shall be one of the make specified hereinafter.

**20.4 Workmanship:-**

**20.4.1 Painting Generally:-** Refer Para 17.3 to 17.5 of SSR Part I. Unless specified otherwise new surfaces of wood/wood based materials /steel shall be applied with two coats of synthetic enameled paint over one coat of primer.

**20.4.2 Painting to wood work:-** Refer Para 17.6 of SSR Part I.

**20.4.3 Painting steel and iron work:-** Refer Para 17.8 of SSR Part I. Mordant solution made with composition of 64 parts of water and copper chloride, copper nitrate, aluminium chloride and HCL acid, each one part all by weight, shall be applied to GI surfaces @ 5 litres /100 sqm before application of red oxide etc. where GI surfaces ordered to be painted. All steel surfaces unless specified otherwise in Schedule "A" shall be applied with two coats of synthetic enameled paint over one coat of primer. However old surfaces shall be applied with one or more coats as indicated.

**20.4.4 Tarring or Painting with coal tar:-** Refer Para 17.12 of SSR Part I. Tarring shall be done with coal tar black paint type "A" conforming to IS 290 of make as approved.

**21 WATER SUPPLY AND SANITARY:-**

**21.1 Materials:-**

**21.1.2 Cast Iron Pressure pipes and fittings :-** Refer Para 18.2 of SSR Part I.

**21.1.3 Centrifugally Cast (spun) Iron pipes :-** These shall be conforming to IS-1536. Unless specified in Sch'A' pipes shall be of class 'B'.

**21.1.4 Vertically Cast iron Pressure Pipes :-** These shall be conforming to IS-1537. Unless specified otherwise in Sch'A' , these shall be of class 'B'.

**21.1.5 Cast iron fittings for pressure pipes:-** These shall be conforming to IS-1538.

**21.1.6 Rubber Gasket for jointing:-** Refer Para 18.11 of SSR Part I.

**21.1.7 Sluice Valve :-** Sluice valves shall be of pressure rating PN1.6 unless specified otherwise in schedule "A". These shall be an approved product of BIS having ISI certification Mark i.e ISI- 780. These shall be of cast iron with stainless steel spindle non rising type with iron wheel head , both end flanged.

**21.1.8 Non return Valves /Reflex or check valves :** These shall be conforming to IS-5312 with out bypass arrangements. These shall be of Pressure rating PN 1.6 , unless specified otherwise in Sch'A'. These shall be of cast iron with rings and stem of AISI 410 or as requirement of IS.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**21.1.9 Column pipe :-**These shall be of mild steel of dia as specified in Schedule 'A', both end threaded and fitted with cast iron flanges at both ends and welded as directed by EIC. Flange shall be conforming to IS-1538 . Pipe shall be un-galvanized and an approved product of BIS and shall have ISI certification mark as ISI-1239 embossed on it. It shall be of heavy grade.It shall be of 3.00 M lengths unless specified otherwise in schedule 'A'.

**21.1.10 Mild steel galvanized pipes (Tubes) and fittings:-**Refer Para 18.4 of SSR Part I. Pipes shall be of any make an approved product of Bureau of Indian standard and ISI certification mark. Unless specified otherwise in Schedule "A"these shall be of medium grade. Fittings shall also be ISI marked of Make – NMC or RAM as approved.

**21.1.11 Caulking lead:** - Refer Para 18.9 of SSR Part I. Irrespective of whatever is specified else where, pig lead shall be used in jointing, conforming to IS 782.

**21.1.12 Spun Yarn:** - Refer Para 18.10 of SSR Part I.

**21.1.13 Bib Taps and stop valves:** - Refer Para 18.14 of SSR Part I. These shall be ISI marked. The handles shall be of crutch type. These shall be polished bright. Stop valves shall be externally threaded and the weight of bib taps and stop valves shall be not less than given in Para 18.14 .1 of SSR Part I.

**21.1.14 Fancy bib taps and stop valves:** - Refer Para 18.15 of SSR Part I. These shall be ISI marked.

**21.1.15 Pillar taps:** - These shall be of brass, ISI marked, chromium plated.

**21.1.16 Fancy pillar taps:-** Refer Para 18.16.1 and 18.16.2 of SSR Part I.

**21.1.17 Ball valves:-** Refer Para 18.19 of SSR Part I. These shall be of brass, high-pressure type and shall conform to IS-1703, horizontal plunger type. The float shall be of polyethylene, high-pressure ball valves. The minimum weight shall be as specified in Para 18.19 of SSR Part I.

**21.1.18 Gate Valves:** - These shall be of dia as specified in Schedule "A" and shall be conforming to IS-778.

**21.1.19 Waste fittings:** - Refer Para 18.20 of SSR Part I. Waste fittings for wash basins and sinks shall be 32 mm dia. and 40 mm dia. respectively.

**21.1.20 Waste plugs:** - Refer Para 18.21 of SSR Part I.

**21.1.21 CI soil, waste and vent pipes:** - Refer Para 18.23 of SSR Part I. These shall be of CI, sand cast, ISI marked, ear type, spigot and socketed. CI fittings shall be conforming to IS-3989, medium weight.

**21.1.22 CI cowls:-** Refer Para 18.24 of SSR Part I. Unless otherwise indicated cowl shall be suitable for 50 mm nominal bore pipes.

**21.1.23 Nahani Traps:-** Refer Para 18.24 of SSR Part I. These shall be consisting of gratings.

**21.1.24 SGSW pipes and fittings:-** Refer Para 18.28 of SSR Part I. These shall be of commercial grade. These shall be an approved product of BIS and shall have ISI certification mark. The rates given in SSR shall be deemed amended for the same.

**21.1.25 Concrete pipes:-** Refer Para 18.29 of SSR Part I. Unless otherwise indicated these shall be of NP3 , non pressure type, ISI marked.

