

**CONTENTS**

**NAME OF WORK :** **“CERTAIN REPLACEMENT/REPAIR TO ROOF TREATMENT AT TPT LINE, 3rd LANCER AND OTHER CERTAIN LOCATION IN THE AREA OF AGE B/R-I UNDER GE GWALIOR”**

Ser No	Description	Page No
1	Contents Sheet	01
2.	Forwarding letter including Instructions to tenderers	02 to 05
3.	Notice of tender IAFW-2162 including Appx 'A' to Notice of Tender and amendments thereto.	06 to 13
4.	Item rate tender and contract for works required, IAFW-1779A (Revised 1955) including BOQ.	14 to 24
5.	*General condition of the contracts (IAFW-2249) (1989 Print) including Errata/amendments to General Condition of contract (IAFW-2249 – 1989 prints)	25 to 70
6.	Schedule of minimum wages	71 to 80
7.	Special Conditions and requirements	81 to 86
8.	Particular Specifications	87 to 120
9.	Errata/amendments to tender documents	
10.	Relevant correspondences	
11.	Acceptance letter	

Total Pages      Nos

\* NOTE: - Not enclosed along with the tender documents, which can be seen in the office of Garrison Engineer, Gwalior during working hours.

Signature of Contractor

for Accepting Officer

Mil Tele: 2180

Garrison Engineer Gwalior  
Military Engineer Services  
PO: Morar, Gwalior-474006

8115/B/03/E8

15 Oct 2024

M/S \_\_\_\_\_

**TENDER FOR "CERTAIN REPLACEMENT/REPAIR TO ROOF TREATMENT AT TPT  
LINE, 3rd LANCER AND OTHER CERTAIN LOCATION IN THE AREA OF  
AGE B/R-I UNDER GE GWALIOR"**

Dear Sir (s),

1. Tender documents in respect of above work are uploaded on the site [www.defproc.gov.in](http://www.defproc.gov.in). The tender is on single stage two cover e-tendering system. The contents of Cover I & II are specified in NOTICE OF TENDER.
2. The tender shall be uploaded by tenderers by date mentioned in NIT (Date of opening of Cover-1 i.e. opening of online application and evaluation of application) (refer [eprocuremes.gov.in](http://eprocuremes.gov.in)) on line for the Garrison Engineer Gwalior. Tender will be opened on day (refer [eprocuremes.gov.in](http://eprocuremes.gov.in)), in the presence of such tenderer or agents of such tenderer who have submitted priced tender and who may wish to be present.
3. Tender must be uploaded by the tenderer on tender documents uploaded by the Accepting officer.
4. IMPORTANT  
Tenderer shall quote their percentage above/ below SSR applicable as the case may be in figures in the space provided in BOQ.
5. Tenderer(s) attention is invited to serial pages containing General Conditions of Contracts and Schedule of Minimum Fair Wages, since the contents of these pages are common to all tenders and are available with tenderer(s) and/or have been ascertained from proper authorities, these have not been attached and these pages shall form part of the tender documents.
6. Un-enlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT along with EARNEST MONEY DEPOSIT(EMD) and tender fee on e-procurement portal and submit the physical documents in the office of GE Gwalior within the time specified in NIT. Inadequacy/deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
7. Tender from contractors having not executed Standing Security Bond in any of MES formations, shall accompany with Earnest Money as mentioned in Notice of tender, failing which tender will be treated as non-bonafide. Such tenderer, who submit bonafide tender and whose tender is accepted, would be required to deposit individual security deposit on acceptance of tender which will be calculated with reference to tendered cost as per scales laid down by MES for calculation of 'EARNEST MONEY' enhanced by 25% subject to a Maximum of Rs 18,75,000.00.
8. 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.
9. This letter including enclosures shall form part of the tender documents.

Yours faithfully

Signature of Contractor

AGE (Contract)  
FOR ACCEPTING OFFICER

Dated.....

**INSTRUCTIONS FOR COMPLETION OF TENDER DOCUMENTS**  
**TO BE COMPLIED WITH BY THE TENDERER(S)**

**1. Earnest Money**

Contractors who are not enlisted with MES/who are enlisted but not executed the Standing Security Bond shall submit Earnest Money Deposit as detailed in Appendix 'A' to Notice of Tender in any one of the following forms, along with their tenders :-

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

**(c) Colour scanned copy of EMD shall be uploaded online system in cover No. 1 and original to be submitted offline before date of opening.**

NOTE: - Earnest Money in the form of cheque/Bank Guarantee etc. will not be accepted.

**NON SUBMISSION OF EARNEST MONEY WILL RENDER THE TENDER AS NON BONA FIDE AND CONSEQUENTLY IGNORED**

**2. CONTRACTORS ENLISTED IN OTHER MES FORMATIONS OUTSIDE CWE JHANSI AREA**

Contractors whose names are on the approved list of MES formations other than CWE Jhansi area and who have deposited Standing Security and have executed Standing Security Bond may tender without depositing Earnest Money with the tender. However if the Accepting officer decides to accept the tender of such tenderer, the tenderer will be required to lodge Standing Security Deposit as notified by the Accepting officer before accepting the tender equal to Earnest Money).

**3. GENERAL INSTRUCTIONS FOR COMPLIANCE**

3.1 The tender will only be accepted in the electronic form. All bids to be submitted in "**www.defprocme.gov.in**" portal documents should be scanned and forwarded in pdf or rar format as per portal system only.

3.2 Tenderers shall upload quoted BOQ on "www.defprocme.gov.in" portal on or before the bid closing date mentioned in the tender. No physical form/offline submission of the tender will be accepted.

3.3 All bids will be digitally signed by the contractor at appropriate places.

3.4 In case the signatory himself is the Sole Proprietor, 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. The person signing the tender on behalf of another partner(s) or on behalf of the firm or company shall attach with the tender a proper Power of Attorney duly executed in his favour by such all other Directors or by the partner(s) or in accordance with constitution of the company in case of company, stating that he has authority to bind such other partners or the firm or the company as the case may be, in all matters pertaining to the contract including the Arbitration Clause. **Colour scanned copy to be upload in cover – 1 of e-bid system.**

3.5 In case of an individual, self-sworn affidavit shall be executed by the contractor himself. **Colour scanned copy to be upload in cover – 1 of e-bid system.**

3.6 In case of partnership concern, power of attorney shall be executed by all partners. **Colour scanned copy to be upload in cover – 1 of e-bid system.**

3.7 In case of a company, power of attorney shall be executed in accordance with the constitution of the company. **Colour scanned copy to be upload in cover – 1 of e-bid system.**

**INSTRUCTIONS FOR COMPLETION OF TENDER DOCUMENTS**  
**TO BE COMPLIED WITH BY THE TENDERER(S)(CONTD)**

3.8 Bids to be submitted online well in time. Bid closes as mentioned on NIT or web site of **www.defprocme.gov.in** portal.

3.9 The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. Attention is also drawn to special condition 3 and also conditions 24 and 25 of IAFW-2249 (General conditions of contracts).

3.10 Tenders will be opened by two bid openers.

3.11 The tenderer shall quote his rates on the BOQ EXCEL. FILE only as per guide line of NIC portal. No alteration to the format will be accepted and the bid will be disqualified.

3.12 In case the tenderer has to revise/modify the rates quoted in the BOQ file, he can do so only in the BOQ files before uploading the tender through **www.defprocme.gov.in** site only before closing date.

3.13 In the event of lowest tenderer revoking his offer or revising his rates upwards/offering voluntary reduction, after opening of the tenders, 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 for depositing the amount through MRO. Issue of tender to such contractors / Authorized of quoting **eprocmes.gov.in** portal shall remain suspended till the aforesaid amount equal to the earnest money is deposited in Govt. Treasury. In addition, such tenderer and his related firm shall not be authorized to quote the tender in second call or subsequent calls. Reduction offered by the tenderer on freak high rates referred to the tenderer for review shall not be treated as voluntary reduction.

3.14 In view of the postal and other delays, it is suggested that the cost of tender & EMD shall be sent by a special messenger, if necessary or posted sufficiently in advance of the date and time fixed for closing date of cover one.

4. **CPM.**

4.1 The tender is based on CPM.

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

4.3 The time allowed for the completion of work has been worked out through CPM after dividing the work in board stage.

4.4 The tenderer shall make/update the CPM chart may using software like MS PROJECT or PRIMAVERA or any other suitable software after taking prior approval from GE.

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

4.6 The tenderers shall ensure that the "in lieu" sheet referred to above is returned along with the tender duly signed.

Contd.....

**INSTRUCTIONS FOR COMPLETION OF TENDER DOCUMENTS**  
**TO BE COMPLIED WITH BY THE TENDERER(S)(CONTD)**

**5 ELIGIBILITY CRITERIA**

**5.1 MES ENLISTED CONTRACTORS**

Class 'D' & Category a(i)

**Note:** Contractor to upload the scanned copy of MES enlistment letter. Demand Draft & Requesting Application of Issue of Tender.

**5.2 UNENLISTED CONTRACTORS**

(i) Meeting enlistment criteria of MES for above class & Category with regard to satisfactory completion of requisite value of similar works. Annual turnover, Solvency working capital, fixed assets. Engineering establishment etc.

(ii) No recovery outstanding in any Govt Deptt, (for which affidavit to be submitted).

(iii) Attested copy of police verification report/valid passport in respect of eligibility criteria is fulfilled & permission received from next higher Engineering Authority.

**NOTE:-** Scanned copies to be uploaded online and original/attested copies of supporting documents to be offline before due date.

**6. CONDITIONAL TENDER**

Special attention of the tenderer is invited to the fact that conditional tender are liable to be rejected. The tenderers are once again advised, not to put any condition. However, in exceptional cases, where the tenderer consider it a must to give any condition, they must simultaneously give the financial effect so as to arrive at the amount of offer if the department insist for withdrawing the condition. Please note that non-compliance of this requirement shall make the tender invalid and the same therefore will be rejected.

**7. REVISION/MODIFICATION OF QUOTED RATES**

(i) The tenderer shall quote his rates on the Schedule 'A' and General Summary pages only.

(ii) In the event of lowest tenderer revoking his offer for revising his rates upward (which will be treated as revocation of offer), after opening of tenders, 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 for depositing the amount through MRO, failing which the amount shall be recovered from payment due to such contractor or shall be adjusted from his Standing Security Deposit. In addition, such tenderer and his related firm shall not be issued the tender in second call or subsequent calls.

8. Department may issue amendments/errata in form of CORRIGENDUM to tender/revised BOQ to the tender documents. The tenders/bidders is requested to read the tender documents in conjunction with all the errata /amendments/corrigendum if any issued by the departments.

9. **If Contractor does not quote his rate against any item or 'NQ' appears in rate/amount of column, then it shall be deemed that rate quoted is Rupees Zero i.e. the contractor intends to execute the particular item at no cost basis (free of cost) to the Govt. Items and their quantities for which no rates or prices have been quoted shall be deemed to have been covered by the rates and prices quoted for the other items of bills of quantities. Hence contractors are requested to thoroughly check their quoted rates before submitting bid online. No representation by the contractor on this matter shall be entertained by the department in the matter**

10. **Performance Security (Refer Condition 19 of IAFW-2249):-** The performance security for an amount equivalent to 5% (Five percent) of the accepted contract sum shall be delivered by the successful bidder within 28 days from the intimation letter of acceptance. Please note that it is an express condition of the contract that Work Order No. 1 shall only be issued when contractor deposited the performance security in shape of FDR/BGB/any other Govt instrument. The period of validity of the Bank Guarantee Bond against Performance Security shall be initially valid upto the stipulated date of expiry of Defects Liability Period plus minimum sixty days beyond that and all other conditions shall be applicable as per condition 47 and other conditions of IAFW-2249.

11. These instructions shall be signed and returned along with tender documents.

Signature of Contractor  
Dated\_\_\_\_\_

AGE (Contracts)  
for Accepting Officer

**MILITARY ENGINEER SERVICES**  
**NOTICE OF TENDER**

1. A tender is invited for the work as mentioned in Appendix 'A' to this Notice of Tender.
2. The work is estimated to cost as indicated in aforesaid Appendix 'A'. This estimate however is not a guarantee and it is merely given as rough guide and if the work costs more or less, the tenderer will have no claim on this account. The tender shall be based 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 but in case of term contracts. Contractors of category 'E' to 'SS' may tender. In case where the tendered amount is in excess of financial category whether or not the estimated amount was within the financial category of the contractor, the Accepting Officer reserve the right to accept the tender, in which event, the tenderer would be required to lodge "Standing Security Deposit" as notified by the Accepting Officer in terms of conditions of contract.
5. Contractors whose names are borne on the MES approved list of any MES formation and who have deposited 'Standing Security' and have executed 'Standing Security Bond', may also tender without depositing 'Earnest Money' along with the tender and if the Accepting Officer proposes to accept tender, such tenderer would be required to deposit "Standing Security Deposit" equal to the amount of earnest money. One tenderer/bidder or one firm of the contractors shall participation not more than one online submission of tender. 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 for the same contract as separate competitors. Breach of this contract condition will render the tender of both parties liable to rejection.
6. The Garrison Engineer Gwalior, Military Engineer Service, Morar Cantt Gwalior 474006 will be the accepting officer here in after referred to as such for the purpose of this contract.
7. **Application along with DD for the tender forms must be submitted offline to the Garrison Engineer Gwalior, Military Engineer Services, Morar Cantt Gwalior-474006 so as to reach this office on or well before closing date of submission of Bid otherwise within 05 days from the end date of bid submission.**
8. Invitation for accept of cover-1 does not constitute any guarantee for consideration and opening of price bid in cover No 2 which will be done only after opening and evaluation of technical bid/applications in cover No 1 even to enlisted/un-enlisted contractors/bidder of appropriate class & category. Opening of price-bid (Cover No 2) of tender will be decided by the Accepting Officer based on interalia, past track record, financial position and experience of similar works executed by the applicants/contractor/bidder. The Accepting Officer shall consider applications (Cover No 1) received up to date of receipt of application/extended date of receipt of application for consideration and subsequent opening of cover No 2. The applicant/contractor/bidder will be informed regarding non-opening of Cover No 2 of tender with assigning reasons. The applicant/contractor if he so desires, may appeal to the next higher Engineer Authority with copy to the Accepting Officer upto seven days prior to date of opening of price bid (cover No 2). The decision of the next higher authority shall be final. No applicant/contractor/bidder shall be entitled for any compensation whatsoever for non-consideration/opening of cover No 2.
9. Tender forms and conditions of contract and other necessary documents as will be uploaded in Cover 1& Cover 2 as per date given in aforesaid Appendix 'A'.
- 9.1 The appropriate 'Standing Security' amount for this work will be as deposited by the contractors enlisted in the area in which the work lies for Class mentioned in aforesaid Appx 'A'

Contd.....

**NOTICE OF TENDER (CONTD.....)**

9.2 In the case of a contractor who has not executed the 'Standing Security Bond', the tender shall be accompanied by 'Earnest Money' for the amount referred to in the aforesaid Appendix 'A' in the form of deposit at call receipt issued in favour of GE Gwalior, mentioned in aforesaid Appendix 'A' by Scheduled Bank or receipted Treasury Challan, the amount being credited to the revenue deposit of the GE. 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 tender without depositing 'Earnest Money' along with the tender, but if the Accepting Officer decides to accept the tender, such tenderer shall lodge 'Standing Security Deposit' as notified by the Accepting Officer with Controller of Defence Accounts concerned in the prescribed form all as mentioned in para 4.1 on page 4 here in before a tender is invited for the work as mentioned in Appendix 'A' to this Notice of Tender.

9.3. A contractor who is enlisted and has lodged the standing Security Deposit and executed the Standing Security Bond but the tendered cost of work exceeds the financial limits of the contractor (i.e his class of enlistment) shall lodge with the Accepting Officer concerned. Standing Security Deposit as notified by the Accepting Officer within thirty days of the receipt by him of notification of acceptance tender, failing which this amount will be recovered from the first RAR payment. However, in case where he of notification of acceptance of tender makes any payment to the contractor within thirty days of the receipt the amount of Standing Security Deposit will be recovered from such payment

10. The GE will return the earnest money applicable to all unsuccessful tenderers by endorsing an authority on the deposit receipt for its refund. The GE will either return the 'Earnest Money' to the successful tenderer by endorsing an authority on the deposit receipt for refund on receipt of an appropriate amount of security deposit or will retain the same on account of security deposit if such transaction is feasible.

11. Tenderers must be very careful to deliver & upload a bonafide tender, failing which the Accepting Officer may at his absolute discretion reserve the right of forfeiting a portion of Earnest Money, Security Deposit or Security Bond amount (not exceeding amount of cost of tender) deposited by the tenderer. A bonafide tender must satisfy each & every conditions laid down in this office.

12. The tenderers are advised to visit the site by making prior appointment with the GE in sufficient time. A tenderer shall be deemed to have full knowledge of all related documents, samples, site etc whether he has inspected site or not. The tenderers can submit the tender (cover No 1 & 2) up to the last date & time of submission of bid and the bid will be opened **Garrison Engineer Gwalior, Military Engineer Services, Morar Cantt, Gwalior 474006** on the date & time mentioned in Appendix 'A'.

13. Copies of the drawings and other documents pertaining to the work (signed for the purpose of notification by the Accepting Officer or his accredited representative) and sample of material and stores to be supplied by the contractor will be kept open for inspection of the tenderers in the office of GE mentioned in the aforesaid Appendix 'A' during working hours.

14. The Accepting Officer reserves the right to accept a tender submitted by a public sector undertaking giving a price preference over other tender(s) which may be lowest as are admissible under the Govt policy. No claim for any compensation or otherwise shall be admissible from such tenderers whose price bid (cover No 2) may be rejected on account of said policy.

15. Tenderers shall be deemed to have full knowledge of all relevant documents, samples sites etc whether he has inspected them or not.

16. The **Garrison Engineer Gwalior, Military Engineer Services, Morar Cantt Gwalior - 474006** will uploading of tender on the date and time indicated in the aforesaid Appendix 'A'.

Contd.....

**NOTICE OF TENDER (CONTD.....)**

17. Any tenderer, who proposes any alterations to any of the conditions, laid down or proposes any other condition of any description whatsoever is liable to be rejected.
18. The submission of tender by a tenderer implies that he has read this office notice and the conditions of the contract and has made himself aware of the scope and specifications of work to be done and of the conditions and rates at which stores, tools, and plants etc will be issued to him, local conditions and other factors bearing on the executing of the work.
19. Tenderer must be in possession of a copy of MES standard Schedule of rates 2009 (Part-I), Specifications and SSR 2020 (Part-II) for rates including amendments/errata thereto.
20. The Accepting Officer does not bind himself to accept the lowest tender or any tender or to give any reason thereof.
21. This Notice of Inviting Tender (NIT) including Appendix 'A' shall form part of the contract
22. A scanned copy of evidence of provident fund code number in addition to other documents shall be uploaded as packet 1 (Technical bid) of the tender on e-tendering portal. It is clarified that contractor not in possession of this number shall be disqualified in 'T' bid evaluation and his financial bid shall not be opened.
23. While clearing of RAR and final bill a certificate shall be submitted by the contractor that "all workers employing directly or indirectly by him are registered for EPF and the due contributions have been credited in to their account".
24. **Minimum Engineer Establishment**
- (a) One graduate Engineer from a Govt recognized institution with minimum experience of 02 years.
- and
- (b) One diploma Engineer from Govt recognized institution with minimum experience of 04 years.
25. **Minimum T&P/Machinery**
- |  |           |
|--|-----------|
| (a) One bag capacity concrete mixer (diesel)     | : 01 No   |
| (b) Vibrators (Needle and Plate type)            | : 02 Nos  |
| (c) Steel shuttering with spans, props etc (sqm) | : 500 Sqm |
| (d) Concrete pump                                | : 01 No.  |
| (e) Concrete mobile weigh batchers               | : 01 No.  |
| (f) Tower/Builder's Hoist                        | : 01 No.  |
26. The applicability of Good and Service Tax (GST) shall be on all contracts, it is mandatory for the contractors to upload their Good and service tax (GST) Registration Number alongwith the 'T' bid. This will be one of the criteria for qualifying in 'T' bid contractor, who does not upload Good and Service Tax regn No. shall be disqualified in the 'T' bid evaluation and his Financial bid shall not be opened.

Signature of Contractor  
Dated\_\_\_\_\_

AGE (Contracts)  
For Accepting Officer



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

1	:	Name of work	:	<b><u>"CERTAIN REPLACEMENT/REPAIR TO ROOF TREATMENT AT TPT LINE, 3rd LANCER AND OTHER CERTAIN LOCATION IN THE AREA OF AGE B/R-I UNDER GE GWALIOR"</u></b>
2	:	Estimated Cost (Approx)	:	Rs. 45.00 Lakh (at par market)
3	:	Period of completion	:	180 days
4	:	Cost of Tender	:	The cost of tender shall be Rs 500/- (Rupees five hundred only) in the form of Demand Draft (DD) or Banker's cheque from any Scheduled bank in favour of GE Gwalior payable at Gwalior. (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	:	<b><u><a href="https://defproc.gov.in">https://defproc.gov.in</a></u></b>
6	:	Type of Contract	:	The tender shall be based on drawing and specifications (IAFW-2159)/IAFW 1779A and GCC (IAFW-2249) with Schedule 'A' (list of items of work) to be priced by contractor/pre priced by MES. The contractor is required to quote the lump sum amounts for parts of Schedule 'a' and quote rates against items of other parts of Schedule 'A'. (Suitable modification shall be made depending upon the type of tender)
7	:	Information & details: (a) Bid submission start date (b) Bid submission end date (c) Date of bid opening	:	Refer critical dates on <b><u><a href="http://www.defproc.gov.in">www.defproc.gov.in</a></u></b> site
8	:	<b><u>ELIGIBILITY CRITERIA:-</u></b> (A) For MES enlisted Contractors	:	Contractors shall be enlisted with MES in class ' <b>D</b> ' and above and category <b>a(i)</b> subject to satisfactory remarks wrt performance in respect of wks in hand as reflected in Work load return (WLR) or any other report circulated by competent authority.
	:	(B) For contractors not enlisted with MES	:	(i) Contractor not enlisted with MES should meet the enlistment criteria of ' <b>D</b> ' Class & <b>a(i)</b> category contractor with regard to satisfactory 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 temporary) 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 bid submission end date .

Contd.....

9	:	Tendering issuing and Accepting Officer	:	Name: Garrison Engineer Gwalior Address: Garrison Engineer, Morar Cantt, Gwalior (M.P)-474006 Tele: 0751-2467741 Email : gwlr4-mes@nic.in
10	:	Executing agency	:	Garrison Engineer Morar Cantt Gwalior (MES)
11	:	Earnest Money	:	Rs. 90,000.00 in favour of Garrison Engineer Gwalior in the form of Deposit at call receipt, FDR not acceptable.

**Notes:**

1. In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT are less than 7(Seven), applications in respect of MES contractors of one class or two classes (in case of remote and difficult areas to be decided as per list circulated by CE command/ADG) below the eligible class shall also be considered subject to fulfillment of other eligibility criteria given in the NIT. Therefore MES contractor's one class below (two classes below in case of remote and difficult areas) may also bid for this tender. Such Contractors (contractors of one/two classes below the eligible class) shall not be considered in case their present residual work in hand is more than FIVE TIMES their present tendering limit. However in case such Contractors 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 upgrading shall also upload the requisite information/documents in support of upgradation. These details shall be verified by the Tender Issuing Authority from concerned formations in case bids of such contractors are considered for evaluation

2. In case after opening of Cover 1, the number of MES enlisted contractors of eligible class as well as un-enlisted contractors, if any, fulfilling the other eligibility criteria given in NIT, are 7 (Seven) or more, applications of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of upgradation in respect of past experience of completed works (individual work experience and/or average annual turnover as applicable) and financial soundness (solvency/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractors shall upload the requisite information/documents in the Cover- I

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

4. Contractors enlisted with MES will upload following documents in Cover I for checking eligibility:-

(a) Application for tender on Firm's letterhead.

(b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.

(c) Scanned copy of DD /Bankers Cheque toward cost of tender and EMD instrument in case SSD bond is not signed at the time of registration.

(d) Any other document required as described in the Appendix.

(e) Scanned copy of Wk in hand showing names of wk, Accepting Offr, CA amt, date of commence and completion (stipulated)

Contd....

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

(a) Application for tender on Firm's letterhead.

(b) Scanned copy of DD/ Bankers cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.

(c) Copy of Police Verification Report/Police Clearance Certificate/ Character Certificate from the Police Authority of the area where the registered office of the firm is located/notarized copy of valid passport of Proprietor/each Partner/each Director.

(d) All documents required for enlistment in MES for the class mentioned in Para 8(b) above as per Para 1.5 of Section 1 of MES Manual on Contracts 2020.

(e) Details of works being executed in MES, if any.

(f) Any other document required as described in this Appendix.

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 the office of Accepting Officer within 07 days of bid submission end date (number of days to be mentioned shall be as decided by the Accepting Officers, but it shall not be less than 5 days) failing which following action shall be taken.

(a) In case of tenders from an enlisted contractor of MES, where scanned copies of requisite DD/ Bankers Cheque towards cost of tender have been uploaded in Cover I but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tenderer shall be banned from bidding for a period of six months commencing from the date of opening of Financial Bid (Cover 2).

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

(c) In case of tenders from enlisted and unenlisted 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.**

Contd...

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 NII, 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 CWE Jhansi on Email id [jhn3-mes@nic.in](mailto:jhn3-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 unenlisted contractor is already executing works in MES, he shall not be considered eligible for the subject tender if the total value of such works is more than twice the tendering limit of the MES Class of contractor for which it is eligible. For this purpose, details of the works being executed by such a contractor shall be uploaded in the Cover -I of the bid and shall be checked/verified by the Accepting Officer.

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

Contd....

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

Dated: -

Case file: 8115/B/02/E8  
15 Oct 2024

Garrison Engineer Gwalior  
Morar Cantt - 474006

AGE (Contracts)  
for Garrison Engineer

**DISTRIBUTION :-**

1. HQ CWE Jhansi 2. HQ CWE Bhopal 3. CWE (AF) Gwalior 4. GE Jhansi 5. GE Mhow 6. GE Bhopal 7. GE (AF) M'Pur 8. Executive Engineer PHE Gwalior 9. GE Babina 10. SBI Main Branch Gwalior 11. Head Post Office, Gwalior 12. Executing Engineer, Irrigation Deptt Gwalior 13. Asst Labour Commissioner (C), NirmalSadan, CGO Complex Room No 306, 3rd Floor, Area Hills Behind Govt Press, Bhopal 14. LEO (Central), NirmalSadan, CGO complex, Room No 306, 3 rd Floor, Area Hills, Behind Govt Press, Bhopal 15. Commission Nagar Nigam Gwalior 16. GE E/M M'Pur 17. GE (R&D) Agra 18. E-2 Section (Local) 19. AGE E/M, GE Gwalior 20. AGE B/R-I, GE Gwalior 21. AGE B/R-II, GE Gwalior 23. BSO, GE Gwalior 22. AO GE Gwalior 23. Notice Board

**REGISTERED WITH A REQUEST TO MAKE WIDE PUBLICITY AMONG YOUR MEMBERS**

1. Hon Secy MES Builder Association of India (Regd), Near Hotel Shivalaya, Manik Vilas, Jhansi Road, Gwalior -474002
2. Hon Secy, MBAI Shakti Trading Corporation Main Road Bairagarh, Bhopal.

IN LIEU OF IAFW-1779-A (REVISED)

TO BE USED IN CONJUNCTION WITH GENERAL CONDITIONS OF  
CONTRACTS IAFW-2249

**MILITARY ENGINEER SERVICES**

Mil Tele : 2180

**REGISTERED A/D**

Garrison Engineer Gwalior  
Military Engineer Services  
PO: Morar, Gwalior-474006

8115/B/03/E8

15 Oct 2024

**ITEM RATE TENDER AND CONTRACT FOR WORK REQUIRED IN THE  
EXECUTION OF FOR: - "CERTAIN REPLACEMENT/REPAIR TO ROOF  
TREATMENT AT TPT LINE, 3rd LANCER AND OTHER CERTAIN LOCATION IN  
THE AREA OF AGE B/R-I UNDER GE GWALIOR"**

1. Shri/M/S.....of..... is/are hereby authorized to tender for the above work. The BOQ is to be uploaded in the [www.defproc.gov.in](http://www.defproc.gov.in) site (single stage two **cover system**) **before 1800 hrs on \_\_\_\_\_ 2024.**

2. Any correspondence concerning this tender should be online and no offline correspondence is permitted.

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

SIGNATURE OF OFFICER ISSUING TENDER

APPOINTMENT : GARRISON ENGINEER

**GE GWALIOR**

Dated :

SIGNATURE OF CONTRACTOR

DATED : \_\_\_\_\_

SCHEDULE 'A'  
(IAFW-1779-A REVISED 1955)  
LIST OF WORKS AND PRICES.

**NAME OF WORK: "CERTAIN REPLACEMENT/REPAIR TO ROOF TREATMENT AT TPT LINE, 3rd LANCER AND OTHER CERTAIN LOCATION IN THE AREA OF AGE B/R-I UNDER GE GWALIOR"**

(A) **NOTES (GENERAL) APPLICABLE TO ALL SECTIONS:**

1. The quantities shown in column 3 are approximate and are inserted as a guide only. However, these shall not be varied beyond the limits laid down in condition 7 of IAFW-2249 General Condition of contracts.
2. **SCOPE OF WORK.** The work shall be executed at Morar Cantt in the area of AGE B/R-I under GE Gwalior as per Maintenance programme. The location of works shall be changed as per user's requirement with decision of accepting officer. In this regards decision of accepting officer shall be final and binding.
3. The rates shall be quoted in figure only. Software system will automatically inserted base on the rate inserted by the bidder/tenderer.
4. **SCHEDULE OF CREDIT.** Total amount in Column 7 is not firm but will be treated as the "Contract Sum" referred to in IAFW-2249. Tenderer has to visit the BOQ pages of tender for quoting the rates of each items of the schedules. Total amount of schedule of credit has been catered towards Sch of credit for which details have been made in a separate schedule in the 'PDF' document and tenderer shall study the same before quoting. The amount of schedule of credit shall be deducted from the Total amount of BOQ under Col 7. Contract sum shall be arrived accordingly to arrive lowest tenderer (L-1). Contractors are requested to take note of this while quoting for items contained in BOQ (Cover No 2). No cognizance on account of any variation shall be entertained at a later date.
5. Total amount under column 7 is not firm but will be treated as "CONTRACT SUM" or all the purpose as referred to in IAFW-2249.
6. **UNIT RATE:** The tenderer shall calculate his own details and insert unit rates in Column 5 against each item of Schedule 'A'. It is an express condition of this contract that the rates quoted by the tenderer in the tender for various items shall be deemed to include for the entire and final completion of the items of work in accordance with provision of the tender. Government shall not entertain any claim whatsoever on account of inaccuracies/misunderstanding if any in the aforesaid rates.
7. Tenderers shall be deemed to include in his unit rate for each item for the provision of all materials, labour, operations, tools/plants as required and other requirements as detailed in the Particular Specifications irrespective of whether these appear as specific item or mentioned in the description of items in Schedule 'A' or not and the tenderer shall not be paid any extra for the same.
8. The under mentioned remarks shall be deemed to have been against each item of BOQ:-
  - (a) Refer list of drawing.
  - (b) Refer note No 11 of Schedule 'A' Notes.
  - (c) Refer notes to Schedule 'A'.
9. **PERIOD OF COMPLETION.** Total work under this contract shall be completed within **180 Days** from the date of handing over of site.
10. Unless otherwise specified method of measurement of various items of work shall be as stipulated in MES Standard Schedule of Rates (Part I – 2009 and Part II – 2020).
11. The rates quoted by the tenderer shall be deemed to include any minor details/items of work and/or construction which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work and decision of the accepting officer on this account shall be final, conclusive and binding.

Contd.....

SCHEDULE 'A' (CONTD.....)  
(IAFW-1779-A REVISED 1955)

**LIST OF WORKS AND PRICES (CONTD.....)**

12.1 **TAX:-** The rate quoted by the tenderer shall be inclusive of all types of taxes, levies, including GST, labour welfare cess etc as prevailing on date of submission of tender. GST at the rate as notified by Govt of India shall be deducted at source.

12.2. **Good and Service Tax (GST)**

12.2.1 As per the latest clarification given by the MoD and Ministry of Finance, Goods and Services Tax (GST) is liable on the subject tender as applicable. The liability of paying Goods and Service Tax (GST) is on contractor only. Accordingly rate/amount quoted in the tender by the contractor shall deemed to include Goods and Service Tax (GST) as per Govt instructions on GST and no reimbursement shall be made on this account. The rate of Goods and Service Tax (GST) shall be as per notification issued by the Govt from time to time. The contractor shall take note of this point and any condition to this effect inserted by him in the tender will be treated as CONDITIONAL TENDER and the tender thus uploaded by the firm shall be treated as invalid and stands rejected. The rate quoted by the contractor shall be deemed to include all taxes and also include for applicability of GST on works Contracts as per Govt instructions and no reimbursement shall be made on this account at later stage.

12.3 **SAFETY MEASURES, PRECAUTIONS, RISKS ETC.**

12.3.1 The work shall be carried out with utmost care to ensure that no damage to Existing/Adjoining work is done failing which the damage, if any done shall be rectified by the Contractor to match with the existing/Adjoining Work to the entire satisfaction of Engineer-in-Charge under Contractor's own arrangement and at his own expenses.

12.3.2 Suitable Tools, Plants, Equipment's, Mechanism, etc, as considered necessary shall be adopted during execution of the work. The Contractor shall take all Precautions, Safety Measures etc, to avoid any Damage, Miss-happening, Accident, etc to the Workmen engaged by him to carryout the work. The UNIT RATES quoted by Contractor shall be deemed to have included the Element of adopting Safety Measures, Precautions and also the Risks etc involved in work and nothing EXTRA shall be admissible on this account.

13. **METHOD OF MEASUREMENT.**

13.1 The method of Measurement to be adopted in the Contract shall be as laid down in MES STANDARD SCHEDULE OF RATES PART-I & II. IS 1200 and other relevant BIS standard. The General Rules, Special Conditions, Preambles and other provisions in MES STANDARD SCHEDULE OF RATES PART-I & II and relevant BIS standard shall be deemed to apply to the work under this Contract unless otherwise mentioned in the Tender documents. However, where the UNITS of work given in Column 4 against Items of Schedule 'A' are at variance with that mentioned against respective items in MES STANDARD SCHEDULE OF RATES, the Measurements of work against such items of Schedule 'A' shall be done as per the units given in Schedule 'A'.

14. Make have been given in BOQ. However, in absence of makes in BOQ, comprehensive list of approved makes of materials shall be followed as applicable for this work. Please note that materials can also be procured of makes approved by HQ E-in-C's Br New Delhi/HQ Southern Command Pune with equivalent specification and Cat Part No in addition to the makes catered in BOQ and/or particular specification.

15. **Performance Security (Refer Condition 19 of IAFW-2249):-** The performance security for an amount equivalent to 5% (Five percent) of the accepted contract sum shall be delivered by the successful bidder within 28 days from the intimation letter of acceptance. Please note that it is an express condition of the contract that Work Order No. 1 shall only be issued when contractor deposited the performance security in shape of FDR/BGB/any other Govt instrument. The period of validity of the Bank Guarantee Bond against Performance Security shall be initially valid upto the stipulated date of expiry of Defects Liability Period plus minimum sixty days beyond that and all other conditions shall be applicable as per condition 47 and other conditions of IAFW-2249.

16. The **Defect Liability Period** for executed work under the work shall be **Twelve Calendar Months** from the actual date of completion of work and in case of execution of work considered in Phases in tender, in that case the defect liability period shall be considered Twenty Four Calendar Months from the actual date of completion of work.

17. **If Contractor does not quote his rate against any item or 'NQ' appears in rate/amount of column, then it shall be deemed that rate quoted is Rupees Zero i.e. the contractor intends to execute the particular item at no cost basis (free of cost) to the Govt. Items and their quantities for which no rates or prices have been quoted shall be deemed to have been covered by the rates and prices quoted for the other items of bills of quantities. Hence contractors are requested to thoroughly check their quoted rates before submitting bid online. No representation by the contractor on this matter shall be entertained by the department in the matter.**

Signature of Contractor

For Accepting Officer



**SCHEDULE OF CREDIT****CERTAIN REPLACEMENT/REPAIR TO ROOF TREATMENT AT TPT LINE, 3rd  
LANCER AND OTHER CERTAIN LOCATION IN THE AREA OF  
AGE B/R-I UNDER GE GWALIOR****NOTES:**

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. before quoting the tender. Contractor shall be deemed to have inspected the material whether or not they actually inspect. No claim what so ever shall be entertained on account of condition, quality and serviceability of materials. However the quantities and amount mentioned under column 4 & 6 respectively of this schedule is tentative and as a guide only and will vary as per actual work. The quantities actually obtained at site shall be recorded in MB duly signed by the contractor and Engineer-in-Charge.
3. The materials shall be removed from site only after written permission of the Engineer-in-Charge.
4. Demolished materials which are not covered under this Sch of credit shall be return to the department or thrown in the site as directed by Engineer-in-Charge.
5. It shall be the responsibilities of the contractor to remove the articles from site of his own expenses after obtain written permission of Engineer-in-Charge and after deduction the credit amount from RAR/Final bill whichever is earlier. The site shall be clean and tidy after removal of all materials obtain from demolition.
6. Demolition/dismantled material shall not be reused in the work, unless otherwise specified in the Sch 'A'
7. Credit on account of old retrieved materials listed in this schedule shall be recovered from advance payments to the contractor as and when dismantling/demolition/taking down is carried out irrespective of whether or not the contractor has actually removed those from site of work.

Srl No.	Description of items	Unit	Appox Qty	Rate of. Recovery	Amount	Re marks
1	2	3	4	5	6	7
1	Old ceiling board with cover filets	Sqm	800.00	10.00	8000.00	
2	Old Unsv Asbestos / Galvanium Roof Sheet	Sqm	1690.00	10.00	16900.00	
3	Old Unsv Iron Scrap	Kg	900.00	12.00	10800.00	
4	Old PVC water tank 500ltr	Each	9.00	150.00	1350.00	
5	Old PVC water tank 1000ltr	Each	9.00	200.00	1800.00	
6	Old float valve	Each	18.00	20.00	360.00	
<b>Total of Schedule of credit carried over to summary on serial page No. 21</b>					<b>39,210.00</b>	

Signature of the Contractor  
Date

**AGE CONTRACTS  
FOR ACCEPTING OFFICER**

**SUMMARY**

1	Total amount of BOQ worked out by the contractor and brought forwarded from serial page No. 19	Rs. _____
2.	Lump sum price worked out by the MES for "Credit" as listed in Schedule of credit page No. 20	Rs 39,210.00
	GRAND TOTAL	Rs. _____

(Rupees .....

.....Only)

SIGNATURE OF CONTRACTOR

AGE (CONTRACTS)

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

Srl No	Particulars	Unit	Rate at which materials will be issued to Contractor	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 and 35 of IAFW-2249)**

Sl No	Quantity	Particulars of T&P	Details of MES Crew supplied	Fire Charges per unit per working days	Stand by chargers per unit per off day	Place of issue by Name
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)**

Sl No	Quantity	Particulars	Rate per Unit per working days (s)	Place of issue by Name	Remarks
1	2	3	4	5	6
.....NIL.....					

SIGNATURE OF CONTRACTOR  
DATED:

For ACCEPTING OFFICER

TENDER

To,  
The President of India

Having examined and perused the following documents:-

1. Specifications signed by AGE (Contracts).
2. Drawing details in the Specifications.
3. Schedule 'A', 'B', 'C' & 'D' attached here to.
4. MES Standard Schedule of Rates-2009 Part-I (Specifications) and MES Standard Schedule of Rates-2020, Part-II (Rates) (herein after and in IAFW-2249 referred to as the MES Schedule) together with errata / amendment Nos 1 to 3 for SSR Part-I (2009) and amendment bearing Ser No. 1 to 122 to MES Schedule Part-II (2020).
5. General conditions of contracts IAFW-2249 (1989 Print) together with errata Nos 01 to 20 and amendment Nos 01 to 49.
6. WATER CONDITION 31 OF IAFW -2249: GENERAL CONDITIONS OF CONTRACT: - Water will be supplied by the MES and shall be paid by the contractor at the rate Rs. 3.75 per every of 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 \_\_\_\_\_) forwarded as Earnest money shall either be retained as part of Security deposit or be refunded by the Govt on receipt of appropriate amount of security deposit, all as per condition 22 of IAFW - 2249.
  - (b) To execute all the work referred to in the said documents upon the terms and conditions contained or referred to therein at the item rates contained in the afore said 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 deviation as may be ordered vide condition 7 of IAFW - 2249 upto a maximum of **10% (TEN PERCENT)** and further agree to refer all the disputes as required by condition 70 and 71 of IAFW - 2249 to the sole arbitration of serving officer having degree in Engineering or equivalent or having passed final/direct final examination of Sub Division-II of Institution of Surveyors (India) recognized by the Govt of India to be appointed by Chief Engineer Bhopal Zone, Bhopal or in his absence the Officer Officiating as Chief Engineer Bhopal Zone, Bhopal, whose decision shall be final conclusive and binding.

**\*\*\* To be deleted where not applicable.**

Contd...../-

TENDER (CONTD)

Signature \_\_\_\_\_ (With Name in Block letters)  
in the capacity of \_\_\_\_\_ is/are authorised to sign  
the tender for and on behalf M/s \_\_\_\_\_ (In Block letters)

Witness :	Date :
Address : .....	Postal : .....
.....	Address : .....
.....	.....
.....	.....
.....	.....
.....	Telephone Number .....

**ACCEPTANCE**

\_\_\_\_\_ alterations have been made in these documents and as evidence that these alterations were made before the execution of the contract Agreement, they have been initialed by the contactor and **Shri K K Sharma, AE (QS & C), AGE (Contracts)**. The said officer is hereby authorized to sign and initial on my behalf the documents forming part of this contract.

The above tender was accepted by me on behalf of the President of India, at the item rates contained in Schedule 'A' for the contract sum of Rs.....Rupees.....  
.....only)  
on .....

Signature.....

Dated this.....day of .... 2024

APPOINTMENT: Garrison Engineer Gwalior.  
ACCEPTING OFFICER  
(For and on behalf of the President of India)

(In lieu of IAFW-1779-A (Revised-1955))

GENERAL CONDITIONS OF CONTRACTS IAFW-2249 (1989 Print)TERM CONTRACTS FOR ARTIFICERS WORKS (IAFW-1821)ORMEASUREMENT CONTRACTS (IAFW-1779 AND 1779-A)

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

It is hereby further agreed and declared by me/us, that the General Conditions of Contracts IAFW-2249 (1989 Print) including condition 70 thereof pertaining to settlement of disputes by arbitration, containing 33 pages with errata 1 to 20 and amendments No 1 to 49 containing 12 pages form part of these tender documents.

Signature of Contractor

AGE (Contracts)  
for Accepting Officer

Dated\_\_\_\_\_

SCHEDULE OF MINIMUM FAIR WAGES

It is hereby agreed that the "Schedule of Minimum Fair Wages" as published by Government of India or Provincial Government Notification dated 10 Mar 92 Containing 10 pages (Whichever is higher) issued up to date of submission of tender shall form part of these tender documents.

My/Our signature hereunder amounts to my/our having read and understood the provisions contained therein and I/ We agree that I/We shall abide by the same and that aforesaid documents form part of this tender. We also here by agree that payments to labours shall be made as per minimum wages notified by State Government or Central Government whichever is high.

Signature of Contractor

AGE (Contracts)  
for Accepting Officer

Dated\_\_\_\_\_

SPECIAL CONDITIONS1. GENERAL

The following special conditions shall be read in conjunction with 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.

2 INSPECTION OF SITE

The purpose of inspection of site, the tenderer is advised to contact the Garrison Engineer who will give reasonable facilities thereof. The tenderer shall also make himself familiar with the working conditions, accessibility to site of works, availability of labour and materials and such other relevant condition which affect the execution and the entire completion of the works. The tenderer shall be deemed to have inspected the site and made himself familiar with various factors which may affect his quotation, whether he actually inspect the site or not.

3. SECURITY AND PASSES

- 3.1 Tenderers attention is drawn to the site plan enclosed with the tender. Site of work is located in UNRESTRICTED AREA as indicated on site plan.
- 3.2 Contractor's attention is invited to condition 25 of IAFW-2249. He shall employ only Indian Nationals after verifying their antecedent and loyalty. The contractor shall, on demand by the Engineer-in-Charge, submit list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge to the bonafides of such people.
- 3.3 The Engineer-in-Charge shall at his discretion have right to issue passes as per rules and regulations of the installation/area in force to control the admission of the contractor, his agents, employees and work people to the site of work or any part thereof. Passes should be returned at anytime on demand by the Engineer-in-Charge or the authorities concerned and in any case on completion of work.
- 3.4 The contractor and his agents, employees and work people shall observe all the rules promulgated by the authority controlling the installation/area in which the work is to be carried out e.g. prohibition of smoking and lighting fire precautions, search of persons on entry and exit, keeping to specific routes observing specified timing etc. Nothing extra shall be admissible for any man hours, etc lost on this account.