**22 UPVC SOIL , WASTE AND RAIN WATER ( SWR) DRAINAGE PIPES:-**

22.1 Refer Para 18.27 A of SSR Part I. These shall be of type 'B' unless specified otherwise.

22.2 These shall be an approved product of BIS and shall have ISI certification mark as ISI-13592 for work above ground and ISI-15328 for underground drainage & sewerage work Rubber rings shall be conforming to IS-5382.Pipe fittings shall be ISI-14735.

**22.3 UPVC pipes for Potable water supplies:** - These shall be ISI marked and approved product of bureau of Indian Standards having ISI-4985. Unless specified otherwise these shall be class 3. PVC fittings shall be an approved product of BIS having ISI certification mark as ISI-7834.

**22.4 Sanitary fittings and appliances:-Refer Para 18.32 of SSR Part I. These shall be of first quality.**

**22.5 Wash down water closet:** - It shall be of pattern 2 and of colour as specified.

**22.6 Squatting pans:-** These shall be Orrisa pattern ,580x440 mm, of approved colour.

**22.7 Semi pedestal pattern water closet :-** These shall be conforming to relevant IS.

**22.8 Foot Rest:-** Refer Para 18.32.4 of SSR Part I.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**22.9 Wash basins:-** Refer Para 18.22.5 of SSR Part I. Unless otherwise specified specifically in Schedule "A", these shall be of size 630x 450 mm. Waste fittings of brass (CP) ,32 mm dia. shall be provided.

**22.10 Sinks:-** Refer Para 18.32.6 of SSR Part I. These shall be of vitreous china white.

**22.11 Stainless steel Sinks: -** These shall be of stainless steel of shape and size as specified in Schedule "A" made out of 1.00 mm thick sheet and fixed as directed by EIC. These shall be of make as specified herein after.

**22.12 Urinals bowl type: -** Refer Para 18.32.7.1 of SSR Part I. These shall be flat back type/ angle back type as indicated.

**22.13 Flushing cistern: -** Refer Para 18.34 of SSR Part I. Flushing cistern shall be low level type. These shall be of moulded polypropylene virgin. The capacity of cistern shall be 10 litres. Flush pipe shall be of brass, 40 mm nominal dia.

**22.14 Plastic water closet seat and cover: -** Refer Para 18.36 of SSR Part I. These shall have recessed bottom. Seats and covers shall be of any of the materials as directed by EIC.

**22.15 HDPE Water tanks:-** These shall be conforming to IS-12701. These shall be of multilayer.

**22.16 Mirror:-** The size of mirror shall be 600x450mm, unless specified otherwise. It shall be of SQ. The thickness of sheet glass shall be not less than 6 mm, with beveled edges. Back shall be fitted with plywood, 12 mm thick BWP type, 5 ply and provided with aluminium "C" channel all-round to suit the thickness of glass (mirror) including plywood. Mirrors shall be of make Atul or Swastic. The rates given in SSR shall be deemed for the same.

**22.1.1 WORKMANSHIP:-**

**22.1.2 Water supply: - CI pipes:-** Refer Para 18.4 to 18.47 and 18.54 to 18.56 of SSR Part I.. Jointing of CI pipes (spigot and socketed) shall be done in any of the following manner as specified in Schedule "A", in the manner given in Para 18.48 of SSR Part I. **(a) Run lead joints (b) Lead wool joints (c) Rubber gaskets joints (d) Cement joints (e) Flanges joints. The quantity of lead wool /lead shall be as specified. In case, there is any variation (less lead) , it shall be adjusted through necessary price adjustment i.e. @ Rs. 80.00 per Kg of less lead provided..** The jointing materials used between flanges of the pipes shall be compressed fibre board 1.50 to 3.00 mm thick.

**22.1.3 Galvanised pipes (external work):-** Refer Para 18.41 to 18.47, 18.50 and 18.54 to 18.56 of SSR Part I.

**22.1.4 Galvanised pipes (Internal work):-** Refer Para 18.41 to 18.47, 18.51 and 18.54 to 18.55 of SSR Part I. The pipes which are embedded in walls, ceilings or floors shall be provided with bituminous paint.

**22.1.5 CI soil waste and vent pipes:-** Soil waste and vent pipes shall be of cement jointed or as specified in Schedule "A" and shall be fixed in manner as specified in Para 18.67 of SSR Part I.

**22.1.6 Laying of SGWG pipes /RCC Hume pipes:-** Refer Para 18.68 to 18.76 and 18.79 of SSR part I. Unless specified otherwise, PCC for bedding , haunching and surrounding or encasing shall be of mix type D2. Bedding, haunching and encasing as specified in Schedule "A" shall be provided. Testing shall be done by smoke test, for pipe above GL and by water test if pipe is below GL.

**22.1.7 Laying and jointing of UPVC Soil , waste and rain water pipes (SWR) drainage pipes:-**

**22.1.8 Refer Para 18.67.7A of SSR Part I.**

**22.1.9 Fixing Sanitary fittings:-** Refer Para 18.80 to 18 93 of SSR Part I.

**22.1.10 Water closet (Indian type):-** Refer Para 18.86 of SSR part I. These shall be embedded in PCC 1:5:10 type e2 using brick aggregate. The pan shall be provided with a 100 mm dia. CI "P" or "S" Trap. The rates quoted by contractor in Schedule "A"/ given in SSR shall be deemed as that for CI'P' or "S" traps.

**23 Testing:-**

**23.1** After the joints are complete, the trenches shall be partially refilled between the joints and sides of trenches to provide anchorage. All specials shall be adequately supported to prevent movement, when the test pressure is applied.

**23.2** The testing shall be carried out in sections. Testing of all GI Pipes /CI mains and fittings shall be carried out in accordance with stipulated requirements in SSR Part I and IS 1592. Testing shall be carried out by the contractor in presence of the EIC and approved by the GE. The pipe lines shall be tested in sections with the help of hydraulic pump which shall be arranged by the contractor under his own cost and the rates quoted in Sch'A' shall be deemed to include the same. The

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

returning, filling in and ramming of the trenches shall than be carried out by contractor after the results are declare as pass by GE.

23.3 The pipes lines shall be tested in sections by subjecting a test pressure equal to 1.50 tomes the actual operating pressure. The test pressure shall be increased gradually rising about 1 Kg per minute. The pressure gauge must be placed at the lower level of section.. It must have 1.10 Kg calibration scale. The pressure must be maintained in mains till a careful check is carried out to pipe and joint to joint. The lines to be tested must not exceed 500 meters at a time. The lines to be tested shall be allowed to remain idle and filled with water for about 48 hours before the actual test is done, so that it has absorbed the specified amount of water as per its properties before the test is done. The closing arrangement at the end of the section under tests shall be much so as to resist the end thrust. The hydraulic test pressure may be applied through a sluice valve tee with the help of hydraulics pump.

23.4 Any failure of pipeline connections etc. to the specified test and any defects, which may be detected while the pipes and fittings, are under test must be made good by the contractor. New test shall than be carried out and the repeated until whole of the work is thoroughly found satisfactory and water tight and approved by the GE. The contractor shall arrange for testing and provide all facilities at his own cost.

23.5 Rates of pipes, fittings and accessories etc. shall be deemed to include for providing apparatus, materials, labour etc. for testing pipes under pressure for which no extra claim whatsoever shall be entertained.

23.6 The results of the same shall be recorded and signed by the contractor and EIC and shall be countersigned by GE.

23.7 Water for testing purposes shall be supplied by the department on payment, if so desired by contractor.

**23.8 Valve pits:-** Valve pits shall be built in locations as shown in drawings / directed by EIC. These shall be as shown in drawing for respective dia. of valve to be provided. These shall be constructed with the specifications given hereinafter in Annexure "G".

**24 Making good Roads/paths etc.:-**

24.1 Roads /paths, drains, culverts etc. excavated/ dismantled by the contractor for laying pipes etc. shall be made good by him to the original specifications and to the entire satisfaction of EIC. Rates inserted in Schedule "A" shall be deemed to include for such making good (unless items of making good catered for in Schedule "A" specifically).

24.2. In internal water supply work, GI bends will be provided in lieu of elbow, if not possible due to site conditions, prior permission shall be obtained in writing from Engineer-in-charge.

25 **RECORD DRAWINGS.** Three copies of line plan of completed work, indicating line of pipes, size, positions of fittings etc shall be submitted by the contractor on tracing cloth to the Engineer-in-Charge on completion of work on tracing cloth.

**25.0A PRE-CAST INTERLOCKING PAVER BLOCKS**

25.1 Precast concrete paver blocks shall conform to IS 15658-2006, specification for pre-cast concrete blocks for paving, and shall meet the specifications contained in clause 13.18 of SSR Part I (2009). Thickness of paver blocks shall be as per respective schedule 'A'.

**26 INTERNAL ELECTRIFICATION:-**

26.1 **MATERIALS AND SAMPLE BOARDS.** All materials shall be ISI marked. In case ISI marked product are not available these shall conform to relevant IS specifications or to BS specifications where ISI is not existing. In absence of any IS specifications these shall be as approved by GE.

26.1.2. Sample of all materials, fittings and fixture to be supplied by the contractor shall be submitted to GE for his approval. The contractor shall not commence his work until the samples are approved in writing by the GE. The contractor shall ensure that all the materials incorporated in the work are identical in all respect. Samples approved and samples destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.

26.1.3. Of the makes specified (if any) materials shall be arranged of the best available make as approved by the GE. Out of different makes as specified in CA, the makes approved by the GE shall only incorporated in the work.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

26.1.4. All manufactured articles required for incorporation shall be brought to site in the manufacturer's original packings with the seal intact. Incorporation shall be done when approved by Engineer-in-Charge.

**26.1.5 GENERAL:-**

**26.16 Refer** Para 19.24 to 19.49 of SSR Part I.

**26.1.7 Cables:-** These shall be of make as specified here in after. Unless specified otherwise, aluminium conductor cables shall be of 2.5 sqmm nominal cross section area and 4 sqmm nominal cross section area for 6 Amps and 16 Amps points respectively. Total points on a circuit shall be not more than 6 points or load of 800 watts, whichever is less and one circuit for each power point. Wiring diagram/ layout may be ascertained from EIC before quoting the tender. Where the total load to be fed is exceeding 1 KW, it shall be controlled by a MCB and less than IC Switches shall control 1KW.

**26.2 Materials:-**

**26.2.1 Cables for internal wiring for light ,power and sub mains:-**

**26.2.2 Wiring in conduits (surface/ concealed ):- Irrespective whatever is specified in Schedule "A" Cable for wiring in conduits shall be insulated unsheathed,** Cable shall be of copper/Aluminium conductors ( as mentioned in schedule 'A') , multi- stranded and an approved product of Bureau of Indian standard , duly marked with ISI-1596 or PVC insulated cables ISI:694. Cables shall be PVC insulated, unsheathed.

26.2.3 The rates quoted by contractor in Sch'A' or given in SSR for sheathed cable shall be deemed for the unsheathed cable. No price adjustment shall be made on this account. The contractor shall keep this aspect in mind while quoting the item rates or percentage above/ below SSR.

26.2.4 Wherever in Schedule 'A' , Conduit fittings / point wiring mentioned as 'Concealed " the rates of Schedule 'A' items shall be deemed included for cutting chases for conduits, conduit fittings and sunk Pressed steel boxes.

26.2.5 Unless specified otherwise specifically, all the point wiring shall be done in PVC surface conduits and fittings with sunk pressed steel boxes and plastic laminated sheets.

**26.2.6 Weather Proof Cables:-** Refer Para 19.26 of SSR Part I. These shall be single core or flat twin core with Aluminium conductor, an approved product of BIS, duly ISI marked.

**26.2.7 Flexible cords, twisted with copper conductors:-** Refer Para 19.27 of SSR Part I. These cords shall be twin core with tinned annealed stranded copper conductor conforming to IS 9968.