4 SAFETY PRECAUTIONS

- 4.1 The contractor shall take every precaution to control traffic on road by keeping danger boards, necessary lightning arrangements, fencing etc and watchman to avoid any damage. In case due excavation or otherwise the road is to be blocked the contractor shall without any extra cost to the Government provide separate by pass so that normal traffic will not be disturbed.
- 4.2 Any damage to the existing road/building etc shall be made good by the contractor with the same specifications as per existing without any extra cost to the Government. In the event of contractor not fully complying with the above provisions to the satisfaction of the GE, the department may provide the same for which the expenses incurred will be recovered from the contractor.

Contd.....



SPECIAL CONDITIONS (CONTD....)5. SECURITY OF CLASSIFIED DOCUMENTS

Contractor's special attention is drawn to conditions 2 and 3 of General Conditions of Contracts (IAFW-2249). The contractor shall not communicate any classified information regarding works either to sub contractors or others without prior approval of the Engineer-in-Charge. The contractor shall also not make copies of the design/ drawings and other documents furnished to him in respect of works and he shall return all documents on completion of the work or on earlier determination of the contract. The contractor shall alongwith final bill attach a receipt from the Engineer-in-Charge in respect of his having returned the classified documents as per conditions 3 of General Conditions of Contracts.(IAFW-2249).

6. CONTRACTOR'S REPRESENTATIVES, AGENTS AND WORKMEN

The contractor shall employ only Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no person of doubtful antecedents and Nationality is in any way associated with the works. If for reasons of technical collaboration or consideration the employment of any foreign national is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of his tender. The GE shall order the contractor to cease to employ in connection with this contract any representative, agents servants and workmen or employees whose continued employment in his opinion is undesirable. The contractor shall not be allowed any compensation on this account.

7. MINIMUM FARE WAGES

Refer conditions 58 of General Conditions of Contracts IAFW-2249 the contractor shall have no claim whatsoever if for reason other than those mentioned in conditions 63 of IAFW-2249 he is required to pay wages in excess of the minimum fare wages shown in schedule of Minimum Fare Wages under conditions 58 of IAFW-2249.

8. ROYALTIES

Reference condition 14 of General Conditions of Contracts (IAFW-2249). No queries on Defence land are available.

9. LAND FOR TEMPORARY WORKSHOP, STORES ETC

Delete from lines 5 to 9 of sub para 1 of conditions 24 of IAFW-2249, reading "the event of land allotted to him and insert as under :-

"The contractor shall be allotted free of charge the area as marked on the lay out plan(s) for the purpose of erection of temporary workshop, stores etc. Plot of land so allotted shall not be used for accommodation of labour and canteen, which the contractor shall make his own arrangements at his own expense".

10. WATER

- 10.1 Refer Conditions 31 of General Conditions of Contracts IAFW-2249 water will be supplied by MES at the point(s) marked on site plan and shall be paid by Contractor @ Rs 3.75/- per Rs 1000/- worth of work done priced at contract rate. Is the water supply by the MES is likely to be intermittent the contractor shall make his own arrangement for storing the water required for the works, labour and workmen etc at his own expense.
- 10.2 If the contractor does not desire to take water supply from MES he shall specifically mention while submitting his tender otherwise the contractor shall be deemed to have agree to take water supply from MES.

Contd.....

SPECIAL CONDITIONS (CONTD....)11. CO-OPERATION WITH OTHER AGENCIES

The contractor shall permit free access and generally afford reasonable facilities to other agencies or workman engaged by the Government to carry out their part of work, if any under separate arrangements.

12. ELECTRIC SUPPLY

12.1 In the case the contractor desires to buy Electricity from MES, he shall be charged for electric energy consumed at Rupees 14.11 per unit (KWH) for lighting and power each.

12.2 Electric supply required for works shall be made available by the MES at the incoming terminal of the main switch marked on the layout plan. The main switch and "KWH meter" to register the electric energy supplied shall be provided and installed by MES. The contractor shall provide all necessary connections, cables, fittings, etc as approved by Engineer-in-Charge etc from the main switch in order to ensure proper and suitable supply of electricity and no compensation what so ever shall be allowed for supply becoming intermittent or for breakdown in the system or any reason whatsoever.

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

13. RECORD OF CONSUMPTION OF CEMENT

For the purpose of keeping a record of cement procured and consumed in works the contractor shall maintain a pacca bound register in the form of approved by the Engineer-in-Charge showing daily cement procured by the contractor, quantity used in works and balance in hand. The register shall be signed daily by the contractor's representative and the Engineer-in-Charge in token of their verification of its correctness. The check will not however absolve the contractor of his responsibility to justify the consumption of cement at the time of finalisation of his accounts. The register shall be kept at site in the safe custody of the contractor during progress of the work and shall on demand be produced for verification of Inspecting Officers. On completion of the work the register shall be handed over to the Engineer-in-Charge for record with MES.

14. 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 tender are due to be submitted.

15. DAMAGE TO EXISTING WORK

Any damage done to the existing structure during the execution of work shall be made good by the contractor at his own cost the site of work left clean and tidy on completion. Rectification/reinstalment etc shall conform to the standard of materials originally used in the work and finished work shall match with existing work in all respects to the entire satisfaction of the GE. In case of any dispute on this account matter shall be referred to the GE whose decision in writing shall be final and binding

Contd.....

SPECIAL CONDITIONS (CONTD....)16. ATTENDANCE DEPARTMENT LABOUR AND OTHER CONTRACTORS

The contractor shall permit free access and afford facilities to departmental labour or other contractor's carryout the work in the same premises or the same site.

17. OFFICIAL SECRET ACT

The contractor shall be bound by the Official Secret Act.

18. SIGNING OF CONTRACT DOCUMENTS

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

19. BANK GUARANTEE BOND

In case the contractor desires to furnish Bank Guarantee in lieu of retention money security deposit the guarantee bond be executed as per specimen prescribed by the Govt of India Ministry of Defence on non-judicial stamp papers of appropriate value from a scheduled bank. In case the Bank Guarantee Bond executed from a non-scheduled Bank the same shall be supported with cover from Reserve Bank of India. Guarantee Bond shall come into force after the same accepted by the Accepting Officer.

20. GOOD AND SERVICE TAX (GST)

20.1 As per the latest clarification given by the MoD and Ministry of Finance, Goods and Services Tax (GST) is liable on the subject tender as applicable. The liability of paying Goods and Service Tax (GST) is on contractor only. Accordingly rate/amount quoted in the tender by the contractor shall deemed to include Goods and Service Tax (GST) as per Govt instructions on GST and no reimbursement shall be made on this account. The rate of Goods and Service Tax (GST) shall be as per notification issued by the Govt from time to time. The contractor shall take note of this point and any condition to this effect inserted by him in the tender will be treated as CONDITIONAL TENDER and the tender thus uploaded by the firm shall be treated as invalid and stands rejected. The rate quoted by the contractor shall be deemed to include all taxes and also include for applicability of GST on works Contracts as per Govt instructions and no reimbursement shall be made on this account at later stage.

21. PROPRIETARY ARTICLES

21.1 The quantity of proprietary articles/materials brought to site shall be recorded in measurement book and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.

21.2 Proprietary materials brought at site shall be stored as directed by Engineer-in-Charge and suitably marked for identification.

21.3 The contractor shall, on demand, produce to the GE, original receipt vouchers invoices in respect of such materials the contractor shall insure that the material are brought to the site in original sealed container or packing bearing manufacturers marking.

Contd.....

SPECIAL CONDITIONS (CONTD....)22. CONTRACTOR'S SUPERVISION

If the contractor is not qualified Engineer or even if he is so qualified, he cannot in the opinion of the GE give his full personal attention to the work, shall at his own expense employ a person having a degree or Diploma in Engineering from Govt recognised Institution with adequate practical experience of work as his accredited agent to supervise the work and to receive the instructions from the Engineer-in-Charge.

23. HANDING OVER OF SITE

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

24. IMPLEMENTATION OF GST

- 24.1 **TAX:-** The rate quoted by the tenderer shall be inclusive of all types of taxes, levies, including GST, labour welfare cess etc as prevailing on date of submission of tender. GST at the rate as notified by Govt of India shall be deducted at source.

25. WORK ON HOLIDAYS:

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

26. FIRE PRECAUTION:

- 26.1 The Contractor, his agents, representatives, workmen etc. shall strictly observe the orders pertaining to fire precautions prevailing within the area concerned.
- 26.2 Motor transport vehicles, if any allowed by authorities to enter the area concerned must be fitted with serviceable fire extinguishers.

27. RE-IMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"**GOOD AND SERVICE TAX (GST)**

- 27.1 As per the latest clarification given by the MoD and Ministry of Finance, Goods and Services Tax (GST) is liable on the subject tender as applicable. The liability of paying Goods and Service Tax (GST) is on contractor only. Accordingly rate/amount quoted in the tender by the contractor shall be deemed to include Goods and Service Tax (GST) as per Govt instructions on GST and no reimbursement shall be made on this account. The rate of Goods and Service Tax (GST) shall be as per notification issued by the Govt from time to time. The contractor shall take note of this point and any condition to this effect inserted by him in the tender will be treated as CONDITIONAL TENDER and the tender thus uploaded by the firm shall be treated as invalid and stands rejected. The rate quoted by the contractor shall be deemed to include all taxes and also include for applicability of GST on works Contracts as per Govt instructions and no reimbursement shall be made on this account at later stage.

Contd.....

SPECIAL CONDITIONS (CONTD....)

27. Contd....

(i) The taxes which are levied by Government at certain percentage rates of contract sum/amount shall be termed as "Taxes directly related to contract value" such as GST on works contracts, turnover tax, labour welfare Cess/tax and the like but excluding Income Tax, The tendered rates shall be deemed to be inclusive of all "Taxes directly related to contract value" with existing percentage rates as prevailing on the last due date for receipt of tenders. Any increase in percentage rates of "Taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be reimbursed to the contractor and any decrease in percentage rates of "Taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the contractor to the Government/deducted by the Government from any payments due to the contractor. Similarly imposition of any new "Taxes directly related to contract value" after the last due date for receipt of tenders shall be reimbursed to the contractor and abolition of any "Taxes directly related to contract value" shall be refunded by the contractor to the Government/deducted by the Government from payments due to the contractor.

(ii) The contractor shall within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "Taxes directly related to contract value", give written notice to thereof to the GE stating that the same is given pursuant to this special condition, together with all information relating thereto which he may be in a position to supply. The contractor shall submit the other documentary proof/information as the GE may require.

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

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

28. **Performance Security (Refer Condition 19 of IAFW-2249)**:- The performance security for an amount equivalent to 5% (Five percent) of the accepted contract sum shall be delivered by the successful bidder within 28 days from the intimation letter of acceptance. Please note that it is an express condition of the contract that Work Order No. 1 shall only be issued when contractor deposited the performance security in shape of FDR/BGB/any other Govt instrument. The period of validity of the Bank Guarantee Bond against Performance Security shall be initially valid upto the stipulated date of expiry of Defects Liability Period plus minimum sixty days beyond that and all other conditions shall be applicable as per condition 47 and other conditions of IAFW-2249.

29. The **Defect Liability Period** for executed work under the work shall be **Twelve Calendar Months** from the actual date of completion of work and in case of execution of work considered in Phases in tender, in that case the defect liability period shall be considered Twenty Four Calendar Months from the actual date of completion of work.

SIGNATURE OF CONTRACTOR  
DATED

FOR ACCEPTING OFFICER

**PARTICULAR SPECIFICATIONS**  
**(SPECIFICATIONS FOR MATERIALS & WORKMANSHIP)**

1. **GENERAL.**
  - 1.1 The work under this contract shall be carried out in accordance with Schedule 'A' provisions, particular specifications, drawings (if any), General specifications and other provisions in MES Schedule Part-I and Part-II and these shall be read in conjunction with each other.
  - 1.2 The term "General Specifications" referred to here-in-before as well as referred to in IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in MES Schedule, IS and any other standard engineering books.
  - 1.3 General Rules, specifications, special conditions and all preambles in the MES Schedule shall be deemed to apply to the work under this contract, unless mentioned otherwise in these documents. In case of any discrepancy or variation, the provisions in these documents shall take precedence over the aforesaid provisions in the MES Schedule. The term "as specified" wherever appearing in tender documents relates to relevant particular specification and in its absence general specifications.
  - 1.4 Particular specifications given hereinafter are in brief and are meant only to particularise, amend and emphasise the specifications given in MES Schedules. In respect Schedule shall be followed.
2. **MATERIALS TO BE SUPPLIED BY CONTRACTOR.**
  - 2.1 Refer condition 10 of IAFW-2249 (General Conditions of Contracts).
  - 2.2 Materials to be provided by the Contractor for incorporation in the works, shall unless otherwise specified in the particular specifications, comply with requirements of latest edition of the relevant Indian Standards (I.S)
  - 2.3 Materials and articles shall bear ISI marking where indicated as such. Materials which are not being manufactured with ISI certification and ISI embossing shall conform to IS provisions.
  - 2.4 The tenderer is advised to inspect samples of I.S.I marked and other than I.S.I marked articles in the office of GE, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials he is required to incorporate in the work irrespective of whether he has actually inspected them or not.
  - 2.5 The contractor shall not procure bulk materials unless the sample of each article is got approved in writing from GE.
3. **MATERIALS WHICH LOOSE IDENTITY AFTER INCORPORATION.**
  - 3.1 Proprietary materials or articles such as bitumen, paint and cement etc. quantity of which can not be checked after incorporation in the work, shall when collected at site be recorded in measurement book with reference to Vr No, make, brand and rate charged by manufacturer/supplier, and signed both by the MES representative and the contractor. However, the contractor will be required to submit purchase vouchers only in respect of all the items for which payment is claimed in RAR as "Material lying at site". Vouchers in respect of balance items will not be required to be submitted. However, vouchers in respect of cement, steel, major E/M equipments like transformers, DG Sets, pumps, motors, AC & lift equipments will be submitted invariably and any other additional items specifically listed in the tender document. Purchase of cement & steel of approved manufacturers from their local dealers is permitted in all maintenance & special repair works with no structural work in scope. Purchase vouchers for bitumen shall not be insisted when contractor is purchasing the macadam from hot mix plant approved by GE.
  - 3.2 The contractor shall produce receipted vouchers of applicable items showing quantity and quality of the materials to satisfy the Engineer-in-Charge that materials comply with the specifications. These vouchers shall be endorsed, dated and initiated by the Engineer-in-Charge giving the contract number and name of work and certified copy of each such voucher signed both by Engineer-in-Charge and contractor shall be kept in MES record.
  - 3.3 Each and every material shall be entered in the MB before allowing advance payment as "material at site" as RAR. The contractor shall procure the materials from manufacturer authorized dealer/Stockist where such authorized stockiest have been appointed.
  - 3.4 Materials brought at site shall be stored as directed by the Engineer-in-Charge and those already recorded in measurement book shall be suitably marked for identification. The contractor shall ensure that the materials are brought to the site in original sealed container or packing, bearing manufacturer's marking.
  - 3.5 **PRODUCTION OF RECEIPTED BILLS/CASH MEMO FOR MATERIALS PROCURED:**
    - 3.5.1 The tenderer shall produce receipted bills cash memo from the manufacturer and/or their authorised agents for the full quantity of all materials as applicable as per pre-requisite before submitting the claims for payment of advance on account of materials collected in accordance with condition 64 of General conditions of Contracts IAFW-2249. (a) Cement (b) steel (c) sanitary fittings (d) electrical fittings (e) cable or required By Engr-in-charge/GE.
- 3.6 **EXCAVATION AND EARTHWORK.**
  - 3.6.1 **GENERAL.**

The rate quoted by the Contractor shall be deemed to include for excavation and earth work in the type of soil as mentioned in Schedule 'A'.
  - 3.6.2 **HARD CORE.**

Refer clause 3.27 of MES Schedule Part-I. The hard core shall be of broken / crushed stone or of broken bricks of gauge as described in Schedule 'A'.
  - 3.6.3 **MOORUM/RED BAJRI**

Refer clause 3.21 of MES Schedule Part -I. Size of moorum/red bajri shall vary from dust to 40 mm gauge.
4. **CEMENT**
  - 4.1 **GENERAL**
    - 4.1.1 Type of cement for the subject work shall be Portland Pozzolana cement [IS;1489-1991
    - 4.1.2 While using the PPC, following requirements shall be met with by the contractor:-
      - [a]. PPC shall meet the strength criteria of 43 Grade OPC as laid down in IS 8112-1989.
      - [b]. The minimum period before striking form work given in clause 11.3.1 of IS : 456- 2000 and period of curing shall be suitably increased at site by the GE. The contractor shall not claim anything extra on this account.
      - [c]. The contractor shall submit the following certificate from the manufacturer of the cement for every batch of cement.

Contd....

**PARTICULARS SPECIFICATIONS Contd.....**

[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 is received from thermal power plant using high temperature combustion above 1000°C has only been used.

**4.2 PROCUREMENT**

All cement required for completion of this contract shall be procured by the contractor under his own arrangement direct from the following manufacturers: -

No	Company Name	Address
1.	The Associated Cement Companies Ltd. Brand: "ACC"	414-421, Splendor Forum (4 <sup>th</sup> Floor), 3, District Centre, Jasola, New Delhi - 110044, Ph- 011 46583600
2.	Ultra Tech Cement Ltd. Brand: "ULTRATECH"	'B' Wing, 2 <sup>nd</sup> Floor, Mahakali Caves Road, Andheri (East), Mumbai - 400093, Ph- 022-66917800
3.	The India Cement	Dhun Building, 827, Anna Salai, Chennai - 600002
4.	Dalmia Cement (Bharat) Ltd. Brand: "DALMIA INFRA PRO"	Dalmiapuram Dist- Truchirappalli, Tamil Nadu - 621651
5	Century Cements. Brand: "CENTURY"	Industry House, 159 Church gate Reclamation, Mumbai -400020, Ph- 022 22023936
6	Saurashtra Cement Brand: "SAURASHTRA"	Gala No A-I, Ground Floor, UdhogSadan No 3 MIDC, Central Road, Andheri (East), Mumbai- 400093 Ph- 022 32955557/67, Mo- 9320290081
7	The Ramco Cements Ltd. (Formerly Madras Cement) Brand: "RAMCO"	Auras Corporate Centre, 98-A, Dr. Radhakrishnan Salai, Mylapore, Chennai — 600004 Ph- 044 28478666
8	Mangalam Cement Ltd Brand: "MANGALAM"	PO Adityanagar, Morak, Dist- Kota, Rajasthan — 326520 Ph- 9351468076
9	Birla Corporation Ltd Brand: "BIRLA"	Birla Building (3 <sup>rd</sup> & 4 <sup>th</sup> Floor) 9/1, R.N Mukherjee Road Kolkata - 700001, Ph- 033 30573700
10	Orient Cement Brand: "ORIENT"	5-9-22/57/D, 2 <sup>nd</sup> and 3 <sup>rd</sup> Floor, GP Birla Centre, Adarsh Nagar, Hyderabad- 500063, Pin- 044 23688600
11	Nuvoco Vistas Corporation Ltd (Formerly Lafarge Cement) Brand: "NUVOCO"	Equinox Business Park Tower-3, East Wing, 4 <sup>th</sup> Floor LBS Marg, Kurla (West), Kurla Mumbai, Maharashtra-400070
12.	Shree Cement Brand: "SHREE"	Bangur Nagar, Beawar, Dist- Ajmer, Rajasthan-305901 Ph - 01462 228101-06
13	J K Cement Brand: "J K"	Kamla Tower Kanpur-208001
14	J K Lakshmi Cement Ltd Brand: "J K LAKSHMI"	Jaykaypuram, Dist-Sirohi, Rajasthan-307019, Ph 02971 244409/10
15	Jaypee Rewa Cement Brand: "JAYPEE"	Jaypee Nagar P.O.- Jaypee Nagar, Rewa-486450
16	Ambuja Cement Ltd Brand: "AMBUJA"	Kodinar, PO- Ambujanagar, Taluka- Kodinar, DistJunagadh, Gujarat- 362715, Ph- 02795 237000
17	M/S Shree Guru Kripa Cement (Pvt) Ltd Brand: "SARTAJ"	4/4 Trikuta Nagar Jammu Ph. 0191-2472043
18	M/S Parasakti Cements Ltd. Brand: "PARASAKTI Cement"	123/3RT, Plot # 8-3-214/21, Srinivasa Nagar Colony(West) Hyderabad-500038 Tel- 040-44119100 / 200, Fax- 040-23747562
19	M/S My Home Industries Ltd Brand: "MAHA CEMENT"	9 <sup>th</sup> Floor, Block-3, My Home Hub, Madhapur, Hyderabad - 500081 Ph- 040-66929696 Fax- 040-66929797/98
20	M/S Chettinad Cement Corporation Ltd. Brand: "CHETTINAD Cement"	4 <sup>th</sup> Floor, Rani Seethai Hall Building, 603, Anna Salai Hall, Chennai-600006 Tel No. 044-42951800 Fax No. 044-28291558 Email: info@chettinadcement.com Website-www.chettinadcement.com
	M/S Kesoram Industries Ltd Brand: "Birla Shakti"	Cement Division, Office No 613 to 616 White House, Block-III, VI Floor, 6-3-1192/1/1 Kundanbagh, Begumpet, Hyderabad-500016, Telengana\
		Tele: +91-40-4334-4555 Fax: +91-40-4334-4534 Email: corp.office@wondercement.com
22	M/s JSW Cement Ltd, A.P Brand "JSW PSC (Portland Slag Cement)" Brand "JSW OPC 53" Brand "JSW OPC 43"	JSW Centre opp MIMRDA Ground Bandra Kurla Complex, Bandra (East) Mumbai- 400051 Tele: +91-22-4286- 5047 Fax: +91-22-2650-2001 Website : www.jswcement.in
23	M/S Sagar Cements Ltd Brand "SAGAR"	M/S Sagar Cements Ltd Plot No 111, Road No 10, Jubilee Hills, Hyderabad-500 033 Tele : +91-40-23351571, 2335672, Fax + +91-40-2335673 Email info@sagarcements.in Web Site • www.sagarcements.in

**Note: In addition to above, Cement may be procured from the any of the make as approved by E-in-C's Br even after date of receipt of tenders.**

Contd....