**26.2.8 Wooden boards and blocks:-** Refer Para 19.28.2 and 19.28.3 of SSR Part I. Wooden boards / blocks shall be of seasoned shisham wood. These shall be of dovetailed joints. Thickness of back and face shall be not less than 6 mm and sides not less than 20 mm. The boards shall be finished with 2 coats of shellac varnish. Round blocks shall be single, varnished, 40 to 50 mm thick and 80 to 100 mm in dia. The rates given in SSR shall also be deemed for the shisham wood.

**26.2.9 Conduit and conduit fittings:-** Refer Para 19.29 of SSR Part I. The conduit and conduit fittings shall be of rigid steel conduit or PVC conduit as specified in Schedule "A". Steel conduit shall be stove enameled. Conduit pipes shall be ISI marked. PVC conduit shall be of medium grade. The dia. Of pipe/conduits shall be not less than that specified in clause 19.125 of SSR part I.

**26.2.10 Wooden gutties:-** Refer Para 19.30 of SSR Part I. All wooden gutties shall be of 1st class HW shisham, well seasoned. The rates given in SSR/ Schedule "A" shall be deemed of the shisham wood.

**26.2.11 Screws and fasteners:-** All screws shall be of Cadmium plated Iron.

**26.2.12 Ceiling Roses:-** It shall be surface type, an approved product of BIS and shall bear ISI certification mark. It shall consist of 3 terminals and out side dia. shall be not less than 63.5 mm.

26.2.13 **Conical shades:-** Refer Para 19.33 of SSR Part I. The dia. of shades shall be as indicated. It shall be stove enameled white inside and gray outside.

**26.2.14 Bulk Head fittings:-** These shall be of die cast aluminium and fitted with porcelain lamp holder, vitreous enameled reflector with hinged water tight front with key and wire metal guards as per electrical plate No.6. In case hinged front is not available, it shall be as approved by EIC without any price adjustment.

26.2.15 **Sunk type boxes:-** Refer Para 19.38 of SSR Part I. Boxes for housing electrical accessories and recessed into a wall shall be of sheet metal, conforming to IS 5133. Boxes shall be painted with two coats of red oxide internally and externally.

26.2.16 **Water tight switches:-** Refer Para 19.39 of SSR Part I. It shall be an approved product of BIS, having ISI marking as 3854. It shall be mounted in a Galvanised CI box provided with lever and handle.

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

26.2.17 **Sockets outlets, lamp holders, flush type switches etc.:-** These shall be an approved product of BIS and shall have ISI markings (except 5 pin socket outlets).

26.2.18 **Distribution fuse Boards and cutouts:-** Refer Para 19.44 of SSR Part I. These shall be of make specified. DB when used with MCB shall be of make as that of MCB.

26.2.19 **Switch fuses:-** Refer Para 19.45 of SSR Part I. These shall be of sheet metal an approved product of BIS having ISI certification mark a4064. Fuse used in switch shall be ISI 2086.

26.2.20 **MCBs:- MCB s** shall be a product of BIS and shall have ISI marking –8823. Current rating shall be as specified. Rupturing capacity shall be not less than 6 KA.

26.2.21 CFL (Compact Florescent lamp) Retrofit;- These shall be of capacity as specified in Schedule 'A'. These shall be ISI marked an approved product of BIS. ISI-15111. PF shall be more than 0.50

**26.3 Workmanship:-**

26.3.1 Refer Para 19.101 to 19.147 of SSR Part I including appendix.

26.3.2 Wiring shall be carried out on battens/ in conduit wiring system recessed or surface type as specified in Schedule "A".

26.3.3 The numbers of cables allowed in the PVC rigid conduits shall not exceeds than specified in clause 19.125 of SSR Part I.

26.3.4 Colour coding shall be strictly followed as per clause 19.123 of SSR Part I and work shall be got done by licensed electricians, necessary proof thereof shall be produced to EIC by contractor.

26.3.5 Before commencement of work, EIC and contractor shall prepare a line diagram showing system and locations of all fittings and fixtures jointly. These shall be kept on record.

26.3.6 In case of work of rewiring, existing point wiring / accessories shall be dismantled/ taking down only when new wiring has been completed in all respects.

**27.0 EARTHING.**

27.1. Unless otherwise specified in Schedule 'A' or elsewhere provide earthing all as per electrical plate No. 5 on Srl page 19.49 of MES schedule Part I including PCC chamber, GI light grade pipe protection funnel, RCC cover 1:2:4 type B-1 reinforced with MS round bars 6 mm dia 150 mm c/c both ways and earth work and excavation. GI pipe protection to earth wire shall be provided upto main board. Excavation shall be in any type of soil and surplus soil shall be removed away to a distance of 50 metre and site left clean and tidy. PCC for chamber shall be 1:2:4 type B-1. The unit rate shall include for the above provisions.

27.2 The cable lugs at the end of earth wire shall be connected with 03 Nos 6 mm dia galvanised iron rivets spaced not more than 20 mm centre to centre. Excavation and earth pit shall be passed by Engineer-in-Charge. The contractor shall then execute installation of earth plate in the presence of authorised MES representative. Charcoal dust and return filling shall be done in layers not exceeding 150 mm thick each layer properly watered and rammed. Surplus spoil shall be removed away and site left clean and tidy.

**28. TESTING.**

Refer para 19.14.6 of MES Schedule Part I. The work will be completed only after such testing and the record of such testing will be certified as satisfactory by Engineer-in-Charge and shall be signed by the Engineer-in-Charge and contractor jointly. The contractor at his own cost shall provide all instruments, material and labour required for testing.

**29 RECORD DRAWINGS**

On completion of work, the contractor shall supply the following record drawings on tracing cloth :-

- (a) Plan showing position of lights, switches, sockets, fans and circuits as per symbols adopted in contract drawings.
- (b) All the outlets marked with circuit number to which belong.
- (c) Typical section indicating mounting heights etc adopted.
- (d) Any other connected details required by GE/Engineer-in-Charge shall be incorporated in these drawings.

**30. GENERAL**

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

If any of the specifications are not given above, the materials used shall either bear ISI marking or conforming to ISS (If ISI marked not manufactured) and workmanship shall be all as per MES Schedule 2009. Part-I.

**Note : Para Numbers/clause Nos SSR part I wherever written wrongly shall be read as respective correct clause/paras of SSR Part I (2009) only.**

\_\_\_\_\_  
SIGNATURE OF CONTRACTOR  
DATED : \_\_\_\_\_

AGE (Contracts)  
For ACCEPTING OFFICER

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

**APPENDIX `A`****SOURCES OF MATERIALS**

Sl No.	Name of Materials	Sources of materials for work at station
1	2	3
1.	Bricks and brick tiles	Rampur, Bareilly, Haldwani.
2.	(a) Coarse aggregate for all RCC.	Broken/Crushed stone aggregate cut of Boulder/ stone from `GOLA` river Haldwani
	(b) -do- for all PCC work	`GOLA` river Haldwani
3.	Coarse sand for RCC/PCC lime concrete and DPC	`GOLA` river Haldwani
4.	Sand for plastering. Pointing, Brick-work, sand for cushioning, filling and covering for LT cables.	`GOLA` river Haldwani

**NOTE: -**

1. Sources of materials shall be given above in the vicinity thereof. The tenderer shall ascertain the actual position/exact location of source before submitting his tender. No additional payment shall be made on account of any misunderstanding of its distance from site of works.
2. The tenderer shall amongst other things ascertain all information such as royalties, taxes, duties and other charges etc, on the materials before submitting his tender as no additional payment shall be made on account of the foregoing.
3. However, if due to any ban imposed by the State Govt. authority on obtaining the materials from the sources specified above and or specified material is not available at the source mentioned above these materials conforming to specification as given in particular specifications will be obtained from any other place/sources as approved by the Accepting Officer without any extra cost of the Govt.

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

APPENDIX 'B'

**LIST OF APPROVED PRODUCTS / MAKES TO BE INCORPORATED IN WORK**

<b>S. No.</b>	<b>PRODUCT NAME</b>	<b>NAME OF MAKE / MANUFACTURER</b>
1	Ceramic & vitrified Tiles	Kajaria Ceramics Ltd (brand - Kajaria), Johnson, Somany Ceramic Ltd (Brand - Somany), Orient Bell Ltd (Brand - Orientbell), RAK Ceramic India Pvt Ltd (Brand - RAK Ceramic), Exxaro Tiles Ltd
2	Cement Concrete Interlocking Paver Blocks/ Tiles	M/s Jain Tiles Industries, Haldwani (Brand - JTI), Ferrocon Dehradun, Sagar Tiles Saharanpur (Brand - Sagar)
3	Chequered Tiles any type	M/s Jain Tiles Industries, Haldwani (Brand - JTI) Ferrocon Dehradun, M/S Mehtab Tiles, Indore
4	PBI, CGI/PGI SHEETS	SAIL, RINL, IISCO, TISCO, JINDAL
5	APP based modified polymeric Membrane for Water proofing	"Hyperplas" of M/S IWL Ltd., MAK Polyplast. "Multiplas" of M/S STP Texsa Ltd., "Bengal Aquaflex" of M/S Bengal Bitumen, "STP Superior Polyplus S-30" of M/S STP Ltd. M/s Berger Paints India Ltd. M/s Super Thermolay (STP)
6	Wooden Flooring	Greenpanel Industries Ltd, HIL Ltd, Action Tesa, Armstrong
7	Exterior paint	Asian Paints Ltd, Berger Paints India Ltd, Kansai Nerolac Paints Ltd, Acro Paints Ltd
8	Interior paint	Asian Paints Ltd, Berger Paints India Ltd, Kansai Nerolac Paints Ltd, Acro Paints Ltd
9	Enamel/ Oil Paint	Asian Paints Ltd (Apolite Premium Gloss), Berger Paints India Ltd (Luxol Hi-Gloss), Kansai Nerolac Paints Ltd ( Synthetic Hi-Gloss Enamel), Acro Paints Ltd
10	Cement Based Paints	Super Snowcem, Duracem Plus, Acro Paints Ltd
11	High Build textured & wall Finishes	Asian Paints Ltd, Berger Paints India Ltd, Kansai Nerolac Paints Ltd, Acro Paints Ltd
12	UPVC shutters for doors, windows, ventilators and frames (Factory made)	Fenesta, Koemmerling, Aluplast, Prominace, NCL Veka Ltd (Brand - NCL Veka), Rajshri Plastiwood, Bhimsaria Polymers Pvt Ltd, PSP Dynamic Pvt Ltd (Brand - PSP), Yashashri Polyextrusions Pvt Ltd, Chandni Industries Gaziabad, Punjab Tool Room Mohali (Brand - Qualever) For door & window frames only
13	PVC shutters for doors, windows, ventilators and frames (Factory made)	Yamuna Interiors Pvt Ltd (Brand - Black Cobra) Yamuna Nagar, Kumar Arch Tech Pvt Ltd (Brand - Ecocell), GIZA, Polyline Extrusions Pvt Ltd
14	WPC door, window & frames (Factory made)	Rajshri Plastiwood, GIZA, Kumar Arch Tech Pvt Ltd (Brand - Ecocell), Yamuna Interiors Pvt Ltd (Brand - Black Cobra) Yamuna Nagar
15	Pre-painted steel windows, ventilators & door frames (Factory made)	Tata Pravesh, NCL Buildtek Limited, Elixir Met Form Pvt Ltd

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

APPENDIX 'B'