**PARTICULARS SPECIFICATIONS Contd.....**

The contractor shall furnish the particulars of the manufacturer of cement along with the date of manufacture to the Garrison Engineer for every lot of cement separately. The cement so brought shall be fresh and in no case older than 60 days from the date of manufacture. The GE shall verify the documents 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 manufacture, 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 Engineer –in-charge and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content per bag shall be 50 Kg only subject to tolerance given in Clause 9.2.1.1 and Annexure 'B' of IS – 8112 of 1989

**4.3 TESTING**

- 4.3.1 The manufacturer is required to carry out inspections and testing of cement in accordance with the relevant BIS provisions. The contractor shall submit the Manufacturer's test certificate in original alongwith the test sheet giving the result of each physical test as applicable and chemical composition of the cement or authenticated copy of thereof duly signed by the manufacturer, with each consignment. The Engineer-in-Charge shall record these details in the cement supply & acceptance Register as appended here-in-after after due verification.
- 4.3.2 The GE shall organize independent testing as per IS-3635 (method of sampling hydraulic cement) and IS-4031-1995 (Method of physical test for hydraulic cement) and IS-4032-1985 (Method of chemical analysis of hydraulic cements) of random sample of cement drawn from each lot of the consignment from the National Test House, SEMT Wing, CME, Pune, Regional Research Laboratories, Govt Engineering Colleges and ISI approved laboratories.
- 4.3.3 The contractor shall make available required cement and other facilities for testing of cement by GE as specified here-in-before and shall bear the cost of testing irrespective of whether sample passes or fails.
- 4.3.4 The required quantity of samples of the cement shall be taken in two polythene bags and sealed by the Engineer-in-Charge in the presence of representative of the Contractor. The seal shall be authenticated both by the Engineer-in-Charge and representative of the Contractor. Out of two samples one sample shall be sent for testing and other retained by Engineer – in – Charge in his office. Record of these samples shall be kept by Engineer-in-Charge in the register and copy of the same shall be sent to GE by him for record in concerned contract files.
- 4.3.5 Cement brought by the contractor shall be allowed to be incorporated in the work after satisfactory test results of sample sent for testing. GE shall inform the Contractor, about the test results and permission to incorporate in the work, in writing, GE shall ensure that word 'pass' is embossed on both side of the cement bags of lot which has been found based on specification as per test result. The cost of embossing (both material and labour) shall be borne by the Contractor.
- 4.3.6 In case the sample got tested by the GE from the institutions/laboratories mentioned here-in-before fails, the concerned lot of cement shall stand rejected. GE shall ensure that a mark 'X' is embossed on both sides of each bag of the rejected lot. The cost of material and labour for embossing shall be borne by the Contractor. The GE will inform the Contractor in writing about the test result and direct him to remove the rejected cement. Contractor shall remove the rejected cement from the site of works within two days of the order by the GE. Contractor shall have no claim whatsoever on account of rejection and removal of cement.
- 4.3.7 It shall be the responsibility of the Contractor to arrange cement well in advance, to facilitate its testing before use in the work. The contractor shall submit the programme of procurement of cement to the GE before the date of commencement of the work indicating date of procurement and quantity.

Contd...



**PARTICULARS SPECIFICATIONS Contd.....****4.4 STORING**

4.4.1 The Contractor shall store the cement at site in a covered leak proof godown with locking arrangement, over a dunnage at least 20 cm high, in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. The stock of cement stored shall be at least 60 cm away from the walls. The cement so stored shall be inspected by the JE (Civil) and the rep of the contractor once in a day to ensure that cement is not affected by moisture or by any other means. Engineer-in-Charge shall make such inspection once in a month. In addition to the inspection, Engineer-in-Charge shall attach a certificate with every RAR that cement is stored as per the above provisions and is safe. The tested and untested cement shall be segregated and stored separately with distinct identification. The cement godown shall be provided with two locks on each door. One lock shall be provided by the GE and other by the Contractor. The keys of the lock provided by the GE 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 work so that cement is removed from the go-down only according to the daily requirement with the knowledge of both the parties.

4.4.2 Procurement of cement shall be made in phased manner to avoid storage for long duration.

**4.5 DOCUMENTATION**

The contractor shall submit original vouchers, test certificates and test sheets from the manufacturer/producers for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE alongwith the relevant documents before sample is taken for the testing. The original vouchers and test certificate (original/authenticated) shall be defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated with cross reference to the control number recorded in the cement acceptance/rejection register shall be signed by JE (Civil), Engineer-in-Charge, GE and the Contractor. The Accepting Officer may order a Board of officers for verification of connected documents produced by the Contractor. The entire quantity of cement shall also be recorded in the measurement book (not to be abstracted) for record purpose before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.

**4.6 REQUIREMENT OF CEMENT**

Requirement of cement to be incorporated in the works under this Contract (except for design mixes) shall be calculated on the basis of the cement constants as circulated by Engineer-in-Chief's Br, Army HQ, New Delhi, which can be seen in GE's Office. The quantity of cement required shall be checked jointly by the Engineer-in-Charge and the rep of the contractor at different stages of work and recorded in the cement register, which shall be checked at the time of payment of RAR.

4.7 In case estimated requirement of cement is less than 1200 bags, contractor can procure cement from the authorized distributors/dealers of the approved firms. However, contractor shall have to submit test certificate for the batch issued by the firm. Independent testing of cement shall be at the option/discretion of the Garrison Engineer, if the factory test certificates are produced by the contractor. In case the contractor does not produce the factory test certificate, the testing of cement by Garrison Engineer shall be mandatory. However, the testing shall be restricted to IS-4031 (method of physical test for hydraulic cement) only. The GE shall ensure that cement accepted should not be more than two months old. The week/date of manufacture of cement is always printed at the bottom end of the cement bag. The marking of manufacturing date of cement bag is of peculiar nature and all concerned officials are required to clearly understand the method of marking.

**5. CONCRETE WORK.**

5.1 All cement required for concrete work shall be as specified in clause 5 here-in-before.

5.2 (a) Fine aggregate (sand) for concrete work shall be coarse sand conforming to materials, specifications and grading within the limits of grading Zone-I to III as specified in clause 4.4.1 to 4.4.6 and 4.4.7.2 of MES Schedule Part-I and shall conform to approved sample kept in the office of GE.

Contd....

**PARTICULARS SPECIFICATIONS Contd.....**

- (b) The sand shall be stored at site in bins or in dumps. The contractor shall take necessary precautions to avoid contamination or risk of shoveling up earth or other impurities by keeping sand over firm level ground as stipulated in IS – 4082.
- 5.3 (a) Coarse aggregate (stone aggregate) for all cement concrete work i.e. RCC/PCC shall be out of granite/basalt/trap stone of approved quality all as specified in clause 4.4.1 to 4.4.7.1 of MES Schedule Part-I. Mixture of two types of stone shall not be permitted.
- (b) Coarse aggregate (stone aggregate) 20mm and below shall be machine crushed and above 20mm may be hand broken.
- (c) Grading of coarse aggregate (stone aggregate), unless specified otherwise in the specifications here-in-after, in various location/work i.e. PCC/RCC shall be as specified in MES Schedule Part-I.
- (d) Aggregate for lime concrete work shall be of broken bricks all as specified in clause 4.5 of MES Schedule Part-I
- 5.4 The proportion and type of cement concrete and its grading shall be as described in Schedule 'A'
- 5.5 WATER  
Water to be used in this work shall be all as specified in IS : 456 of 2000 and in clause 4.9 of MES Schedule Part-I
- 5.6 WATER PROOFING COMPOUND.  
Water proofing compound shall bear ISI certificate mark and shall conform to IS-2645 (1975). It shall be mixed to concrete/cement mortar as per manufacturer's instructions.
- 5.7 WORKABILITY OF CONCRETE : Refer to clause 4.11.4 of MES Schedule Part-I.
- 5.8 Important requirement of reinforced cement concrete/plain cement concrete shall be as under
- (a) All the materials, workmanship, inspection and testing for cement concrete to be used for concrete work shall be as per requirements in Section II of IS 456 of 2000.(b) Testing of concrete cubes shall be got done by contractor either at site laboratory or from Govt. Engineering College/National test house/Regional research laboratory/ISI approved laboratory. The cost of all these tests including material and labour consumed, to be carried out periodically shall be borne by Contractor. In case tests are carried out in MES laboratory the Contractor shall pay for the cost of these tests at the rates as applicable for testing as per Appendix 'A' to special conditions.
- (c) Seven test specimen (concrete cubes) shall be made from each sample, out of which 3 cubes shall be tested for 7 days strength, 3 cubes shall be tested for 28 days strength and 1 cube shall be kept reserved and handed over to Engineer-in-Charge at the time of completion of work. Engineer-in-Charge will keep the same till completion of defect liability period. Suitable records shall also be maintained for all cubes.
- (d) Samples from fresh concrete shall be taken as per IS:1199 and cubes shall be made, cured and tested at 28 days in accordance with IS:516. Frequency of sampling concrete shall be as specified in clause 15 of IS : 456 of 2000.
- (e) The test strength of the samples shall be average of the strength of three specimens. The individual variation should not be more than  $\pm 15\%$  of the average.
- (f) **ACCEPTANCE CRITERIA FOR COMPRESSIVE STRENGTH.**  
The acceptance criteria for the test results of concrete shall be in accordance with clause 16.1 to 16.6 of IS : 456-2000, including the requirements of Table 11 of the IS : 456-2000.
- 5.9 NOMINAL MIX :  
Wherever nominal mix concrete is specified, shall be designed as per IS-456-2000. The periodicity of mix design and other tests on materials/mix shall be as decided by the GE.
- 5.10 MIXING ,DEPOSITING & RAMMING.  
Refer clause 4.11.5 of MES Schedule Part-I. All cement concrete both plain and reinforced shall be mixed in mechanical mixer of approved type, deposited and compacted all as specified in clause 4.11.10 and 4.11.11 of MES Schedule Part-I. However, in exceptional cases involving small quantity (i.e. the quantity of concrete required being less than one batch of mix), the Contractor may after prior written permission of the GE adopt hand mix without any price adjustment.
- 5.11 BATCHING OF CONCRETE  
(a) For nominal mix and design mix in proportioning the concrete mix the quantity of both cement and aggregates shall be determined by weight by weigh batcher only. Water shall be either measured by volume in calibrated tanks or weighed. All measuring equipment shall be kept in a clean serviceable condition and their accuracy checked periodically.
- (b) In case of nominal mix, if uniformity in the materials used for concrete mixing has been established, the proportioning may be done, if so permitted by GE in writing by volumetric batching, provided periodic checks are made on weight volume relationship of the materials.
- (c) Also the provisions as in clause 4.11.3.2 to 4.11.3.5 of MES Schedule Part I shall be followed.

**PARTICULARS SPECIFICATIONS Contd.....**

- 5.12 TRANSPORTING OF CONCRETE : Refer to clause 4.11.9 of MES Schedule Part-I and Clause 13.1 of IS 456-2000.
- 5.13 PLACING OF CONCRETE: Refer to clause No 4.11.10 to 4.11.10.3 of MES Schedule Part-I & clause 13.2 of IS 456-2000.
- 5.14 COMPACTION OF CONCRETE: Refer Clause 13.3 of IS -456-2000. Concrete shall be compacted using mechanical vibrators complying with IS 2505, IS 2506, IS 2514. Over vibration and under vibration of concrete is harmful and shall be avoided.
- 5.15 CURING OF CONCRETE: Refer to clause 4.11.13 of MES Schedule Part-I & clause 13.5 of IS 456 - 2000. Moist curing shall be done at least for 10 days for all PCC/RCC members.
- 5.16. **WORKMANSHIP**

5.16.1. **MIX OF CEMENT CONCRETE**

5.16.1.1. Unless otherwise specified, the mix of cement concrete required in various situation shall be of the following specified grade/proportions. Plain cement concrete and the RCC shall be provided in accordance with IS: 456-2000: -

S/No	Situation	Mix of cement concrete	Type with nominal size of graded aggregates
1	2	3	4
(a)	Sub-base of floor	1:3:6	Type C-2 (40mm)
(b)	Lean concrete below RCC column footing	1:3:6	Type C-2 (40mm)
(c)	All RCC work (Except OHT & Static Tank)	-	M-25 (Design Mix)
(d)	RCC work in Over head reservoir and Static water tank	-	M-30 (Design Mix)
(e)	Lean concrete for wall Foundation and dwarf wall.	1:3:6	Type C-2 (40mm)
(f)	PCC in foundation for steps in GF and lean concrete to RCC post of staircase.	1:3:6	Type C-2 (40mm)
(g)	PCC cills, PCC drain, PCC plinth protection and hopper of gully trap and PCC blocks.	1:3:6	Type C-1(20mm)
(h)	All PCC bed block and pre-cast Jalli.	1:2:4	Type B-O(12.5mm)
(j)	All plain cement concrete not described in (a) to (g) above	1:2:4	Type B-1(20mm)
(k)	Plain cement concrete below plinth beam where shown on drawings	1:3:6	Type C-2 (40mm)

5.16.1.2. All concrete except lime concrete shall be machine mixed. Where small quantities of concrete work is involved, hand mixing may be permitted by the Engineer-in-charge at his own discretion subject to addition of 10% extra cement.

5.16.1.3 Compaction of RCC slabs, beams, foundations and columns shall be done with approved mechanical vibrator using pin and surface type vibrators for all concrete works including for flooring concrete. In other locations compaction may be achieved manually as directed by Engineer-in-charge.

Contd....

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

5.16.1.4 For batching, workability, mixing, form work, removal of form work, transportation, placing, compaction, construction joint, curing, protection and inspection of concrete refer relevant paras of MES Schedule Part-I.

5.16.1.5 Sampling and testing of concrete of grade M-25 shall be done as per paras 4.11.17 of MES Schedule part I. Testing of concrete as mentioned in IS-456 shall be carried out by the contractor without any extra cost to the department i.e. cost of samples, transportation and testing will be borne by the contractor. Sampling and strength testing of concrete shall be done in accordance with clause 15 of IS-456.

5.16.2. **SPECIFICATIONS FOR DESIGN MIX CONCRETE: M-25/M-30 GRADE**

5.16.2.1 **CEMENT**: Cement shall be all as specified here-in-before.

5.16.2.2 **AGGREGATE**

5.16.2.2.1 **AGGREGATE**: Aggregate shall conform to IS-383 and shall be type basalt/trap granite stone. Aggregate shall be non porous, hard, strong, durable, clear and free from various impurities and adherent coating and shall not contain deleterious materials exceeding the limits specified in the above referred IS. When required by the Engineer-in-Charge, the contractor shall, at his own expenses, carry out any test laid down in IS-383 and IS-2386 to verify that the aggregate complies with the requirements of the IS. The test will be got carried out from National test house, SEMT, CME and Regional research lab or any Govt approved Laboratory such as Govt Engineering College and shall be got approved from GE before implementation in the work.

5.16.2.2.2 **COARSE AGGREGATE** : Coarse aggregate shall consist of crushed graded stones aggregates. The maximum size of the aggregate shall be 20mm graded as per IS-383.

5.16.2.2.3 **FINE AGGREGATE** : Fine aggregate shall consist of naturally occurring coarse sand, fine aggregate shall conform to Zone II/III of Table IV of IS-383.

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

5.16.2.2.5 **GRADING OF AGGREGATES** : The grading of coarse and fine aggregate shall be as per MES Schedule. Fine aggregate shall have grading as per grading Zone II/III of IS 383-1970. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for the aggregate testing shall be determined by Engineer-in-Charge to ensure that the specified grading is being maintained.

5.16.2.2.6 **TESTING OF AGGREGATE** : Aggregate shall be tested for following properties in accordance with IS mentioned against them:-

- |       |  |   |                    |
|-------|--|---|--------------------|
| (i)   | Aggregate particle size & shape  | : | IS-2386 Part I     |
| (ii)  | Presence of deleterious materials  | : | IS-2386 Pt II 1969 |
| (iii) | Aggregate specific gravity, density, voids absorption and bulk density       | : | IS-2386 Pt III     |
| (iv)  | Aggregate crushing value aggregate impact value and aggregate abrasion value | : | IS-2386 Pt IV      |
| (v)   | Aggregate soundness  | : | IS-2386 Pt IV      |

Contd....

**PARTICULAR SPECIFICATIONS (Contd....)****5.16.2.3 MIX PROPORTION AND STENGTH**

- (i) Type of cement : Ordinary port-land cement, Grade 43 as per IS : 8112-1989 or Portland pozzolana cement (PPC) as per IS 1489
- (ii) Aggregate/cement ratio : As per mix design based on IS-10262 &IS-456 by weight
- (iii) Workability : As per clause 7 of IS-456 – 2000
- (iv) Water cement ratio : As per mix design based on IS-10262 & IS-456.
- (v) Degree of quality control : Good (Refer IS-10262)
- (vi) Minimum cement content : As per table 5 of IS-456, 2000 and as specified here-in-after.
- (vii) Maximum size of aggregate : 20 mm graded
- (viii) Maximum water cement ratio : As per table 5 of IS-456, 2000
- (ix) Exposure Condition : Moderate.

5.16.2.3.1 As soon as possible, after receiving the order to commence work, the Contractor at his own expense shall get concrete mix designed from any Govt. approved laboratories/Govt. Engineering Colleges to satisfy the requirements of Clause 2.2.2.3 of Particulars Specifications here-in-above.

5.16.2.3.2 Minimum cement content for the M-25/M-30(Design Mix) concrete shall not be less than as Table 5 of IS-456, 2000.

**5.16.2.4 REINFORCED CEMENT CONCRETE**

- (a) All RCC work in the work shall be design mix.
- (b) Type and grade of RCC (reinforced cement concrete)shall be M-25 (Design mix) all as mentioned in structural drawings except for water retaining structure. For water retaining structure type and grade of RCC shall be M-30 (Design mix).

**5.16.2.5 MIXING AND CONSOLIDATION OF CONCRETE**

5.16.2.5.1 In case the quantity of design mix concrete in the entire work is less than 1000 Cum ,mixing of concrete shall be done in a Mechanical Mixer using weigh batching and as per clause 10.3 of IS: 456-2000.Weigh batching shall be done preferably with layer type weigh batcher. The concrete mixer shall conform to IS:1791 and fitted with water measuring (metering) devices. In case, the quantity of design mix concrete in the entire work is more than 1000 Cum, the contractor shall install fully Automatic Computerised Batching Plant of capacity 30 Cum/hour at site along with 2 Nos transit mixer. Complete quality assurance and control shall be maintained by the contractor in accordance with the latest IS Codes and best modern Engineering practice. The record of quality assurance shall be submitted to the GE and shall be kept in record.

5.16.2.5.2 All reinforced cement concrete shall be consolidated by mechanical vibrators. It shall be ensured that concrete is properly compacted well around reinforcement, any embedded fixtures & sides of form work. Consolidation by tamping may be resorted to with the prior permission of GE in writing in locations where it is not practicable in the opinion of GE to operate the vibrator or where quantity of concrete is small. Care shall be taken to ensure that concrete is not over vibrated so as to cause segregation.

Contd....

**PARTICULAR SPECIFICATIONS (Contd....)****5.16.2.6 CASTING OF CONCRTE**

5.16.2.6.1 RCC lintels with or without chajjas, fins and RCC shelves may be cast in situ or pre-cast at the discretion of contractor. In the event of any deviation, with regard to these items, pricing shall be done at the applicable rates in MES Schedule for cast in situ concrete. Top of such pre-cast articles should be distinctly marked.

**5.16.2.6.2. Unless otherwise specified all pre-cast concrete articles shall be set and jointed in CM (1:3).**

5.16.2.6.3 For Assembly and cover to reinforcement refer paras 4.11.7 to 4.11.8.4 of MES Schedule Part-I.

**5.16.2.7 STRENGTH TEST**

5.16.2.7.1 Sampling and strength test of concrete shall be carried out as per clause 15 of IS-456:2000. Coarse, fine aggregate and concrete cubes shall be tested in any Govt. lab as approved by GE. The samples shall be identified and signed jointly by Engineer-in-Charge and contractor's representative. However, minimum quantity of cement per cubic metre of concrete M-25 & M-30 shall be as per IS-456:2000.

5.16.2.7.2 On the basis of above test results, the final design mix will be approved by the CWE. The approval of the CWE shall not relieve the contractor of his responsibility for obtaining the required minimum strength of quality concrete in the work.

**5.16.2.8 BATCHING**

5.16.2.8.1 In proportioning concrete, the quantity of both cement and aggregate shall be determined by mass and all in accordance with clause 10.2 and sub clauses thereon of IS-456:2000 as applicable.

5.16.2.8.2 In case the quantity of design mix concrete in the entire work is less than 1000 Cum, mixing of concrete shall be done in a Mechanical Mixer using weigh batching and as per clause 10.3 of IS: 456-2000. Weigh batching shall be done preferably with layer type weigh batcher. The concrete mixer shall conform to IS:1791 and fitted with water measuring (metering) devices. In case, the quantity of design mix concrete in the entire work is more than 1000 Cum, the contractor shall install fully Automatic Computerised Batching Plant of capacity 30 Cum/hour at site along with 2 Nos transit mixer. Complete quality assurance and control shall be maintained by the contractor in accordance with the latest IS Codes and best modern Engineering practice. The record of quality assurance shall be submitted to the GE and shall be kept in record.

**5.16.2.9 TRIAL MIXES**

5.16.2.9.1 The actual mix proportion will be arrived at by means of number of trial mixes by changing the water cement ration, proportions of fine and coarse aggregate, fineness modulus of aggregate by changing their grading and proportions etc. Attempts shall be made to make the mix design as economical as possible.

**5.16.2.10 VARIATION IN QUANTITIES OF CEMENT**

(a) The minimum cement content specified here- in-before shall be provided even if the laboratory mix design gives lower values of cement content.

(b) As a result of the mix design, if the quantity of cement required in order to obtain the desired properties of concrete is more than the minimum quantity of cement specified, then the cement content as per mix design shall be provided but no adjustment shall be made in the prices of the relevant works.

Contd....

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

- 5.16.2.11 **SAMPLING**: The sampling procedure and the frequency of sampling shall be as per clause 15.2 of IS-456:2000.
- 5.16.2.11.1 **TEST SPECIMENS** : All test specimens shall be 150mm cubes. For each sample, nine cubes shall be cast, out of which three cubes each shall be tested for 7 days, 28 days compressive strength and rest three cubes shall be kept reserve and handed over to deptt on completion of work. The specimens shall be tested as described in latest IS:516.
- 5.16.2.12 **TEST STRENGTH OF SAMPLE** : The test strength of the sample shall be average strength of three specimens. The individual variation should not be more than +15 percent of the average.
- 5.16.2.13 **ACCEPTANCE CRITERIA** : The acceptance criteria of the test results shall be as laid down in clause 16 of IS : 456-2000.
- 5.16.2.14 **WORKABILITY**: The workability of the concrete shall be checked frequency as per IS-1199.(Method of Sampling and Analysis of Concrete).Slump i.e. workability shall be controlled by properly accounting for moisture of aggregates. Records of moisture content and slump shall be kept duly verified by AGE and GE.
- 5.16.2.15 **CHANGE OF MIX DESIGN** : During the progress of the work ,mix design will have to be changed due to changes in the qualities of the ingredients of the concrete. GE's decision in this regard shall be final and binding.
- 5.16.2.16 **PACKING AND TRANSPORTATION OF SAMPLES** : The contractor must at his own expense properly pack the samples. The contractor shall bear the cost of testing and cost of transportation of the samples required to be tested from site of work to the laboratory of CWE/GE or any other laboratory.