**LIST OF APPROVED PRODUCTS / MAKES TO BE INCORPORATED IN WORK**

16	Wooden Flush/ Panel/ Gauge shutters for door & window (Factory made)	Century Plyboard (India) Ltd. (Brand - Century Doors), Greenply Industries Ltd, Rama Woods Crafts Satna (Firm will provide 10 yrs guarantee), Greenpanel Industries Ltd, A-1 Teak Products Pvt Ltd (Firm will provide 10 yrs guarantee), Jain doors Pvt Ltd, M P Wood Products Indore (Flush doors shutters only), Punjab Plywood Industries (Brand - Black Cobra), TVL Engineers Pvt Ltd (Brand - Floresta), Satish Kumar & Co. (Firm will provide 02 yrs guarantee)
17	Steel windows, ventillator, door frames, shutters, Z Section Steel windows (Fabricators) (Factory made)	NCL Alltek Hyderabad, Ashish Industries Gaziabad, Trisul Industries Gaziabad, Chandni Industries Gaziabad, Ashwani & Sons Gaziabad
18	Aluminium Shutters, frames for doors, windows & ventilators (Factory made)	Trisul Industries Meerut, Chandni Industries Gaziabad, Deco Grill
19	UPVC False ceiling	Rajshri Plastiwood, Polyline Extrusions Pvt Ltd, Accura Polytech Pvt Ltd, Kumar Arch Tech Pvt Ltd (Brand - Ecocell)
20	Metal False ceiling	P R Ceiling Products, Manraj Ceiling Products Pvt Ltd (Brand - Rayal Kraft), Armstrong
21	Gypsum Board false ceiling/ Gypsum plaster	Everest Industries Ltd, P R Ceiling Products, Gyproc, Armstrong, USG Boral, JK Cement Ltd, Diamond International Inex Pvt Ltd (Brand - Diamond Ceilings)
22	Non-Asbestos Fibre Cement Board (Confirming to IS : 14862/ 2000) False ceiling	Everest Industries Ltd, Shera, Kalsi, Prima, Duragreen
23	Glass Reinforced Gypsum (GRG) False ceiling	Gyproc, Armstrong, USG Boral
24	Plain Particle Board/Particle Board Ceiling, Pre-laminated Particle Board	HIL Ltd, Greenpanel Industries Ltd, Century Ply, Greenply, KitplyPunjab Plywood Industries (Brand - Black Cobra)
25	Aluminium Composite Panels (ACP)	Aludecor, Alstrong, Alucobond, Alstone, Viva, Ashoka Foam Multiplast Ltd (Brand - Alutuff ACP & Alutuff AHPL), Virgo Laminates Ltd, Alutrch Industries New delhi, Alexia Panels Dehradun (Brand - Alex Panels)
26	Laminates/ Veneers	Merino Laminates, Greenlam Laminates, Century Laminates, Kitply, Sunmica, Formica, Greenpanel Industries Ltd, Virgo Laminates Ltd
27	Plywood for general purposes	Century Ply, Greenply, Kitply, Greenpanel Industries Ltd, Punjab Plywood Industries (Brand-Black Cobra)
28	CP Bath Fittings & accessories	Grohe, Kohler, Jaquar & Company Pvt Ltd (Brand - Jaquar), Cera Sanitaryware Ltd, Kajaria Bathware Pvt Ltd, Jaquar & Company Pvt Ltd (Brand - Essco), Asian Paints Ltd (Brand- Royale, Essess & Bathsense), Prayag Polymers Pvt Ltd, Status Sanitech Pvt Ltd Mathura (Brand - Player), Pearl Precision Products Pvt Ltd Noida (Brand - Sparsh Pearl), Plastocraft Sanitary (india) Pvt Ltd (brand - Kingston Agrani Series ISI Marked)

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

APPENDIX 'B'

**LIST OF APPROVED PRODUCTS / MAKES TO BE INCORPORATED IN WORK**

29	PTMT bath fittings & accessories	R S Industries Delhi, Shakti Enterprises New Delhi (Brand-SYMET), Sak Plast Pvt Ltd (Brand - Sanituf), Prabhat Sanitaryware Pvt Ltd, Jain Enterprises New Delhi
30	Stop Valves/Gate Valves/ Bib Taps (Brass)	Prayag Polymers Pvt Ltd, Dhawan Sanitary Udyog New Delhi (Brand - Prima), KS Engg Works Gaziabad
31	WHB/ WC/ Urinal	Jaquar & Co. Pvt Ltd (Brand-Jaquar), Cera Sanitaryware Ltd, Kajaria Bathware Pvt Ltd, Asian Paints Ltd (Brand- Royale, Essess & Bathsense), Prism Johnson Ltd, Jaquar & Company Pvt Ltd (Brand - Essco), Prayag Polymer Pvt Ltd
32	Metropole & Concealed flushing cistern	Jaquar, Grohe, Kohler
33	Seat Cover for EWC	Jaquar, Grohe, Kohler, Cera Sanitaryware Ltd, Kajaria Bathware Pvt Ltd, Asian Paints Ltd (Brand- Royale, Essess & Bathsense), Prayag Polymer Pvt Ltd, Prism Johnson Ltd,
34	PVC Flushing Cistern	Kajaria Bathware Pvt Ltd, Cera Sanitaryware Ltd, Parryware, Prayag Polymer Pvt Ltd, Prism Johnson Ltd, Preal Precision Products Pvt Ltd Noida (Brand -Sparsh Pearl)
35	Stainless Steel Sinks	Johnson, Nirali, Hindware, Prayag Polymer Pvt Ltd, Shri Navkar Metals Ltd (Brand - Navkar Nice), Status Sanitech Pvt Ltd Mathura (Brand - Player)
36	CPVC pipes & Fittings	Astral Ltd (Brand-CPVC Pro), Ashirvad, Supreme, RC Plasto Tanks & Pipes Pvt Ltd, HIL Ltd, Vectus Industries Ltd, Sentini Flopipes India Pvt Ltd, Surya Roshani Ltd, Prayag Polymer Pvt Ltd, Apollo Pipes Ltd, Supreme Industries Ltd, SFMC Pvt Ltd
37	UPVC pipes & Fittings	Astral Ltd (Brand-Aqua Safe & Aquarius), HIL Ltd, RC Plasto Tanks & Pipes Pvt Ltd, Ashirvad, Supreme, Prayag Polymer Pvt Ltd, Surya Roshani Ltd, Sentini Flopipes India Pvt Ltd, AKG Extrusions Pvt Ltd, Vectus Industries Ltd
38	HDPE pipe/ MDPE Pipe/ PVC Pipe	Astral Ltd (Brand-HDPE Pro), RC Plasto Tanks & Pipes Pvt Ltd, Finolex, Venkatesh Indigenous Pipe Pvt Ltd (Brand-VIP)
39	PPR Pipes & Fittings	Prince, Finolex, Supreme, Vectus Industries Ltd
40	ERW MS Pipe	Surya Roshni Ltd, Tata, Jindal
41	Centrifugally Cast (Spun) Iron S/S soil , waste ventilating & rainwater pipes, fittings & accessories confirming to IS : 3989/2009	Jaiswal Neco Industries Ltd (Brand - NECO), Raj Pattern Makers & Founders Pvt Ltd, Singhal Iron Foundry Pvt Ltd Mathura (Brand-SKF)
42	Hubless centrifugally cast (spun) iron pipes, fittings & accessories confirming to IS : 15905/2011	Jaiswal Neco Industries Ltd (Brand - NECO), Raj Pattern Makers & Founders Pvt Ltd, Singhal Iron Foundry Pvt Ltd Mathura (Brand-SKF)
43	SWR pipes as per IS - 13592 for pipes & IS - 14735 for fittings	HIL Ltd, Supreme, Sentini Flopipes India Pvt Ltd, Surya Roshni Ltd, Vectus Industries Ltd, SFMC Pvt Ltd