## 5.17 SOURCE OF MATERIALS

Sources of material such as concrete, masonry, plaster, pointing and road work shall be as under:-

(a) Fine aggregate ( sand) for concrete work	SINDH RIVER
(b) Coarse aggregate	
i) For all RCC work	LOCAL
ii) For all PCC work upto 20mm graded stone	LOCAL
iii) For all PCC work for 40mm and above graded stone	LOCAL
(c) Sand for mortar and plastering/pointing	
i) For masonry mortar	SINDH / CHAMBAL
ii) For plastering /Pointing	SINDH / CHAMBAL
d) Stone aggregate for WBM and soling	LOCAL
(e) Stone aggregate for watering surfaces premix and road surfaces	LOCAL
(f) Kiln Bricks/Tiles	Best quality locally available
(g) Stone for RR Masonry work	Locally available best quality

Contd...

**PARTICULARS SPECIFICATIONS Contd.....****6. BRICK WORK**

- 6.1 **BRICK.** Brick (modular or old size) shall be sub class 'B' well burnt locally available best quality of minimum compressive strength 50 kg/Sqcm with maximum water absorption 20% and NIL efflorescence conforming to the samples kept in GE office.

Actual size of bricks shall be as under:-

Length	-	230 to 240 mm
Width	-	110 to 115 mm
Thickness	-	65 to 75 mm

- 6.2 Sand for mortar for brick work, stone masonry work and all such other works as applicable to relevant items of Schedule 'A' shall be as specified in clause 5.4 of MES Schedule Part-I and shall be procured from the specified sources only. Sand shall be washed if deleterious materials are beyond the limits as specified in the I.S.

**7. PLASTERING.**

- 7.1 Refer clause 14.13 to 14.16 of MES Schedule Part-I for workmanship.

- 7.2 Refer clause 14.17 and 14.18 of MES Schedule Part-I for one coat and two coats plaster work.

- 7.3 Curing of plaster works shall be carried out as specified in clause 14.24 of MES Schedule Part-I.

- 7.4 Thickness of plaster for payment purpose shall be finished thickness exclusive of dubbings.

- 7.5 Sand for plastering/pointing work shall conform to the materials, specification and grading as given in clause 14.5 of MES Schedule Part-I and shall be procured from specified sources only.

**8. FINISHES.****8.1 GENERAL.**

Finishes shall be carried out as specified in section 15 of MES Schedule Part-I and as described in Schedule 'A' after preparation of surfaces as specified.

**8.2 CEMENT BASE PAINT.**

Cement paint shall comply with IS-5410. Workmanship for cement painting shall be all as specified in clause 15.15 of MES Schedule Part-I.

**9. WATER PROOFING TREATMENT TO ROOF SLAB****9.1 PRODUCT SPECIFICATION**

No	Ser	Characteristics	Specification
1		Softening Point °C, Min	150
2		Penetration at 25 °C, 100 g, 5 Sec, dmm	20-35
3		Pliability	2 °C to 5 °C does not break
4		Heat Resistance	Does not drip at 125 °C
5		Tensile strength Lengthwise, N/5 cm Crosswise, N/5 cm	➤ 650 ➤ 450
6		Elongation Lengthwise % Crosswise %	➤ 20 ➤ 20
7		Tear Strength Lengthwise, N Crosswise, N	➤ 300 ➤ 250
8		Reinforcement (>160 g/sqm)	Nonwoven Polyester mat

Contd...



**PARTICULARS SPECIFICATIONS Contd.....****9.2 (a) SURFACE PREPARATION**

- (i) Proper slope shall be ensured.
- (ii) Roof slab shall be free from any undulation .
- (iii) Roof slab shall be free from any leakage / seepage / dampness.

(b) TESTING OF MEMBRANE. (APP modified polymeric membrane) Atactic polypropylene modified polymeric membrane shall be all as specified in clause 11.43.2.2 of SSR Part-I (2009) and as mentioned in Sch 'A'. Testing of membrane shall be got done from one of the following test houses : -

- (i) National Test House, Andheri, Mumbai
- (ii) National Test House, Kolkata
- (iii) Shree Test House, New Delhi
- (iv) Chemical & Metallurgical Services, Ekka Duthangal, Chennai
- (v) Central Institute of Plastic Engg & Technology, Gundy, Chennai

Test certificate of manufacturer for each lot alongwith mention of batch & lot No will be supplied by the contractor.

(c) FILLET. A fillet of PCC (1:2:4) type B-0 of 100 x 100 mm shall be provided at all the junction of vertical and horizontal surfaces and wherever there is a change of direction .

**(d) PROJECTION / PIPES.**

- (i) For pipes, membrane shall be laid by torch on method with a coat of primer.
- (ii) Piece of membrane 100 mm width shall be cut to length suitably to wrap around the projection over the first layer of membrane.
- (iii) The main membrane laid on the roof level shall be terminated as close as possible to cover the created drain mouth.

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

9.3.1 Should the GE at any time during constructions or reconstruction or prior to the expiration of a period of ten years after the certified date of completion of buildings or group of buildings find that the building shown leakage dampness or any sign of defective water proofing treatment the contractor shall on demand in writing from the GE specifying the building complained of notwithstanding the fact that the same may have been inadvertently passed certified and paid for forthwith undertake to carry out such treatment as may be necessary to render the said buildings water proof at his own expense for a period of ten years from the certified date of completion of said buildings and in the event of his failing to do so within a period to be specified by the GE in his demand as aforesaid the GE may undertake such treatment at his risk and expense in all respects of the contractor, the liability of the contractor under the condition shall not extend beyond the period of 10 years from the certified date of completion unless the GE had previously given notice to the contractor.

9.3.2 The period of guarantee is 10 years from the certified date of completion.

9.3.3 The contractor shall furnish guarantee in favour of the Garrison Engineer for the efficacy of the water-proofing treatment during the guarantee period where the work is got executed through a specialist firm; the contractor shall obtain guarantee from such specialist firm in his favour. The contractor in turn shall furnish guarantee to GE duly endorsing therewith a copy of guarantee secured by him from specialist firm.

9.3.4 An appropriate sum equal to amount of security deposit calculated i.e 2% of the amount subject to minimum of 5,000/- for cost of WPT work upto 50 lakh and enhanced by 25% on the amount of water proofing treatment at the contract rates shall be retained out of the final bill amount as security deposit toward the guarantee for the water-proofing work and it shall be released to the contractor only after the expiry of the guarantee period. The facility of furnishing fixed deposit receipt/ BGB in lieu of the sum to be retained as security, shall also be acceptable.

9.4 Materials required for water proofing shall be purchased by the contractor from the manufacturers or their authorised agent only and brought to site. The GE before approval shall verify name of authorised agent from the manufacturer.

Contd.....

**PARTICULARS SPECIFICATIONS Contd.....****10. FLOODING TEST TO RCC ROOF SLAB**

On completion of water proofing treatment the contractor shall carryout flooding test to each roof of each slab. Flooding test shall be carried out by forming earth bund. Water shall be ponded for minimum depth of 50 mm and shall be allowed to remain over slab for a period of 72 hours. During this period, if any defect such a leakage/seepage is noticed, it shall be rectified by the contractor to the satisfaction of GE. After rectification of defects more test shall be carried out at the discretion and to the entire satisfaction of GE. It shall be kept on record duly signed by Engineer-in-Charge and contractor and test shall carried out all as specified at the cost of contractor.

**11. CEMENT/TEMPLATES**

The contractor shall make template of size 900mm x 750mm with plaster in CM (1:4) thick at his own expense on the wall of building in which the water proofing treatment has been carried out showing following information duly engraved on templates : -

- (i) CA No
- (ii) Name of Contactor
- (iii) Date of Completion
- (iv) Date of expiry of guarantee

**12.0 DEMOLITION/DISMANTLING AND TAKING DOWN WORKS:**

- 12.1 Proper care shall be taken by the contractor while demolition/dismantling and taking down works etc as mentioned in respective items of schedule. In case of any damage caused to the equipment and fittings/fixtures due to the negligence and carelessness of the contractor or his workmen shall be made good by the contractor at his own expense to the specifications and to match with the existing equipment/fixtures and/or the fittings/fixtures shall be replaced with the new ones of the same make without any extra cost of Govt to the entire satisfaction of Engineer-in-Charge. The old material obtained from dismantling/taking down for which credit has been given by the contractor shall become contractors property at the rate mentioned in Sch of credit, while other serviceable materials shall become Govt property and shall be deposited by the contractor to MES store Yard and stocked property as directed without any extra cost of Govt.

13. **Aluminium paint** :- It shall be carried out as per SSR Part I.

14. **Non Asbestos fiber cement building boards**:- It shall be carried out as per SSR Part I.

15. **Anodised Aluminium Frame Work (Sanp Grid) For False Ceiling** :- It shall be carried out as per SSR Part I.

**16. GALVALUME ROOFING & WALL CLADDING**

- 16.1 Galvalume sheet for roofing shall be of 0.50 mm TCT high tensile zinc galvanized alloy coated steel sheet, 550 Mpa minimum, yield strength having a trapezoidal profile of depth min 28 at pitch distance of maximum of 200mm fixed to the purlins. Stiffener ribs 2 Nos. between pitch shall be provided. It shall be coated with Zinc aluminium alloy coating of 55% Aluminium 43.5% Zinc 1.5% silicon @ 150gm/sqm of coating (total both surfaces) as per AS:1397:1993 and finished with Silicon modified Polyester paint coat on both surfaces having overall thickness of 35 microns inclusive of 10 micron primer on each side as per AS/NZ-2728:1997 (Category-3) and shall be fixed using self drilling and self tapping fasteners conforming to AS:3566 Class-3 having neoprene/EDPM washers. Penetration and laps in sheet shall be sealed by using proper sealant profile. Fillers shall be provided wherever required to close voids between sheets, sheet & fasteners etc. Galvalume sheet for wall cladding shall be same as for roof and shall have trapezoidal profile of depth min. 28 at pitch distance of maximum of 200mm fixed with self tapping fastener at valley to the support structure.

Contd...

**PARTICULARS SPECIFICATIONS Contd.....**

- 16.2 Plain Galvalume sheet shall be of 0.50 mm TCT high tensile zinc galvanized alloy coated steel sheet, 550 Mpa minimum, yield strength. It shall be coated with Zinc aluminium alloy coating of 55% Aluminium 43.5% Zinc 1.5% silicon @ 150gm/sqm of coating (total both surfaces) as per AS:1397:1993 and finished with Silicon modified Polyester paint coat on both surfaces having overall thickness of 35 microns inclusive of 10 micron primer on each side as per AS/NZ-2728:1997 (Category-3) and shall be fixed using self drilling and self tapping fasteners conforming to AS:3566 Class-3 having neoprene/EDPM washers. Penetration and laps in sheet shall be sealed by using proper sealant profile. Fillers shall be provided wherever required to close voids between sheets, sheet & fasteners etc.
17. **Synthetic enamel paint** :- It shall be carried out as per SSR Part I.
18. **WATER STORAGE TANKS**  
Water storage tanks shall be of HDPE vertical type and of capacity as specified in Schedule 'A'. Water tank shall be rotational moulded polyethylene water storage tank ,ISI Marked , as per IS-12701-1989. Water tank shall have two layer wall construction. The tank shall be installed in position truly leveled. The tank shall be placed on staging as directed by the Engineer in charge. The installation of same shall be done as directed by the Engineer in Charge and as per clause 18.60 of MES Schedule.
19. **Cement Concrete Tiles** :- It shall be carried out as per SSR Pt I.
20. **OIL BOUND DISTEMPER/ WALL CARE PUTTY** :- It shall be carried out as per SSR Pt I.
21. **FORMWORK** :- It shall be carried out as per SSR Pt I.
22. **GATE VALVE/GLOBE VALVE:- GATE VALVE/GLOBE VALVE** :- Work shall be carried out as per SSR Pt 1.

**Note:-** If Particular Specification for any item not mentioned in CA, shall be obtained from SSR Part-I.

Signature of Contractor  
Dated\_\_\_\_\_

AGE (Contract)  
for Accepting Officer

Contd.....

**PARTICULAR SPECIFICATION (Contd....)****CEMENT SUPPLY & ACCEPTANCE REGISTER**

- CA No & Name of Work
- Control No/Consignment No.\*
- Name of Manufacturer/Brand Name/Grade of Cement (a) Manufacturer \_\_\_\_ (b) Brand \_\_\_\_  
(c) Grade \_\_\_\_
- Qty of cement & Lot No./Week No.(in Bags): (a) Qty \_\_\_\_ (b) Lot No./Week No. \_\_\_\_
- Manufacturer's test certificates No. \_\_\_\_\_
- Random Test Details
  - Physical Test Report from \_\_\_\_ vide their letter No. \_\_\_\_ (Name of approved lab/Engg College)
  - Chemical test report from \_\_\_\_ vide their letter No. \_\_\_\_ (Name of approved lab/College)
- Details of Physical & Chemical properties:-

	Physical Requirements (As per IS-4031)								Chemical Requirements (As per IS 4032)									
	Specific Surfaces area	Soundness by Le Chatelier	Soundness by Auto Clave	Initial setting time	Final setting time	Compressive Strengths (Mpa)			Temp during testing	Standard consistency(%)	Lime saturation factor(Ratio)	Alumina Iron Ratio	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride(%)	Loss on ignition (%)	Alkalies (%)	Chlorides (%)
						03 days	07 days	28 days										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
As per relevant IS																		
As per manufacturers test																		
As per random test																		

Remarks with Signature

Accepted/Rejected

Contractor

Julior Engineer

Engineer-in-Charge

GE

Remarks of BOO/Inspecting Officer/CWE

\*To be allotted serially by the GE consignment wise

- As per clause No. 4.3.1

Contd.....

**PARTICUALR SPECIFICATION (Contd....)**  
**MATERIAL TESTING AND TESTING CHARGES**  
**NOTES**

1. The materials listed here-in-after shall be tested as per the frequency indicated therein, expenses of these shall be borne by the contractor.
2. Level of testing shown in legend as A, B and C are defined as under :-

**LEVEL 'A'**

(a) "Site Lab" means own site lab established by contractor at the work site for such tests. This lab shall house all the facilities including T&P machinery, equipment, manpower etc required for conducting tests. This lab shall be operative for the entire duration of the contract till its completion. Tests shall be carried out in the presence of Engineer-in-Charge to be nominated by the GE. Random check of compliance of frequency of testing shall be done by GE.

(b) Records shall be maintained at work site. These test results shall be signed by the contractor or his authorised representative and aforesaid departmental official.

(c) Within 15 days of placement of work order No.1 site lab shall be established and action reported by the contractor to GE in writing who will verify the fact and satisfy himself the facilities provided. Thereafter GE will issued a certificate to this effect in writing listing out equipment particulars etc of each materials tests. Only after issue of this certificate by the GE the tests shall be carried out and materials so approved shall be incorporated in the work.

(d) Manpower, materials, land infrastructure like electricity water etc requires for conducting these tests shall be provided by the contractor.

(e) Tenderer is deemed to cater for above provisions in his quoted rates.

(f) Remedial measures, if any, required to achieve/obtain desired results for each test shall be taken promptly by contractor.

(g) In case during any point of time contractor fails to adhere to the laid down frequency of the tests for any reasons whatsoever, the contractor shall get the tests done from any other lab whose name shall be approved by GE in writing. The testing charges payable by contractor to such labs shall be paid by the contractor's quoted rates is deemed to include for this eventuality and nothing extra shall be payable to the contractor. No extension of time shall be admissible on this account.

(h) However, in case GE in his opinion considers that the contractor is purposely not adhering to the laid down frequencies of the tests, he shall reserve the right to deduct penal recovery which shall be double the rates of tests indicated below. However, besides affecting penal recovery for non-compliance of contractual testing frequency get tests done from zonal lab as per laid down frequency and necessary tests charges given against level 'A' shall be recovered from running bills. In case facilities are not available to conduct tests in zonal lab, then charges paid by GE shall be debited to their running payments. GE's decision shall be final and binding on recoveries.

**LEVEL 'B'**

(a) "Zonal Lab" means lab of CE Bhopal Zone, Bhopal at Bhopal.

(b) The tests shall be conducted as per frequencies laid down for these tests in these labs for which contractor shall provide all requisites facilities like samples, cubes, materials etc, transportation to these labs for testing purposes, it will be contractor's responsibility to adhere to the laid down frequency of testing. Test results shall be sent by lab to the GE whose copies can be made by contractor at his own expense. Testing charges for the tests so conducted shall be recovered at the rates indicated below from the running payments. The contractor's quoted rate is deemed to include for above provision.

(c) Provision of para (h) above of level 'A' shall be applicable to level 'B' also.

**LEVEL 'C'**

(a) Level 'C' lab stands for National Test House/SEMT Wing Pune located in CME Pune 31/Local Engineering College.

(b) Rest provisions contained in para (b) of Level 'B' above shall be applicable here except that contractor shall obtain test results from these labs and hand over to GE. The testing charges payable to these labs for conducting these tests shall be borne by the contractor and his quoted rates is deemed to include this provision.

Signature of Contractor  
Dated \_\_\_\_\_

For Accepting officer

**PARTICUALR SPECIFICATION (Contd....)****MATERIALS AND TESTS**

<b>SI N o</b>	<b>Material</b>	<b>Test</b>	<b>Method of testing</b>	<b>Frequency of tests</b>			<b>Level of test</b>	<b>Rate</b>	<b>Remark</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>			<b>6</b>	<b>7</b>	<b>8</b>
1.	Brick	1) Compressive strength	IS-3495 (Part-II)	As per IS-5454 as given under:-			A	180/-	Checks for visual and Dimensional characteristics shall also be carried out as per IS:5454
		2) Water Absorption 3) Efflorescence	--Do--  ---Do--- (Part-II)	Lot Size.	sample Size	permissible Nos of defective bricks	A	150/-	
				1001 to 10000		0	A	180/-	
				10001 to 35000	5	0			
				35001 to 50000	10	0			
					15	1			
2.	Coarse Aggregate	1) Sieve Analysis	IS:2386(Part-I)	One test for every 15 cum of aggregates or part there of brought to site.			A	120/-	
		2) Flakiness Index	---do--	---do--			A	90/-	
		3) Estimation of deleterious materials	---do---	One test for every 100 cum of aggregate or part thereof.			A	120/-	
		4) Organic impurities	---do--	One test per source of supply			C	120/-	
		5) Moisture content	IS:2386(Part-II)	Regularly as Reqd.			A	120/-	
		6) Specific gravity	--do--	One test for each source of supply.			B	120/-	
3.	Fine aggregate	1) Sieve Analysis	(IS:2386 Pt-I)	One test for every 15 cum of FA or part thereof when brought to site.			A	180/-	
		2) Test for clay, silt and impurities.	--do-- Pt-II	--do--			A	90/-	
		3) Specific gravity	--do--	One for each source of supply			B	180/-	
		4) Test for organic impurities	--do--	One test for each source of supply.			C	180/	
		5) Moisture content	-do- but (Part-II)	Regularly as required subject to 2 tests/ per day when being used.			A	180/	

Contd.....