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

APPENDIX 'B'

**LIST OF APPROVED PRODUCTS / MAKES TO BE INCORPORATED IN WORK**

44	PVC UG drainage pipes as per IS - 16098 Part-1	Astral Ltd (Brand-Foam Core), Prince, Finolex
45	DWC UG drainage pipes as per IS - 16098 Part-2	Astral Ltd (Brand-D-rex), Prince, Finolex
46	DI Pipe & fittings	Tata, Electrosteel, Jindal Saw Ltd, Elelctrotherm (India) Ltd (Brand-Electrotherm)
47	GI Pipes	Tata, Jindal Hisar, Surya Roshni Ltd, Elelctrotherm (India) Ltd (Brand-Electrotherm)
48	Steel Cup Boards, Cabinet Doors & Wardrobe (Shutters & frames for cup board)	Ashish Industries, Ashwani & Sons Gaziabad, Trisul Industries Meerut
49	HDPE water storage tanks	RC Plasto Tanks & Pipes Pvt Ltd, Vectus Industries Ltd, Prabh Dayal OM Prakash Infrastrucure Pvt Ltd (Brand - Sheetal)
50	PVC insulated 1100 V grade ISI marked FRLS internal wiring cables with copper conductor	Havells, Polycab, Anchor, HPL, KEI, Bonton, Dynamic, Microtek International Pvt Ltd, Grandlay, Shalabh (India) Industries, Seewel power industries
51	LT Cable UG (XLPE/PVC) Heavy duty armoured/ unarmoured upto 1100 V Aluminium & Copper conductor solid/ stranded as per IS 1554 Pt I & 7098/ 1988 Pt I	Havells, Polycab, Gloster, Gemscab Industries Ltd, KEI,HPL, Dynamic, Grandlay, Bonton, Gupta Power Infrastructure Ltd (Brand - Rhino), Shalabh (India) Industries, Seewel power industries.
52	Submersible copper flat cable	Havells, Polycab, Grandlay
53	Water Heaters (Geysers)	Havells (Adonia series), Bajaj, Jaquar & Co Pvt Ltd, Venus Home Appliances Pvt Ltd
54	Change Over Switch/ switch Fuse	Indo Asian, HPL, Crystal Electric Co Pvt Ltd, Shalabh (India) Industries
55	MCBs & MCB DBs	Havells, Indo Asian, HPL, Crystal Electric Co Pvt Ltd, Shalabh (India) Industries
56	MCCB	Havells, Indo Asian, HPL, Shalabh (India) Industries
57	ACB	Indo Asian, Havells, HPL (Fixed type 400A to 2000A only)
58	LT Panels, Feeder Pillars & LT Control Panels	Shalabh (India) Industries Roorkee, Indo Asian, Power Systems & Control Jalandhar, Sombansi Enviro Engg Pvt Ltd, ITE Gurgaon, Bright Panel Dehradun, M/s Elite Panels, Shalabh (India) Industries, Prestige Switchgears Pvt Ltd.
59	APFC Panels (Fabricators)	Indo Asian, Shalabh (India) Industries Roorkee, Power Systems & Control jalandhar, REW Constructions Pvt Ltd
60	Modular Switch/ Socket/Fan regulator/ Bell push & mounting accessories	Legrand, Schneider Zencelo, Havells India Ltd (Brand-Crabtree), Anchor Electrical Pvt Ltd
61	Non modular Switch/ Socket/ Fan regulator/ Lamp hoder/ Ceiling rose/ Bell push/ Call bell (Polycarbonate body only)	SSK, Havells India Ltd (Brand-Havells Reo), Anchor penta PC
62	Ceiling fans ISI marked & not less than 4 BEE Star rating	Crompton, Orient, Khaitan, Usha, havells, Bajaj

**PARTICULARS SPECIFICATIONS (CONTD...)**  
**(MATERIALS AND WORKMANSHIP)**

APPENDIX 'B'

**LIST OF APPROVED PRODUCTS / MAKES TO BE INCORPORATED IN WORK**

63	BLDC Ceiling Fan	Atomberg, havells, Bajaj, Crompton, Orient, Khaitan
64	Air Circulator/ wall mounted fan/ cabin fan/ fresh air fan	Havells, Bajaj, Crompton, Orient, Usha, Khaitan
65	Exhaust fans	Crompton, Orient, Khaitan, Usha, Havells, Bajaj
66	LED light fittings for indoor/outdoor use	Crompton, Signify Innovations India Ltd (Brand - Philips & Ecolink), Orient, Bajaj, Havells, Halonix, Polycab India Ltd, Krishna Electrovision Pvt Ltd (Brand-Luzion), C&S Electric Ltd, Jaquar & Co Pvt Ltd, Mepro Electricals Aligarh
67	Solar based street light fittings	Philips, Bajaj, Crompton, Havells, Halonix, Okaya Power Pvt Ltd, Axxon Tech Industries,
68	All other / balance materials	As approved by the GE

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer

**PARTICULAR SPECIFICATIONS (CONTD....)**  
**MATERIALS AND TESTS**

## APPENDIX 'C'

**LEGEND:** - 'A' Testing of Material shall be carried out from Command Engineer Lab.

**NOTES: -**

1. Where testing of contractor's material are carried out in Command Test Lab Lucknow , the contractor shall be liable to pay the test charges and shall be recovered from the contractors running payments/final bill as the case may be. The rate of recovery given is for each unit of sample. Rate of recovery are based on financial year 2000-2001. The recovery rate for each financial year (proceeding year) shall be enhanced by 10% of basic rate and recovery affected accordingly.

2. Testing of materials as per contract provisions will be got done by contractor at own cost as per direction of Engineer-in-Charge and where testing is done by the MES, testing charges as stipulated in CA shall be recovered from payment due to the contractor. The necessary arrangement for submitting the samples to the testing agency as per direction of Engineer-in-Charge, shall be made available by the contractor and necessary test report shall be submitted to the Engineer-in-Charge for approval.

Sl 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.	Coarse aggregate	(i) Sieve analysis	IS-2386 (Part-I)	One test for every 15 cum of aggregates or part thereof brought at site.	A	120	<b>LEGEND</b> A-Site Lab B-Zonal Lab/CTL C- National test House/SEMT Wing/Engg. Colege/CTL
		(ii) Flakiness Index	-do-	-do-	A	90	
		(iii) Estimation of deleterious material	-do-	One test for every 100 cum of aggregate or Part thereof.	A	120	
		(iv) Organic impurities	-do-	One test per source of supply.	C	120	
		(v) Moisture contents	-do- (Pt-II)	Regularly as required.	A	120	
		(vi) Specific Gravity	-do-	One test for each source of supply.	B	120	
2.	Fine aggregate	(i) Sieve analysis	IS-2386 (Pt-I)	One test of every 15 cum of FA or part when brought to site	A	180	
		(ii) Test for clay, silt and impurities	-do-	-do-	A	90	
		(iii) Specific gravity	-do- (Pt-II)	One for each source of supply.	B	180	
		(iv) Moisture content	-do-	Regularly as required subject to 2 tests / day when being used.	A	180	
		(v) Test for organic impurities	-do-	One test for each source of supply	C	180	

**PARTICULAR SPECIFICATIONS (CONTD....)**  
**MATERIALS AND TESTS**

**APPENDIX `C' Contd../-**

1	2	3	4	5	6	7	8
3.	Cement	(i) Setting time	IS-4031, 1980	Once on each consignment / reaffirmation or as and when required.	B	180/-	
		(ii) Soundness	-do-	-do-	B	120/-	
		(iii) Compressive Strength	-do-	-do-	B	360/-	
		(iv) Fineness	-do-	-do-	B	120/-	
4.	Brick	(i) Compressive strength	IS-3495 (Pt-II)	As per IS : 5454 given under:-	A	180/-	Checks for visual and dimensional characteristics shall also be carried out as per IS : 5454
		(ii) Water absorption	IS-3495 (Pt-II)	Lot size Sample size Permissible No of effective bricks	A	150/-	
		(iii) Efflorescence	IS-3495 (Pt-I)	1001 to 05 0 10001 to 35000 10 0 35001 to 50000 15 01	A	180/-	

**PARTICULAR SPECIFICATIONS (CONTD....)**  
**MATERIALS AND TESTS**

## APPENDIX 'C' Contd./-

1	2	3	4	5	6	7	8
5.	PCC Solid block for walling	(i) Compressive strength	IS : 2185	12 block out of 18	A	60/-	Samples – 18 blocks from consignment of every 1000 blocks or part thereof. This blocks to be checked for dimension and weight
		(ii) Water absorption	IS : 2185	12 block out of 18	B	120/-	
		(iii) Density	IS : 2185	12 block out of 18	B	120/-	
6.	Cement flooring tiles/pcc tiles	(i) Water absorption	IS : 1237 (Appx 'D')	3 tiles out of 18	B	180/-	Samples 18 tiles from each source of supply selected at random.
		(ii) Wet transverse streanth	IS : 1237 (Appx 'E')	6 tiles out of 18	B	144/-	
		(iii) Resistance to wear	IS : 1237 (Appx 'F')	6 tiles out of 12	C	540/-	
7.	Timber	(i) Specific gravity and weight	IS : 1708	Minimum 3 samples from a lot of 4 Cum or 250 pieces of seasoned timber	B	120/-	
		(ii) Moisture content	IS : 1708	Minimum 3 samples from a lot of 4 Cum or 250 pieces of seasoned timber	A	120/-	
8	Water for construction purposes	(i) Test for acidity	IS : 456 & 3015	Once at the stage of approval of source	B	240/-	Also refer clause No.4.3 of Is-456 and its subsequent clauses regarding suitability of water .
		(ii) test of alkalinity	IS : 456 & 3015	-do-	B	240/-	
		(iii) Resistance to wear	IS : 456 & 3015	-do-	C	300/-	

**PARTICULAR SPECIFICATIONS (CONTD....)**  
**MATERIALS AND TESTS**

**APPENDIX 'C' Contd../-**

1	2	3	4	5	6	7	8
9	Welding of steel work	(i) Total inspections test	IS : 822 clause 7.1	100 % visual inspection	Work site	360/-	Specialized test, their method and frequency to be decided on consideration of there importance by Accepting officer.
10.	Ply wood (IS : 303)	(i) Moisture cement	IS : 1734 (part-I)	Six test pieces cut from each of the boards selected as per table shall be subjected to tests	C	240/-	Sampling shall as per IS : 7835 Table

**NOTE :-** please note that 20 % testing of bricks, coursed aggregate, fine aggregate, concrete and timber to be carried out at command Test

Lab Lucknow.

(Signature of Contractor)  
Dated.....

AGE (Contracts)  
For Accepting Officer