**PARTICULAR SPECIFICATION (Contd....)****MATERIALS AND TESTS**

1	2	3	4	5	6	7	8
4.	Cement	1) Setting time	IS-4031-63 Reaffirmed 1980	Once for each consignment or as and when Reqd.	B	180/-	
		2) Soundness	--do--	--do--	C	120/-	
		3) Compressive strength	--do--	--do--	B	360/-	
		4) Fineness	--do--	--do--	C	120/-	
5.	Structural concrete (M-15 grade and above)	1) Slump test or compacting factor test or VEE-BEE test	IS-119	The Min frequency of sampling of concrete of each grade shall be as under :-	A	180/-	(1) Random sample shall be carried out to cover all mix units.
		2) Compressive strength	IS-516	Qty of Conc. No of IN THE work(M <sup>3</sup> ) samples 1 – 5 1	A	120/-	(2) Refer IS-456-2000 clause 14 for frequency of sampling.
				6 – 15 2 16 – 30 3 31 – 50 4 51 and above 4+1 for each Addl 50 cum. or part			
6.	(a) PCC block for walling (Hollow Block)	1) Compressive strength.	IS:2156-1984 (Appx 'B')	8 Blocks out of 14	A	60/-	Samples :- 14 blocks from consignment of every 5000 blocks or part thereof.
		2) Water Absorption.	-do- (Appx 'E')	3 Blocks out of 14	B	120/-	
		3) Density.	-do- (Appx 'A')	5 Blocks out of 14	B	90/-	
	(b) PCC solid for walling.	1) Compressive strength	IS-2185	12 Blocks out of 18	A	60/-	Samples :- 18 Blocks from consignment of every 1000 or Part thereof.
		2) Water absorption.	-do- (Appx 'E')	3 Blocks out of 18	B	120/-	These Blocks shall be checked for dimensions and
		3) Density	-do- (Appx 'A')	3 Blocks out of 18	B	120/-	weight.
7.	Cement flooring Tiles/Terrazzo tiles	1) Water absorption	IS:1237-1980 (Appx 'D')	6 Tiles out of 18	B	180/-	Samples : 18 Tiles from each source of supply selected at Random.
		2) Wet Transverse strength	-do- (Appx 'E')	-do-	B	144/-	
		3) Resistance wear	-do- (Appx 'F')	-do-	C	540	
8.	Burnt clay roofing Tiles (Hand Made)	1) Water absorption	IS : 3495 (Part-II)	6 Tiles out of 12	B	216/-	Samples : 12 tiles from each source of supply selected at Random.
		2) Compressive strength	-do- (Part-I)	-do-	A	180/-	
9.	Mangalore Pattern Roofing Tiles	1) Water absorption	IS : 654 (Appx 'A')	6 Tiles out of 32	B	180/-	SAMPLES : 32 tiles from each consignment of 3000 tiles or part thereof. These tiles shall be checked for dimensions and weight.
		2) Breaking load	-do- (Appx 'C')	-do-	B	120/-	

**PARTICULAR SPECIFICATION (Contd....)****MATERIALS AND TESTS**

1	2	3	4	5	6	7	8
10	Timber	1) Specific gravity and weight 2) Moisture content	IS:1708 -do-	Minimum 3 samples from a lot of 4 Cum or 250 pieces of seasoned timber. -do-	B A	120/- 120/-	
11.	Water for constn purpose	1) Test for acidity 2) Test for alkalinity	IS:456 & 3025 -do-	Once at the stage of approval of source of water	B B C	240/- 240/-	Also refer clause 4.3 of IS:456 and its subsequent clauses regarding suitability of water.
12.	Welding of steel work	Visual inspection Test.	IS:822-1970 Clause-7.1	100% by visual inspection		360/-	Specialized tests, their method and frequency to be decided on consideration of their importance by the Accepting Officer.
13	Timber paneled and glazed door/window shutters(including factory made shutter)	a) Dimensions, sizes workmanship and finish	IS:1003 (Pt-I)	Frequency of sampling from each lot shall be as under :- Lot size Sample Size 26 to 50 5	A	180/-	
14.	Ply Wood (IS:303)	a) Moisture content	IS:1734(Pt-I) -do- (Part-6)	Six test pieces cut from each of the boards selected as per table-I shall be subjected to tests.	B C	240/- 240/-	SAMPLING shall be as per IS-7835 Tables II
15.	Wood Particle Board(Medium Density)	a) Density	IS:2380	Three test specimen from each	A	60/-	Sampling shall be done as per IS:3487 with moisture meter.
	IS:3087-1985		(Part-3)	sample(Size 150mm x 75mm)			
		b) Moisture content	--do--	--do--	A&B	60/-	
		c) Water absorption	--do--	--do--	A	60/-	
			(Part-16)	(Size 300mm x 300mm)	A	60/-	
			--do--(Part-17)				
		d) Swelling due to	--do--	--do--			
		surface absorption		(Size 125mm x 100mm)	A	60/-	
		e) Swelling in water	--do-- (Part-4)	-do-			
				(Size 200mm x 100mm)			
		f) Modules of rupture	--do-- (Part-4)	--do--Three test specimens as per IS :	B	90/-	
				2380-1977			
		g) Screw withdrawal strength	--do-- (Part-4)	--do-- as per IS:2385	C	120/-	

Signature of Contractor  
Dated\_\_\_\_\_

For Accepting officer



## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
<b>B/R ITEMS</b>			
<b>SECTION-4 CONCRETE</b>			
1	Ready Mix Concrete (RMC)	Lafarge, Ultra Tech, ACC, RMC Ready Mix, Remco	
1A	PCC SOLID BLOCK		Sukhi Enterprises (SUKHI)
1B	AAC Block	Siporex, HIL limited (Birla Aerocon)	Geenway Building materials India Pvt Ltd, DLITE Blocks Pvt Ltd (DLITE Blocks)
<b>SECTION-5 : BRICK</b>			
1C	Fly Ash Bricks		Vaishnavi Developers (Vaishnavi Developers)
<b>SECTION-8 : JOINERY</b>			
2	Factory made Wooden Shutter	M/s Goel Brothers Raipur, M/s Pioneer Timber, Chandigarh, M/s Goyal Industries, New Delhi, M/s Jain Doors Pvt Ltd, Haryana, M/s India Wood & Wood Products, Mangalore, M/s M P Wood Products, Indore, M/s A-1 Teak Products, Indore, M/s Punjab Plywood Industries (Brand - Black Cobra)	M/s Door King Industries, Kolkata, M/s Prince Timber M/s Indian Timber Product, Hyderabad M/s Punjab Plywood Industries (Brand - Black Cobra)
2A	Factory made Paneled Door, Shutters, Wire Gauge Shutters, Glazed Shutter	M/s Punjab Plywood Industries (Brand - Black Cobra), M/s Maica Plastiwood (Make : Maica)	Jain Wood Industries (JAYNA) Ashish Enterprises (Ashish) M/s Punjab Plywood Industries (Brand - Black Cobra)
3	Factory made PVC, FRP Shutters and Frames	M/s Rajashri Plastiwood, Indore (Rajashri), M/s Sintex Industries Ltd (Sintex), M/s Dura Plast Exfousion (Duraplast), M/s Madhu Industries (Madhu Industries), M/s Navratna Co Speciality Chemicals (GIZA), M/s Accura Polytech (ACCUCCEL), M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra), M/s Maica Plastiwood (Make : Maica)	M/s Engco Industries, Jodhpur, M/s Selected Products (SPC) M/s Janik Developers, M/s Kumar Arch Tech Pvt Ltd (Echon), M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)
3A	UPVC Doors, Windows and Ventilators	M/s Poly Windows, Pune, M/s Aparna Profiles Pvt Ltd (APARNA Venstar OKOTECH), M/s Rajshri Plastiwood (Rajshri), M/s Madhu Industries (Madhu Industries), M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra), M/s Maica Plastiwood (Make : Maica)	M/s Astrapia UPVC Tech Pvt Ltd (Astrapia), M/s Accura Polytech Pvt Ltd (Accucel), M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)
4	Steel Windows, Ventilators, Door Frames, Shutters	M/s Madhu Industries (Madhu Industries)	M/s Jangid Engg, Jaipur (JEW), M/s Deccan Structural Pvt Ltd, Bangalore, M/s Chandni Industries, M/s Ashwani & Sons (Ashwani & Sons), M/s Anoop Industries, M/s Trisul Industries (Trisul Ind), M/s Ashish Industries
4A	<b>BLANK</b>		
4B	PVC Foam sheets/Boards	M/s Rajshri Plastiwood (Rajshri) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)	M/s Navratna Speciality Chemicals (GIZA) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)
4C	WPC Board	M/s Rajshri Plastiwood (Rajshri) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)	M/s Kumar Arch Tech Pvt Ltd (Echon) M/s Navratna Speciality Chemicals (GIZA) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)
4D	Extruded PVC Profile Doors and Frames	M/s Rajshri Plastiwood (Rajshri) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)	M/s Kumar Arch Tech Pvt Ltd (Echon) M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)
5	Aluminum section of shutters/Frames for door/window/ventilators	M/s Hindalco Ind Ltd (Hindalco), M/s Indian A1 Company (Indal), M/s Jindal	M/s Associated Profile & Alum Ltd, M/s Sterlite, M/s Bhoruka Alum Ltd, M/s Architecture Incorporation, Chennai, M/s Deco Grill

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

APPROVED LIST OF PRODUCTS & MAKES/BRANDS : B/R & E/M ITEMS (Updated upto 21 Jun 2022)			
S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
5A	Rolled Formed GI section Pre-painted/ Pre-coated windows	M/s NCL ALLTEK & SECCOLOR (SECCOLAR), Elexir Met (Elexir Met)	M/s Ashwani & Sons (Ashwani & Sons & Co)
6	Steel Rolling Shutters Grills & Collapsible Gates	M/s Shree Lakshmi Engg Wks, Bangalore, M/s Prakash & Co. New Delhi, M/s Senthil Rolling Shutters & Engg Co, Chennai, M/s Swastik Rolling Shutters, Mumbai, M/s Jayaraj Industries, Chennai	M/s Darshan Rolling Shutters, Nashik, M/s Shalimar Rolling Shutters & Co, M/s Ganesh Rolling Shutters, Hyderabad, M/s Shapana Dock & Steel
6A	Manual / Motorized Sliding Gate		M/s Avians Innovation Technology Pvt Ltd (AVIANS)
6B	Motorized Single Wall rolling shutter		
6C	Fire related rolling Shutters (2 Hrs firerating)		
6D	Fire rated sliding door (2 Hrs rating)		
<b>SECTION-9 : BUILDER'S HARDWARE</b>			
7	Hydraulic Door Closer	M/s Everite, M/s Universal, M/s Hardwin, M/s Dyana	M/s Ranjan, M/s Kelin, M/s Amar Engg & Co, New Delhi, M/s Prabhat Door King, M/s Perfect Hydraulic
7A	Stainless Steel Plate Rack	M/s Prayag (Prayag), M/s Nirali, M/s Bluestar Sanitary Industreis Pvt Ltd (SILVERSHINE)	M/s Selected Products Co (SPC)
7B	PTMT Bathroom and Hardware Fittings		M/s R S Industries (Polytuf), M/s Prayag
7C	Aluminum Tower Bolt/Aldrops/Door handle/Butt Hinges	M/s Argent Industries (ARGENT/DOOR GLOW), M/s Aluminium Udyog	M/s Aluminium Udyog
7D	Towel Rails	M/s Jaquar (Jaquar), M/s KICH, M/s Aluminium Udyog	M/s Swastik, M/s Crown, M/s Prayag, M/s ESS ESS, M/s Aluminium Udyog
7E	Mortise Locks	M/s Harrison (Harrison), M/s Godrej & Boyee Co Ltd	M/s RP Lock Co, New Delhi, M/s Kick
7F	Drapery Rod	M/s Vista Levolor, M/s MAC-DÉCOR	M/s Sophia
7G	Venetian Blinds	M/s Vista Levolor, M/s MAC	M/s Aeroluxe
<b>SECTION-10 : STEEL, ALUMINUM &amp; IRON WORK</b>			
7H	Galvanised Steel Chain Link Fence Fabric		M/s A1 Fence Products Company Ltd (A1FENCE)
7J	Barbed wire, (Galvanisedsteel) Mechanically Woven double twisted Hexagonal wire mesh for Gabions, Revet Mattress and Rock fall netting (Galvanised)		M/s A1 Fence Products Company Ltd (A1FENCE)
7K	FRP Manhole Covers, Frames & Gratings	M/s FIBROCAST (FIBROCAST)	
<b>SECTION-11 : ROOF COVERING</b>			
8	Mangalore Tiles	M/s Charminar, M/s Raja, M/s RECHO, M/s Prajapati, M/s Kerala Tiles Works	M/s Trisur, M/s Mari Tile works Kawiyoor, M/s Saint Anthony's, Muvattupuzha Ernakulam, M/s Haessika Decorative Tiles
<b>CORRUGATED SHEETS</b>			
8A	Non Asbestos fibre reinforced (Poly propylene) 6mm Cement Corrugated sheets	M/s Everest industries Ltd (Everest), M/s Charminar Fortune (M/s HIL Ltd) (Charminar Fortune), M/s RAMCO Indus Ltd (RAMCO)	
8B	Pre-painted Galvalume / Galvanised Corrugated Steel Sheets	M/s TATA, M/s JSW, M/s ESSAR	M/s METCO Roof Pvt Ltd, M/s MB Engineering (PROFLEX SYSTEM)
8C	Galvanised Plain / Corrugated Steel Sheets	M/s TATA, M/s JSW, M/s ESSAR	M/s Indian Steel Corpn Ltd, M/s National Steel & Agro Industries Ltd
8D	Cold Rolled Closed Annealed (CRCA) Steel Sheet		M/s Indian Steel Corpn Ltd
8E	Pre Moulded Non Bituminous Joint Filler board	M/s Elcon, M/s Duron Board HD-100	
8F	Pre Moulded Bituminous Joint Filler board	M/s STP Ltd, M/s Tikitar industries Ltd, M/s Sikka	

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
8G	AC Sheets & Ridges	M/s Charminar (Charminar), M/s Everest, M/s UP Asbestos, M/s Ramco	M/s Swastik, M/s Visakha Indus, M/s Asbestos Cement Ltd
8H	Water proofing Compound	M/s Pidilite Industries Ltd (Pidilite), M/s FOSROC, M/s Dr Fixit	M/s ECOT, M/s IMERMO, M/s SICO, M/s Superaquacern (I) Ltd
8J	APP Membrane	M/s STP Ltd, M/s Texsa India Ltd, M/s IWL Ltd, M/s Tiki Tar Danosa (India) Pvt Ltd (Brand-Tikidan Hydrostop), M/s Asian Paints Ltd	M/s Torchstar Membranes & Bitumen Product Pvt Ltd
<b>SECTION-12 : CEILING AND LININGS</b>			
9	Perforated particle Board/Tiles for insulation and Acoustic	M/s Anchor Ceiling Tiles, M/s Armstrong wood Ind, M/s Gyp Board, M/s Bison Panel, M/s Lagyp	M/s Eternite, M/s Aerolite, M/s STP, M/s SN Industries
9A	PVC False ceiling, Wall Lining & Solid PVC Partitions	M/s Rajshri Plastiwood (Rajshri), M/s Maica Plastiwood (Make : Maica), M/s Yamuna Interiors Pvt Ltd (Brand - Black Cobra)	M/s Kumar Arch Tech Pvt Ltd (Echon), M/s Navratna Speciality Chemicals (GIZA), M/s Accura Polytech Pvt Ltd (Accucel)
9B	Metal False Ceiling		M/s Hi Steel (Hi Steel)
9C	Dry walling panels	M/s Hil Ltd (Birla Aerocon)	
10	Plywood	M/s Kitply (Kitply), M/s Century Plywood, M/s Archidply (Archid), M/s Green Ply (Green Ply), M/s Anchor (Anchor)	M/s Swastik (SWASTIK), M/s Bhutan Board, M/s Indian Plywood, M/s Jain Wood Indus (JAYNA)
11	Particle Board Gypsum	M/s Mangalam Timber Products, M/s Gypsum Board, M/s Jolly BD, Mumbai, M/s Indian Gypsum Products, M/s Armstrong Wood Industries	M/s Anchor Bombay, M/s Indian Plywood, M/s Board Gypsum India, M/s Arolite Costing System, M/s Associate Deor Ltd
11A	Particle Board Cement Bonded	M/s NCL Indus Ltd (BISON PANEL)	
12	Laminated Sheets	M/s Formica, M/s Sun gloss, M/s Sunmica, M/s Backlite Hylum, M/s Eco Board	M/s Nova Teak Super, M/s Nova Pan M/s Kitlam, M/s Green Lam
12A	Thermal insulation (Nitrile Rubber)		M/s Armacell India Pvt Ltd (ARMA FLEX)
12B	Accoustic Insulation (Nitrile Rubber)		M/s Armacell India Pvt Ltd (ARMA SOUND)
12C	Insulation Covering System		M/s Armacell India Pvt Ltd (ARMA CHECK)
12D	Adhesives	M/s Pidilite (Pidilite), M/s Fevicol, M/s Vermicol	M/s Armacell India Pvt Ltd
13	Pre Laminated Particle Board.	M/s Novapan, M/s ECO Board Industries, Pune, M/s Kitply, M/s Green Ply, M/s Anchor Lam, M/s Century Plywood	M/s Bhutan Board, M/s Archid Ply, M/s Archid Board M/s Associated Décor Ltd, M/s Green Ply Industries
13A	Non Asbestos Fibre Reinforced cement	M/s RAMCO Indus Ltd (RAMCO)	M/s Visaka Industries Ltd (V-BOARD)
14	Block Boards and Veneered Particle Board	M/s Bajaj Boards, M/s NU Wood, M/s A1 Boards, M/s Bhutan Board (Bhutan), M/s Charminar (Charminar)	M/s Lotus (Lotus), M/s Swastik, M/s Duraluff, M/s Kitply (Kitply), M/s Jainwood indus (JAYNA), M/s Greenply Industries Ltd (GREEN PANELMAX)
<b>SECTION-13 : FLOOR FINISHING &amp; PAVINGS</b>			
15	Glazed Ceramic Wall/Flooring tiles	M/s Kajaria, M/s Somany, M/s Asian Granite Ind Ltd (AGI TILES), M/s Johnson Tiles, M/s RAK Ceramic Ltd (RAK CERAMICS)	M/s Spartek, M/s Regency, M/s Murudeshwar Ceramics, M/s Orient Bell Ltd (Orient Bell), M/s OASIS Vetrified Pvt Ltd (OASIS), M/s Sunshine Tiles Co Pvt Ltd (SUNHEART), M/s Qutone Ceramic Pvt Ltd (Qutone), M/s VARMORA Granite Pvt Ltd (VARMORA), M/s Aparna Enterprises (VITRO)
16	Non Skid Ceramic tiles	M/s Kajaria (Kajaria), M/s Somany (Somany), M/s Johnson Tiles (JOHNSON), M/s Orient Bell Ltd (Orient Bell)	M/s Spartek, M/s Regency, M/s Asian, M/s Ambani Vitrified Pvt Ltd (Ambani), M/s Naveen Tiles
17	Vitrified Tiles	M/s Kajaria, M/s Somany, M/s Asian Granite Ind Ltd (AGL Tiles), M/s Johnson Marbonite, M/s RAK Ceramic Ltd (RAK CERAMICS), M/s Orient Bell Ltd (Orient Bell)	M/s Murudeshwar Ceramics, M/s Bell Granito, M/s Naveen Tiles, M/s Varmora Granito Pvt Ltd (VARMORA), M/s Swastik Ceracon Ltd (SWASTIK), M/s Sunshine Tiles (SUNHEART), M/s CENGRESS Tiles Ltd (CENGRES), M/s Oasis Vitrified Pvt Ltd (OASIS), M/s Qutone Ceramic Pvt Ltd (Qutone), M/s Ambani Vitrified Pvt Ltd (Ambani), M/s Aparna Ltd (VIETRO)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
18	Mosaic/Cement Flooring Tiles	M/s Nitco Mumbai, M/s Ultra, M/s Duracrete, M/s Mehatab Tiles, Indore, M/s National Tiles, M/s Bharat Tiles and Engg Co Bangalore, M/s Modern Tiles and Marbles	M/s Gawalior Granite, M/s Raj Pavers Industries
19	Acid Resistant Tiles	M/s Johnson, Mumbai (Johnson), M/s Somany (Somany), M/s Kajaria (Kajaria), M/s Burn Standard Co Jabalpur, M/s Purshottam Pottery Wks, Marvi	M/s Coromandal Products, M/s Iswar Industries Delhi, M/s Regency Ceramic, M/s Duracrete
20	Cement Concrete Interlocking Paver Blocks/Tiles	M/s Mehtab Tiles, Indore (Mehtab), M/s NITCO (NITCO), M/s Ultra Tiles (ULTRA), M/s Navya Tiles, Jodhpur (Navya) M/s Patel Fur Mart (Patel Fur Mart), M/s Agarwal Refractories, M/s Raj Pavers Industries	M/s SAP Paver Jodhpur, M/s Sagar Tiles Saharanpur (Sagar), M/s CEME, M/s Topaz Tiles (Topaz Tiles), M/s Swami Tiles, M/s Sukhi Enterprises (SUKHI), M/s Supreme Tiles (SUPREME), M/s Lucky Cement Block Works (LC), M/s Vaishnavi Developers (Vaishnavi Develop)
21	PVC Sheet and tile flooring	M/s Armstrong (Armstrong), M/s Marbles Tiles, M/s Polyfin Tiles, M/s Square Foot, M/s Krishna Vinyl Tiles	M/s Neelkamal (Neelkamal), M/s Premeir Vinyl Flooring New Delhi, M/s Rikvin Floors New Delhi, M/s Wonder Floor
22	Aluminium composite panel / Materials	M/s Alexia Panels (Brand - Alex)	M/s Umiya Flexifoam Pvt Ltd (Flexibond), M/s Alexia Panels (Brand - Alex)
22A	Porcelain Tiles		M/s Orient Bell Ltd (Orient Bell)
22B	Laminated Flooring		M/s Green Ply Indus Ltd (Green Flamax)
<b>SECTION-15 : WHITE WASHING, COLOURING &amp; DISTEMPERING</b>			
23	Distemper oil-emulsion (OBD)	M/s Asian Paints (Asian), M/s Nerolac (Narolac), M/s Berger Paints (Berger), M/s Akzo nobel (Dulux)	M/s Shalimar Paints (Shalimar), M/s Johnson & Nicholson, M/s Jotun, M/s Garware Paints (Garware)
24	Plastic Emulsion Paint and Exterior Emulsion Paint	M/s Asian Paints (Asian), M/s Berger Paints (Berger), M/s Nerolac (Narolac), M/s Akzo nobel (Dulux)	M/s Shalimar Paints (Shalimar), M/s Johnson & Nicholson, M/s Pidilite Weatherproof, M/s Jotun
25	Cement Base Paint	M/s Super Snocom, M/s Duracem, M/s Aquacem, M/s Shalimar Paints (Shalimar), M/s Berger Paints (Berger)	M/s Asian Paints (Asian), M/s Accrocem, M/s NITCO Mumbai, M/s Johnson & Nicholson
26	Cement Putty	M/s Birla Cement, M/s J K White Cement (JK White), M/s Asian Paints (Asian), M/s Johnson & Nicholson, M/s Shalimar Paints (Shalimar), M/s Golden Mohar (Golden Mohar)	
<b>SECTION-16 : GLAZING</b>			
27	Sheet Glass plain	M/s Saint Gobin, M/s Asahi works	M/s Atul Glass Indus, M/s Gold Fish, M/s Trupti, M/s Modi Guard, M/s Modi Float, M/s Hindustan Pilkigton Glass
28	Sheet glass frosted	M/s Saint Gobin, M/s Asahi works	M/s Atul Glass Indus, M/s Gold Fish, M/s Trupti, M/s Modi Guard, M/s Hindustan Pilkigton Glass, M/s Modi Float
29	Heat absorbing glass and reflective solar control film	M/s Saint Gobin, M/s Modi Float, M/s Modi Guard, M/s Hindustan Pilkigton Glass	M/s Gold Fish M/s Trupti
30	Rough cast wired glass	M/s Saint Gobin, M/s Modi Float, M/s Modi Guard, M/s Hindustan Pilkigton Glass	M/s Gold Fish, M/s Trupti
31	Oil Putty	M/s Jehnson & Nicholson, M/s Asian Paints (Asian), M/s Berger Paints (Berger)	M/s Shalimar Hardware (Shalimar), M/s Anglo Dutch Colour & Varnish Wrks Najafgarh Road, M/s Golden Mohar (Golden Mohar), M/s Atul Dyes & Chemicals, M/s U K Paints Indus Gurgaon
31A	Wall Putty	M/s Dalmia Magic Premium Skin Coat Bharat Ltd (Dalmia Cement)	M/s Walplast Product Pvt Ltd (Walplast)
32	Mirror	M/s Modi, M/s Atul, M/s Saint Gobin	M/s Gold Fish, M/s Hindustan Glass Calcutta M/s Asahi Works, M/s Kohinoor, M/s Swastik

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

APPROVED LIST OF PRODUCTS & MAKES/BRANDS : B/R & E/M ITEMS (Updated upto 21 Jun 2022)			
S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
<b><u>SECTION-17 : PAINTING</u></b>			
33	Synthetic Enamel Paint	M/s Asian Paints (Asian), M/s Nerolac Paints (Nerolac), M/s Akzo nobel (Dulux)	M/s Johnson & Nicholson Paints, M/s Jotun M/s Shalimar Paints (Shalimar)
34	Thermocool Cool Coating		M/s Thermogreen Cool Coating (Thermocool)
35		<b>BLANK</b>	
36		<b>BLANK</b>	
<b><u>E/M ITEMS</u></b>			
<b><u>SECTION-18 : WATER SUPPLY, PLUMBING, DRAIN &amp; SANITARY APPLIANCES</u></b>			
1	CI Pipe and fittings	M/s (Electrosteel) Casting Ltd, M/s Kejriwal, M/s NECO, M/s Kesoram	M/s Kapilansh (Kapilansh), M/s Kalinga , M/s Babulal Bajaj Iron Foundry (HIF), M/s True Form Engineers
2	GI Pipes & Fittings	M/s Tata (Tata), M/s Jindal (Jindal)	M/s BST, M/s Surya (Surya), M/s KS Engineering works (KS), M/s Zenith, M/s Swastik, M/s Prakash
3	DI Pipes & Fittings	M/s Jindal Ltd, Gujrat, M/s Electrosteel Castings Ltd, M/s Tata Metalics, Kolkata, M/s SAW Pipes	M/s Electrotherm (india) Ltd (Electrotherm), M/s AARKO Pipe Gram Udyog, M/s TRUFORM Techno Products Ltd, M/s TRUFORM Engineers, M/s Jai Balaji Industries Ltd (Jai Balaji)
3A.	Hubless Centrifugally		M/s Jayswal NECO Indus Ltd (NECO), M/s Singhal Iron Foundry Pvt Ltd (SKF), M/s Raj Pattern Matress & Founders Pvt Ltd (RPMF)
4	MS Pipes & Fittings	M/s Tata, M/s Jindal Ltd, Gujrat	M/s Swastik, M/s Prakash, M/s Surya, M/s BST M/s Zenith
4A	MS Tubes & Fittings		M/s APL Apollo Tubes Ltd (APL APPOLLO)
4B	Steel Tube for Structural purpose		M/s APL Apollo Tubes Ltd (APL APPOLLO)
5	HDPE Pipes& Fittings	M/s Finolex, M/s Kissan Irrigation & INFRA STRUCTURE Ltd (Kissan), M/s Prince Pipes fittings Ltd (Core Fit), M/s Supreme, M/s Jain Irrigation System	M/s Kisan, M/s R C Plasto Industries (Plasto) M/s Triputi
6	CPVC Pipes and fittings (Chlorinated Polyvinyl chloride)	M/s Price Pipes & Fittings (Smart Fit), M/s Finolex, M/s Dutron, M/s SFMC, M/s Birla Aerocon (HIL Ltd)	M/s Vectus Industries Ltd, M/s Ajay Industrial Corp Ltd M/s Ashirvad Pipes Pvt Ltd (Ashirvad), M/s Ajay Flowgaurd Delhi, M/s Prayag Polymers (P) Ltd (Prayag), M/s HSIL Ltd (Hindware), M/s Fusion Industries (Fusion), M/s R C Plasto Industries (Plasto), M/s Avon Plastics industries Pvt Ltd (Avonplast)
7	PVC-Soil, Waste Mini Water (SWR & Drainage Pipes)	M/s Supreme, M/s Prince (Ultra fit), M/s Kisan, M/s Finolex	M/s Dinesh, M/s Amogh Plast, M/s Astron Plastic
7A	PPR Pipes & Fittings	M/s Prince Pipes & Fittings Ltd (Green Fit), M/s Finolex, M/s Supreme, M/s Savoir Fairo Mafg Co Pvt Ltd (SFMC)	M/s Kanha Plastics Pvt Ltd (KPT), M/s Vectus Industries Ltd, M/s Fusion Industries, M/s SHK Polymers Industries (SHK)
7B	PVC Pipes & Fittings	M/s Prince Pipes & Fittings Ltd (Aqua Fit), M/s Kissan Irrigation & INFRA STRUCTURE Ltd (Kissan), M/s Finolex, M/s Supreme, M/s HIL Ltd (Birla Aircon)	M/s GM Modular Pvt Ltd, M/s Avon Plastic Ind Pvt Ltd (Avon Plast)
7C	UPVC Pipes and Fittings	M/s Prince Pipes & Fittings Ltd (Aqua Fit), M/s Kissan Irrigation & INFRA STRUCTURE Ltd (Kissan), M/s Finolex, M/s Supreme, M/s HIL Ltd (Birla Aircon)	M/s Kanha Plastics Pvt Ltd (KPT), M/s Sarovaram Industries (LLP), M/s AKG Extrusion Pvt Ltd (AKG), M/s Ajay Industrial Corp Ltd (Green Line), M/s Kisan Mouldings Ltd, M/s VECTUS Industries Ltd (VECTUS), M/s Ashirvad Pipes Pvt Ltd (Ashirvad), M/s CRI Pumps Pvt Ltd (CRI), M/s HSIL Ltd (Hindware), M/s Fusion Industries, M/s R C Plasto Industries (Plasto), M/s Avon Plastic Ind Pvt Ltd (Avon Plast)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
7D	UPVC Pipes & Fittings for SWR	M/s Prince Pipes & Fittings Ltd, M/s Finolex, M/s Kissan Irrigation & INFRA STRUCTURE Ltd (Kissan), M/s Supreme, M/s HIL Ltd (Birla Aircon)	M/s Sarovaram Industries (LLP), M/s AKG Extrusion Pvt Ltd (AKG), M/s Ajay Industrial Corp Ltd, M/s VECTUS Industries Ltd (VECTUS), M/s Ashirvad Pipes Pvt Ltd (Ashirvad), M/s HSIL Ltd (Hindware), M/s Avon Plastic Ind Pvt Ltd (Avon Plast)
7E	Polyethylene/Aluminum/Polyethylene Composite Pressure Pipe	M/s Prince, M/s Kissan Irrigation & INFRA STRUCTURE Ltd (Kissan), M/s Finolex, M/s Supreme	M/s VECTUS industries Ltd
7F	Plastic Pipe for non pressure Drainage & Sewarage	M/s Prince (Foamfit), M/s Finolex, M/s Supreme	M/s Ashirvad Pipes Pvt Ltd (Ashirvad)
8	CI-Soil, Waste, Rainwater (SWR) & Drainage Pipes	M/s NECO, Nagpur, M/s Singhal Iron Foundry, Mathura (SKF)	M/s Bengal Iron Co, M/s Dhatu Udyog, M/s Kapilnash Nagpur (KAPILANSH), M/s Anand Founder & Engineers, M/s Raj Pattern Makers & Founders Pvt Ltd (RPMF)
9	AC-Soil, Waste / Rainwater (SWR) & Drainage pipes.	M/s Everest Asbestos Hyderabad, M/s Visaka India Ltd, M/s Hyderabad Asbestos (Charminar), M/s Ramco	M/s Rajasthan Asbestos, M/s Asbestos Cement Ltd M/s Sarbmangala Mfg Co Kolkatta, M/s Rohtas Indus Dalmia Nagar, M/s Swastik
9A	Steel Pipes for Water & Sewage		M/s APL Apollo Tube Ltd (APL APOLLO) M/s Laxmi Balaji Ceramics (Laxmi Balaji)
10	RCC pipes, Drain pipes	M/s Indian Hume Pipes, M/s Everest Asbestos Hyderabad, M/s Himalaya, M/s Thuluvananikal Pipes	M/s Poona Concrete Products, M/s Awathy Spun Pipes, M/s Vardhaman Concrete Pro Pune M/s Dhere Concrete Products Pune, M/s Shivam industries
11	Air Release Valves	M/s Leader (Leader), M/s BIR (BIR), M/s Kirloskar (Kirloskar), M/s Sant, M/s L&T (L&T), M/s Upadhyay	M/s Venus, M/s Normax, M/s AUDCO
12	Foot Valves	M/s Upadhyay, M/s Leader, M/s Kirloskar, M/s Sant	M/s Varun, M/s Venus, M/s AARCO Pipe Gram Udyog, M/s AUDCO, M/s Normax
13	Reflex Valves	M/s Kirloskar, M/s Leader, M/s Sant, M/s L&T	M/s Upadhyay, M/s AARCO Pipe Gram Udyog M/s Varun, M/s Venus, M/s Normax, M/s AUDCO
14	Sluice Valves	M/s Leader, M/s Kirloskar, M/s Zoloto, M/s L&T, M/s BIR, M/s Upadhyay	M/s AARCO Pipe Gram Udyog, M/s Kalpana, M/s Venus, M/s Chair Euromatic Automation Cair, M/s AUDCO
15	Butterfly Valves/Disc Valves	M/s Leader (Leader), M/s Zoloto (Zoloto), M/s Sant, M/s Larsen & Toubro (L&T), M/s Kirloskar (Kirloskar) M/s Upadhyay (Upadhyay)	M/s BIR (BIR), M/s Normax Valves (NORMAX), M/s AARCO Pipe Gram Udyog, M/s Castle, M/s Valvco Int (QUINN), M/s Cair Euromatic Automation Cair, M/s AUDCO
16	Gate Valves	M/s Leader (Leader), M/s Zoloto (Zoloto), M/s Sant (Sant)	M/s Hindustan Metal industries, M/s Jaypee M/s Kingstan, M/s Hansa, M/s Valvco International (QUINN)
16A	Automatic Confoot Valve		M/s BAMO Electronics (Jalniyantrak)
17	Water Meter	M/s Capstan, M/s Dashmesh, M/s Kaycee, M/s Capital, M/s Anand Asahi, M/s Kirloskar (Kirloskar)	M/s Ashai, M/s GEC (GEC), M/s Dhawan Sanitary Udyog, M/s MECO (MECO)
18	PVC Water Tanks/Polyethylene	M/s Sintex Indus (Sintex), M/s Polycon, Jaipur (Polycon), M/s Rotex (Rotex)	M/s Plasto Nagpur (Plasto), M/s Polywell, M/s Carris Pipes Tubes Pvt Ltd (Acquatech), M/s Okey Polymers Pvt Ltd, M/s JS Polyplast, M/s Ergen Plastic Indus Jodhpur, M/s Vectus Industries Ltd (Vectus), M/s Ashish Plast (Ashish), M/s Piyush Plasto Chems Pvt Ltd, M/s Simplex Plast, M/s Kaveri Plasto (KAVERI), M/s Rotamatic Containers Pvt (Rotamatic), M/s Infra (Infra)
19	CP Bib Cock, Stop cock pillar cock and Accessories	M/s Jaquar (Jaquar), M/s Marc (Marc), M/s Cera Sanitaryware (CERA), M/s Kohler	M/s SOMA, M/s Dhawan Sanitary Udyog (PRIMA), M/s Sieco Indus (Sieco), M/s GEM (GEM), M/s Mohan Metal Industries (CORONET), M/s Shakti Enterprises (Shakti), M/s Prism Johnson Ltd (Johnson)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
19A	Copper/Brass Alloy Bib Tap, Pillar Tap, Angle Valve & Stop Valves and Accessories	M/s Soma, M/s Leader (Leader), M/s Zoloto (Zoloto), M/s Jaquar Co Pvt Ltd (JAQUAR)	M/s Shree Balaji Industries (GLACIER), M/s Plastocraft Sanitary (I) Pvt Ltd (KINGSTON), M/s Vardhman Enterprises (JANKO), M/s KS Engineering Works (KS), M/s Aluminium Udyog (KUNCHAL), M/s Shakti Enterprises (SHAKTI), M/s Dhawan Sanitary Udyog (PRIMA), M/s Goel Sinks India Pvt Ltd (Goel Sinks), M/s Prayag Polymers (PRAYAG)
20	PVC Stop Cock and Bib Cock/Float valves and Accessories	M/s Jaypee, M/s GMP (GMP), M/s Neta, M/s Zoloto (Zoloto), M/s Prayag polymer (Prayag), M/s Symet	M/s GEM (GEM), M/s Hansa Kingston (KINGSTON), M/s SEIKO (Seiko), M/s Ajanta Polymers (Millenium), M/s Shakti Enterprises (Shakti), M/s Procision Products (PEARL)
21	Gun-Metal Globe/Gate Valves/Angle Valves	M/s Leader (Leader), M/s Bir (BIR), M/s Zoloto (Zoloto), M/s Kirloskar (Kirloskar)	M/s Balaji (Balaji), M/s Shakti Enterprises (Shakti) M/s Dashmesh, M/s Chambal, M/s Kartar M/s Valco International (Quinn)
22	Shower Rose	M/s Jaguar (Jaguar), M/s Kohler, M/s Crabtree, M/s Cera Sanitaryware (CERA)	M/s Kingstan, M/s Meera, M/s Marc (Marc) M/s Parko, M/s Prison Johnson Ltd, M/s ESS-ESS (ESS-ESS), M/s Soma
22A	Cl/Brass Ball Cocks (Float Valves)	M/s Leader (Leader), M/s Neta (Neta), M/s Zoloto (Zoloto)	M/s Dhawan Sanitary Udyog (PRIMA), M/s AARKO Pipe Gram Udyog (AARKO), M/s Prayag Polymers (P) Ltd (Prayag)
23	Water Closet-Vitreous China (European/Indian) Squatting pan Orissa pattern.	M/s CERA Sanitaryware (CERA), M/s Parryware (Parryware), M/s Jaquar (Jaquar), M/s Kajaria Sanitaryware (KEROVIT), M/s Hindware (Hindware), M/s Johnson, M/s RAK Ceramics (RAK CERAMICS)	M/s Pryag Polymers, M/s Nyveli Ceramics (Neycer) M/s Simpolo Vitrified Pvt Ltd, M/s Glint Faucets Inc (GLINT), M/s Ambani Vitrified Pvt Ltd (Ambani) M/s Somany Ceramics Ltd (SOMANY)
24	Flushing Cistern, PVC Low Level incl Flush Valves and Fittings for WC and Urinals	M/s Parryware (Parryware), M/s CERA Sanitaryware (CERA), M/s Johnson Peddar (Johnson), M/s RAK Ceramics India Pvt Ltd (RAK CERAMICS)	M/s Neycer (Neycer), M/s Jaquar & Co Pvt Ltd (JAQUAR), M/s Prayag Polymers (Prayag), M/s Speed Flo, M/s RS Industries (POLY tuf), M/s Ajanta Polymers (Millenium), M/s Shakti Enterprises (Shakti), M/s Precision Products (Pearl) M/s Goel Sinks India Pvt Ltd (Goel Sinks), M/s Ambani Vitrified Pvt Ltd (Ambani), M/s Commander (Commander)
25	Plastic Seat Covers for EWC	M/s CERA (CERA), M/s Neycer (Neycer), M/s Parryware (Parryware)	M/s RAK Ceramics India Pvt Ltd (RAK Ceramics), M/s Duralite, M/s Champion, M/s Speed Flo, M/s Prayag Polymers (Prayag), M/s Commander (Commander), M/s Ajanta Polymers (Millenium)
26	Urinals - Vitreous China	M/s CERA (CERA), M/s Parryware (Parryware), M/s Neyveli Ceramics (NYCER), M/s Hindware, M/s Jaguar & Co Pvt Ltd (JAQUAR), M/s Johnson, M/s Kajaria Sanitaryware Ltd (KEROVIT)	M/s Simpolo Vitrified Pvt Ltd, M/s Shakti Enterprises (Shakti), M/s Ambani Vitrified Pvt Ltd (Ambani), M/s Prayag Polymers (Prayag), M/s Somany Ceramics Ltd (SOMANY)
27	Wash Basin Vitreous China	M/s Kajaria Sanitaryware Ltd (KEROVIT), M/s CERA (CERA), M/s RAK Ceramics India Pvt Ltd (RAK CERAMICS), M/s Parryware (Parryware), M/s Hindware, M/s Neyveli Ceramics (Neycer), M/s Jaquar (Jaquar)	M/s Shakti Enterprises (Shakti), M/s Prayag (Prayag), M/s Johnson, M/s Simpolo Vitrified Pvt Ltd, M/s Somany Ceramics Ltd (SOMANY), M/s Ambani Vitrified Pvt Ltd (Ambani), M/s Glint Faucets Inc (GLINT)
28	Sink Steel	M/s Jayna (Jayna), M/s Nirali, M/s Neelkanth, M/s Parryware (Parryware)	M/s Diamond, M/s Shakti (SHAKTI), M/s Prayag (PRAYAG), M/s Phonix, M/s Plastocraft Sanitary Pvt Ltd, M/s Goel Sink India Pvt Ltd (Goel Sinks), M/s Blue Star Sanitary Indus Pvt Ltd (Silver Shine)
28A	GI & Stainless Steel Wire Mesh		M/s Selected Products Co (SPC)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
29	Centrifugal/Monoblock Pump	M/s Kirloskar (Kirloskar), M/s Beacon (Beacon), M/s CRI Pumps (CRI), M/s Crompton Greaves (Crompton), M/s KSB Pumps (KSB), M/s Wilo Mather Platt (Wilo Mather), M/s Jyoti (Jyoti), M/s V Guard (V Guard)	M/s BEST, M/s Calarna, M/s BE, M/s Shakti Pumps India Pvt Ltd (Shakti)
30	Submersible Pump/Open well pumps	M/s Kirloskar (Kirloskar), M/s KSB (KSB), M/s Wilo Mather Platt (Wilo Mather), M/s Jyoti, M/s V Guard (V Guard), M/s CRI Pumps (CRI)	M/s Kishore Pumps (Kishore Pumps), M/s WASP, M/s Calama, M/s Grindfus Pumps (I) Pvt Ltd, M/s Shakti Pumps India (I) Pvt Ltd (SHAKTI), M/s Jasco Pumps (JASCO)
31	Verticle Turbine Pumps	M/s Kirloskar (Kirloskar), M/s KSB (KSB), M/s Wilo Mather Platt (Wilo Mather), M/s Jyoti (Jyoti)	M/s Modi Atlanta, M/s Johnson, M/s Worthington
32	Non Clog Sewage Submersible Pumps	M/s KSB (KSB), M/s Kirloskar (Kirloskar), M/s Wilo Mather Platt (Wilo Mather)	M/s WASP
33	Pumps for Fire Fighting	M/s Kirloskar (Kirloskar), M/s Wilo Mather Platt (Wilo Mather), M/s Crompton Greaves (Crompton), M/s Bharat Bijlee (Bharat Bijlee)	M/s Kishor Pumps (Kishor Pumps), M/s Grindfus Pumps (I) Pvt Ltd
<b>SECTION-19 : ELECTRICAL WORK</b>			
34	Pole-Pre-Stressed Concrete	M/s Cement Fabric India, Jodhpur, M/s Hindustan Prestressed Concrete, Faridabad, M/s India PCC Poles, M/s Concrete Udyog Jhansi, M/s SanklaUdyog, Jhansi	M/s Predo Chandigarh, M/s Shri Balaji Enterprises
35	Pole Steel Tubular	M/s India Tube & Co, M/s India Electric Poles Mfg Co MH, M/s Bombay Tubes, M/s National Tubing Co Kanpur	M/s Bator Concrete Products Aurangabad
36	Insulators HT/LT Disc/Pin/Shackel/Loop/ String Type	M/s Kalinga Tubes, M/s Singh Profile Pune	M/s Concrete Fabrics Haryana
36A	RMU & PSS	M/s BHEL, M/s Jayshree, M/s W/s insulators, M/s Southern Insulators, M/s MEI, M/s Modern Insulators	M/s Metal Coats Chennai, M/s Sohan Lal
37	Air Circuit Breaker (ACB) LT 1100 Volts	M/s Lucy Electric India Pvt Ltd (Lucy Electric), M/s Larsen & Tourbo (L&T), M/s C&S Electric Ltd (C&S Electric)	M/s Bharat Conduit and Steel Works Kanpur
38	Vacuum Circuit Breaker (VCB) suitable for 36 KV, 22 KV and 12 KV system incl Accessories	M/s Larsen & Tubro (L&T), M/s Siemens (Siemens), M/s ABB (ABB), M/s Schneider Electricals (Schneider), M/s Crompton Greaves (Crompton), M/s GEC (GEC), M/s English Electric (English), M/s Control & Switchgear (C&S Electric),	M/s Quality Steel Products Ltd Kanpur
39	Automatic Power Factor Correction (APFC) Panel	M/s Siemens (Siemens), M/s Crompton Greaves, Mumbai (Crompton), M/s ABB Ltd, Bangalore (ABB), M/s Alstom, M/s BHEL, M/s Larsen & Toubro (L&T), M/s Schneider Electricals (Schneider), M/s C&S Electric Ltd (C&S Electric),	M/s Bengal Potteries, M/s Pactil, M/s Jaipuria
39A	PCC/MCC Panels/LV Switch Board	M/s Larsen & Tubro (L&T), M/s Siemens (Siemens), M/s GEC (GEC), M/s ABB (ABB), M/s Epcos (Epcos)	M/s MEGAWIN Switchgear (MEGAWIN), M/s Voltech System & Switchgear (VOLTECH)
39B	Busbar Trunking System	M/s C&S Electric Ltd (C&S Electric)	M/s Havells India Pvt Ltd (Havells), M/s Novateur Electricals (Indo Asian), M/s BCH
40	Power Factor Improvement Capacitor Banks	M/s Larsen & Tubro (L&T), M/s Siemens (Siemens), M/s EPCOS (Epcos), M/s GE (GE), M/s ABB (ABB)	M/s Andrew Yule, M/s Voltech System & Switchgear VOLTECH, M/s MEGAWIN Switchgear (MEGAWIN)
			M/s Shakti (Shakti), M/s Asian (Asian), M/s Shreem (Shreem), M/s BCH, M/s Electrocontrol System India Pvt Ltd (Electro Control System), M/s Voltech Manufacturing Co Ltd (VOLTECH), M/s Liveline Electronics (Liveline), M/s Havel India Pvt Ltd (Havells), M/s Tenco System & S/Gear (Tenco)
			M/s Electrocontrol System India Pvt Ltd (Electro Control System), M/s VoltechManufacturing Co Ltd VOLTECH, M/s Tenco System & S/Gear (Tenco System), M/s Neptune Systems Pvt Ltd (Neptune),
			M/s Shreem, M/s Universal (Universal)
			M/s Havells (Havells), M/s Crompton & Greaves (Crompton)



## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
41	HT Switch Gear 66/33/11KV 3 Phase, Gas Circuit breaker SF-6 Type	M/s Crompton & Greeves, Mumbai, M/s Schneider, Mumbai (Scheinder), M/s ABB Ltd, Bangalore (ABB) M/s Siemens Ltd, Mumbai (Siemens)	M/s Southern Switch Gear Chennai, M/s Andrew Yule, M/s BHEL (BHEL)
42	HT 11 KV, 3 Ph Auto Switch Fuse Unit	M/s ABB Ltd, Bangalore (ABB), M/s ARREVA T&D India Ltd (ARREVA), M/s Crompton & Greeves, Mumbai, M/s Schneider, Mumbai (Schneider), M/s C&S Electric Ltd (C&S Electric), M/s Shalabh (India) Industries (SHALABH)	M/s M E I (MEI), M/s Jyoti, M/s Southern Switch Gear Mumbai, M/s Andrew Yule
43	Air Break Switch Gang (Insulator) Operated (33KV/11KV)	M/s Pactil, Mumbai, M/s Jaipuria Brothers, M/s HEI	M/s Mysore Electrical industries (MEI), M/s Southern Switch Gear, M/s BHEL, M/s ELPRO, M/s Atlas
44	Air Break Switch Gang (Isolators)	M/s Mysore Electrical industries (MEI), M/s Southern Switchgear Mumbai, M/s Andrew Yule, M/s Crompton & Greaves Mumbai (C&G)	
45	Arresters Lightening LT/HT	M/s Oblum, M/s BHEL, M/s GEC Elpro, M/s Crompton & Greaves Mumbai (C&G), M/s AREVA T&D (AREVA)	M/s Atlas, M/s Rashtriya, M/s Elpro, M/s Jaipura
45A	Chemical Earthing Electrode		M/s U-protec Earthing (U-Protec Earthing) M/s Shivangi Engineering Works (Earth SOL-3)
45B	Maintenance Free Earthing Lightening & Serge Protection System		M/s JEF Techno Solution Pvt Ltd (JEF ECOSAFE)
46	Change Over Switch/Starter/Contactor DOL/Star-Delta/Synchronising panel/Single phase preventor	M/s Siemens (Siemens), M/s Larsen & Tubro (L&T), M/s ABB (ABB), M/s Crompton & Greaves Mumbai (C&G), M/s GE (GE), M/s Shalabh (India) Industries (SHALABH), M/s C&S Electric Ltd (C&S Electric)	M/s Havells India Pvt Ltd (Havells), M/s V Guard (V Guard), M/s HPL, M/s Plycab India Ltd (Polycab), M/s Hagger Electric Pvt Ltd (Hagger), M/s Voltech System & Switchgear VOLTECH, M/s Adhunik Switchgear (Adhunik), M/s Bentec India Ltd (BENLO)
47	Main Switch Iron Clad Switch Fuse Unit Fuse Switch Unit	M/s Siemens (Siemens), M/s L&T (L&T), M/s Crompton & Greaves Mumbai (C&G), M/s C & S Electric Ltd (C&S Electric), M/s Shalabh (India) Industries (SHALABH)	M/s Havells India Pvt Ltd (Havells), M/s HPL, M/s Standard (Standard), M/s Novatuer Electricals (Indo Asian), M/s Anchor Electricals (Anchor), M/s Voltech System & Switchgear VOLTECH, M/s V Guard Ind Ltd (V Guard)
48	Transformers 66/11 KV, 33/11 KV, 33/0.433 KV, 22KV/11KV, 22/0.433 KV Copper Wound all rating	M/s ABB Ltd, Bangalore (ABB), M/s Siemens (Siemens), M/s Bharat Bijlee Ltd, Mumbai (Bharat), M/s Crompton & Greaves, Mumbai, M/s Schneider Electricals (Schneider), M/s Alstom (GEC), M/s Kirloskar Electric (Kirloskar), M/s EMCO, M/s BHEL (BHEL), M/s Andrew Yule	M/s Voltech Mfg Co Ltd (Voltech) M/s ESSENAR Transformer (P) Ltd (ESSENAR) M/s Silverline Electricals Pvt Ltd (Silverline Electric) M/s PACTIL, M/s Indian Transformer M/s Voltamp Ltd Baroda (Voltamp)
48A	Transformer 11 KV/433 Volts step down, indoor / Outdoor type 1000 KVA capacity Dry Resin Type	M/s Schneider, M/s Crompton (Crompton), M/s Kirloskar (Kirloskar), M/s ABB (ABB)	M/s ESSENAR Transformer (P) Ltd (ESSENAR)
49	Transformers 33 KV & 11 KV Current & Potential	M/s L&T (L&T), M/s Siemens (Siemens), M/s Schneider (Schneider), M/s Crompton Greaves, Mumbai	M/s Laxmi, M/s Kappa Elecricals Chennai, M/s Control System, M/s Automatic Electricals, M/s Pragati Electricals New Delhi, M/s Jyoti Ltd Vadodara (Jyoti)
50	BLANK		
50A	Isolation Transformer	M/s Vintek Electronics (Volina)	M/s Power one Micro System Pvt Ltd (Power One) M/s India Techno Industries (Spectron)
50B	Transformers 6.6 KV/433 V three phase upto and including 100 KVA	M/s Indian Transformer, Gurgaon, M/s Voltech Manufacturing Co Ltd (Voltech)	

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
51	Transformers 11 KV or 6.6 KV Copper wound 500 KVA and above	M/s Crompton Greaves, Mumbai (C&G), M/s Bharat Bijlee Ltd, Mumbai (BHARAT), M/s Andrew Yule, M/s ABB (ABB) M/s Schneider (Schneider), M/s Kirloskar (Kirloskar), M/s ECE (ECE)	M/s Voltech Manufacturing Co Ltd (Voltech), M/s Silver Line Electricals Pvt Ltd (Silverline), M/s Indian Transformer Electricals, M/s Pactil, M/s Sankla Udyog Jaipur, M/s Toshiba M/s PME, M/s Volt amp Ltd Baroda (Volt amp), M/s EMCO
52	Transformers 11KV/0.433 KV Copper Wound, below 500 KVA	M/s Voltamp Ltd, Baroda (Volt amp), M/s Indo Tech Transformers, M/s Alstom (GEC), M/s ABB (ABB), M/s Schneider (Schneider), M/s Bharat Bijlee Ltd Mumbai (Bharat), M/s ESSENAR Transformer (P) Ltd (ESSENAR)	M/s Silver Line Electricals Pvt Ltd (Silverline Elect) M/s Rajasthan Transformers & Switchgear Ltd New Delhi (Rajasthan Transformer), M/s Paston Transformers Bharuch, M/s Indian Transformer Electricals, M/s PME, M/s Jaybee Ind (Jaybeeti), M/s Everest, M/s Transtorm
52A	Transformer 11 KV/0.433 copper wound 100 KVA & below	M/s PME, M/s Rajasthan transformers (Rajasthan Transformer), M/s Everest, M/s RK industries, M/s Pactil, M/s Kotson, M/s Hi-Tech industries, M/s Jaybee Ind (Jaybeeti)	M/s TransFab Power (I) Pvt Ltd (Transfab)
53	Cable Jointing Kit for 11KV/22KV	M/s Raychems, M/s Densons, M/s M-Seal, M/s Birla- 3M	M/s Yamuna Gases& Chemicals
54	UG HT XLPE, PVC Insulated Conductor for 3.3/33/22/11 KV System	M/s Cable Corporation of India, Mumbai (CCI), M/s Havells India Pvt Ltd (Havells), M/s Universal Cables Ltd (Universal), M/s Asian Cables (Asian), M/s Gloster (Gloster), M/s RPG Cables Ltd, Thane (RPG), M/s Finolex Cable Ltd Pune (Finolex), M/s RR Kabel (RR Kabel), M/s KEI Ind (KEI), M/s Polycab Pvt Ltd (Polycab), M/s APAR Industries	M/s Paragon (Paragon), M/s Industrial Cable Punjab M/s Pymen Cables India Ltd (Pymen), M/s Asian Galaxy Pvt Ltd
54A	HT Armoured XLPE Cable 132 KV Grade	M/s Polycab Pvt Ltd (Polycab)	
55	UG LT XLPE, PVC Insulated Conductor for 1100 Volts	M/s SS Cable Industries (SCI), M/s Cable Corporation of India, Mumbai (CCI), M/s Asian Cable Co Chhattisgarh, M/s Finolex Cable Ltd Pune (Finolex), M/s Polycab (Polycab), M/s Gloster (Gloster), M/s Universal (Universal), M/s RR Kabel (RR kabel), M/s RPG Cables Ltd, Thane (RPG), M/s Havells India Ltd Alwar (Havells), M/s KEI Ind (KEI)	M/s Plaza Cable (Plaza), M/s Grandlay Electricals India, M/s Paragon Cable India (paragon), M/s HPL Electric & Power Ltd (HPL), M/s V Guard Industries Ltd (V Guard), M/s Asian Galaxy Pvt Ltd (Asian Galaxy), M/s Pymen Cables India Ltd (Pymen Cable), M/s Vishal Cables (Vishal), M/s Ultracab (Ultra cab)
56	Aluminum Conductor Steel Reinforced (ACSR)	M/s Al-Ind, M/s ICC (ICC), M/s Bharat Conductors, M/s NICCO, M/s Indian Aluminium Co	M/s VK Conductors, M/s Ujala, M/s Konark, M/s Gupta Power Infra Ltd (RHINO), M/s Power Cable Ind
57	Street Light Fittings (LED)	M/s Bajaj (Bajaj), M/s Philips (Philips), M/s Wipro, M/s Crompton (Crompton), M/s GE (GEC), M/s Havells India Ltd (Havells), M/s Luker (Luker), M/s Jaquar (Jaquar), M/s FIEM Ind Ltd (FIEM), M/s Pyrotech Electronics Pvt Ltd (Pyrotech), M/s Bentec India Ltd (BENLO), M/s Eveready Indus India Ltd (EVEREADY), M/s Orient Electric (ORIENT), M/s Poly cab (Poly cab), M/s Surya Roshni (SURYA), M/s Halonix Technologies Pvt Ltd (Halonix), M/s Shri Sant Krupa Appliances (SYSKA), M/s C&S Electric (C&S Electric)	M/s Asian (Asian) M/s Gold Medal Electricals (Goldmedal), M/s Instra Power Ltd, M/s HPL Electric & Power Ltd (HPL), M/s Shakti Fixtures Pvt Ltd (SHAKTI), M/s Gupta Power Infra Ltd (RHINO), M/s Anchor Electrical Pvt Ltd (ANCHOR), M/s Green Surfer Pvt Ltd (Green Surfer), M/s Olive Export Pvt Ltd (Olive LED), M/s Adhunik Switchgear (Adhunik), M/s JILCO (JILCO)
57A	Programmable Street Light Capacity Switch		M/s JILCO Jain Indus Lighting Corporation (JILCO)
58	Solar Street Light Fitting	M/s Havells (Havells), M/s Philips (Philips), M/s BHEL, M/s Tata, M/s Bajaj (Bajaj)	M/s Crompton (Crompton), M/s Sun Technic, M/s Surya (Surya), M/s Goldwin, M/s Kripa, M/s Ptronix (Ptronix), M/s Axxon (AXXON)
59	High Mast light	M/s Bajaj (Bajaj), M/s Philips (Philips), M/s Crompton (Crompton)	M/s Metal Coats, M/s Utkarsh Tubes & Pipes
60	Fluorescent tube light fittings/ LED/Lamp holder	M/s Wipro (Wipro), M/s Bajaj (Bajaj), M/s Crompton (Crompton), M/s Phillips (Phillips), M/s Havells (Havells)	M/s Surya (Surya) M/s Indo Asian (Asian)
61	Flame Proof Light Fittings (LED/Fan/Well glass/bulk head incl accessories	M/s Sudhir, M/s Flexipro Electricals, Nasik, M/s Shyam Switchgears, Mumbai, M/s Bajaj (Bajaj), M/s Crompton (Crompton), M/s Batiga	

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
62	Florescent lamp Lt lamp	M/s Phillips (Philips), M/s Wipro (Wipro), M/s Bajaj (Bajaj), M/s GE Lighting (GEC), M/s Osram (Osram), M/s Havells (Havells), M/s Crompton (Crompton)	M/s HPL Electricals Power Ltd (HPL), M/s Indo Asian, M/s Surya (Surya), M/s Halonix Technologies Pvt Ltd (Halonix)
63	Light Fittings LED	M/s Crompton (Crompton), M/s Phillips (Philips), M/s Havells (Havells), M/s Osram (Osram), M/s Fiem Ind Ltd (FIEM), M/s Pyrotech Electronics Pvt Ltd (Pyrotech), M/s Wipro, M/s Bajaj (Bajaj), M/s GE (GEC), M/s Luker (Luker), M/s Jaquar & Co Pvt Ltd (Jaquar), M/s Bentec India Ltd (BENLO), M/s Eveready Industries India (EVEREADY), M/s Orient Electric (ORIENT), M/s Polycab Pvt Ltd (POLYCAB), M/s Surya Roshni (Surya), M/s Halonix, M/s SYSKA Shri Sant Kripa (SYSKA), M/s C&S Electric Ltd (C&S Electric)	M/s Gupta Power Infra Ltd (RHINO), M/s Anchor Electrical Pvt Ltd (ANCHOR), M/s Jain Ind Lighting Co (JILCO), M/s Goldwin Ltd (Goldwin), M/s Siemens (Seimens), M/s Gold Medal Electricals (Goldmedal), M/s Instapower Ltd (Instapower), M/s Shakti Fixtures Pvt Ltd (Shakti), M/s Green Surfer Pvt Ltd (Green Surfer), M/s Olive Export Pvt Ltd (Olive LED), M/s Lightening Technology (Light Technology), M/s Adhunik Switchgear (Adhunik), M/s Mepro Electricals
63A	LED Tube Lights & Bulbs	M/s Phillips (Philips), M/s Havells (Havells), M/s Osram Lighting Pvt Ltd (Osram), M/s Wipro, M/s Bajaj (Bajaj), M/s GE, M/s Luker (Luker), M/s Bentec Pvt Ltd (BENLO), M/s Eveready Industries India (EVEREADY), M/s Orient Electric (ORIENT), M/s Polycab Pvt Ltd (POLYCAB), M/s Surya Roshni (Surya), M/s Jaquar & Co Pvt Ltd (Jaquar), M/s Halonix Technologies Pvt Ltd (Halonix), M/s Pyrotech Electronics Pvt Ltd (Pyrotech), M/s Fiem Ind Ltd (FIEM), M/s SYSKA Shri Sant Kripa (SYSKA), M/s C&S Electric Ltd (C&S Electric)	M/s Gold Medal Electricals (GOLDMEDAL) M/s Instapower Ltd (Instapower), M/s HPL Electrical & Power Ltd (HPL), M/s RR Kabel Ltd (RR Kabel), M/s Shakti Fixtures Pvt Ltd (Shakti), M/s Gupta Power Infra Ltd (RHINO), M/s Anchor Electrical Pvt Ltd (ANCHOR), M/s Green Surfer Pvt Ltd (Green Surfer), M/s Olive Export Pvt Ltd (Olive LED), M/s Adhunik Switchgear (Adhunik), M/s JILCO (JILCO)
64	Electronic/Photoelectric Switch for Auto Op of Street Lights	M/s Larsen & Tubro (L&T), M/s General Electric Co (GEC), M/s Siemens India (Siemens), M/s Bajaj Electricals (Bajaj) M/s Legrand (Legrand)	M/s Novateur Electricals (Indo Asian)
65	DBs/MCB (Miniature Circuit Breakers) & MCCB (Moulded Case Circuit Breakers).	M/s Larsen & Tubro (L&T), M/s Legrand India Pvt Ltd (Legrand), M/s ABB (ABB), M/s Siemens (Siemens), M/s Schneider, M/s Havells (Havells), M/s Novatour Electricals & Pipe (INDO ASIAN), M/s C&S Electric Ltd (C&S Electric), M/s Shalabh (India) Industries (SHALABH)	M/s Standard, M/s HPL Electric & Power Ltd (HPL) M/s Honey well Electrical Device (Honeywell), M/s V K Industries (VINAY), M/s Panasonic Anchor (Panasonic Anchor), M/s Cosmo Electric Ind Pvt Ltd (KOLORS), M/s Bentec india Ltd (BENLO), M/s V Guard (V Guard), M/s Polycab (Polycab), M/s Electrocontrol System india Pvt Ltd (Electrocontrol System), M/s Voltech Mfg Co Ltd (VOLTECH), M/s Adhunik Switchgear (Adhunik), M/s Hagger Electric Pvt Ltd (Hagger)
66	Microprocessor based MCCB/RCCB LT 415 Volts	M/s Larsen & Turbo (L&T), M/s Schneider, M/s ABB India Ltd, M/s Legrand India Pvt Ltd (Legrand), M/s Siemens (Siemens), M/s Novatour Electricals & Pipe (INDO ASIAN), M/s C&S Electric Ltd (C&S Electric)	M/s DATAR, M/s Standard, M/s HPL Electric & Power Ltd (HPL), M/s Honey Well Electrical Device System (HONEYWELL), M/s Panasonic Anchor (Panasonic Anchor), M/s Bentec India Ltd (BENLO), M/s V Guard (V Guard), M/s Polycab India Ltd (Polycab), M/s Havells (Havells)
66A	Electrical Panel (LT)	M/s L&T (L&T), M/s Legrand India Pvt Ltd (Legrand), M/s Standard (Standard), Shreeji Enterprises (SJE), M/s Osian Switchgear & Controls, Jodhpur (OSIAN), M/s Bafna Electric Company, Jodhpur (BECO), M/s Utsav Electric Pvt Ltd, Jodhpur (UTSAV), M/s Shalabh, M/s Shalabh (India) limited, M/s C&S Electric Ltd (C&S Electric),	M/s Sombansi Enviro Engg Pvt Ltd (SEEPL), M/s NEO Power Electric & Project Pvt Ltd (NEO Power), M/s Accurate Ind Control Pvt Ltd (ACCURATE) M/s Voltech Mfg Co Ltd (VOLTECH), M/s Techno System & Switchgear (Techno), M/s Neptune System Pvt Ltd (Neptune) M/s Adhunik Switchgear (Adhunik), M/s Electro Control, Systems (Electrocontrol), M/s ASES Security Pvt Ltd (ASES)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

APPROVED LIST OF PRODUCTS & MAKES/BRANDS : B/R & E/M ITEMS (Updated upto 21 Jun 2022)			
S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
67	Electric Accessories, Piano Switches, Ceiling rose, call bells, Buzzers, Lamp Holders/Socket outlet etc Plug & Socket Board	M/s Panasonic Life Solutions (Panasonic Anchor), M/s Crabtree, M/s Leader (Leader), M/s Legrand India Ltd (Legrand), M/s Havells (Havells), M/s C&S Electric Ltd (C&S Electric)	M/s V Guard (V Guard), M/s Cona, M/s SSK (SSK), M/s Kinjal (Kinjal), M/s HPL Electric & Power Ltd (HPL), M/s Honey Well Electrical Device (HONEYWELL), M/s Goldmedal Electricals (Goldmedal), M/s GM Modular Pvt Ltd (GM), M/s V K Industries (VINAY), M/s Standard (Standard), M/s PM Cona Industries Ltd (CONA)
68	Ammeter/Voltmeter/ Power Factor/ Frequency Meters	M/s IMP, M/s Automatic Electric, M/s L&T (L&T), M/s Havells India Ltd (Havells), M/s MECO, M/s C&S Electric (C&S Electric)	M/s Conserv M/s Universal (Universal), M/s Digitron, M/s HPL (HPL)
68A	Static Frequency Meter		M/s Power One (Power One)
68B	DC Power Supply		M/s Power One , M/s Liveline Electronics Kuttaliveline
69	Digital meters with built in selector switches for voltmeter, Ammeter, Frequency meter, KWH Meter Power Analyses	M/s Larsen & Tubro (L&T), M/s Automatic Electric (AE), M/s Enercon, M/s Secure Meter, M/s Havells India Ltd (Havells), M/s Control & Switchgear (C&S Electric)	M/s HPL Socomec (HPL), M/s Trinity, M/s Neptune Systems Pvt Ltd (Neptune), M/s Legrand India Ltd (Legrand)
69A	Modular Switches/Socket	M/s Anchor Electricals (Anchor Roma), M/s Legrand (Legrand), M/s Crabtree, M/s Havells (Havells), M/s IndoAsian (Indo Asian), M/s Polycab India Ltd (Poly cab), M/s Larsen & Toubro (L&T), M/s Panasonic Life Solutions (Panasonic Anchor), M/s C&S Electric (C&S Electric),	M/s Elleys Industries (Elleys HiFi), M/s HPL Electrical Power Ltd (HPL), M/s Goldmedal Electricals (Goldmedal), M/s Finolex Cables Ltd (Finoswitch), M/s Bentec India Ltd (BENLO), M/s Honeywell Electricals (HONEYWELL), M/s VK Industries (Vinay), M/s Cosmo Electric Ind Pvt Ltd (KOLORS), M/s Hagger Electric Pvt Ltd (Hagger), M/s Adhunik Switchgear (Adhunik), M/s Pressfit (Pressfit), M/s PM Cona Industries Ltd (CONA)
70	Electronic Energy Meters Tamper Proof	M/s Larsen & Tubro (L&T), M/s Jaipuria Meters, M/s Havells Electricals (Havells), M/s Secure Meters India (Secure), M/s Elemeasure (Elemeasure), M/s Bentec India Ltd (BENLO)	M/s HPL Electricals Pvt Ltd (HPL)
70A	SCADA System	M/s Schneider, M/s Elemeasure (Elemeasure), M/s Forbes marshal Pvt Ltd (Forbes Marshal)	M/s RDS, M/s Techlogos Aumn Pvt Ltd (Techlogos)
71	Celling Fan	M/s Bajaj (Bajaj), M/s Crompton (Crompton), M/s Polar (Polar), M/s Khaitan (Khaitan), M/s Orient (Orient), M/s Havells India Ltd (Havells), M/s V Guard Industries Ltd (V Guard), M/s Polycab (Polycab), M/s Panasonic Life Solutions (panasonic)	M/s Ram Raha Electricals (RR Fans)
71A	BLDC Ceiling Fan & Wall Fan		M/s Atomberg Technologies Pvt (GORILLA)
72	Exhausts fan/Air Circulators	M/s Crompton (Crompton), M/s Khaitan (Khaitan), M/s Usha (Usha), M/s Bajaj (Bajaj), M/s Almonard, M/s Havells India Ltd (Havells), M/s Polycab (Polycab)	M/s Orient (Orient), M/s Anchor (Anchor) M/s Electricals Products Company India Pvt Ltd (AIRTECH)
73	Fan Regulator	M/s Anchor (Anchor), M/s Havells India Ltd (Havells), M/s Bajaj (Bajaj), M/s Usha (Usha), M/s Khaitan (Khaitan), M/s GEC (GEC), M/s Legrand (Legrand)	M/s PM Cona Industries Ltd (CONA), M/s Liveline Electronics (Liveline)
73A	Electronic Type Fan Regulator	M/s Legrand (Legrand), M/s Crompton (Crompton), M/s Havells India Ltd (Havells), M/s Bajaj (Bajaj), M/s Orient (orient), M/s V Guard, M/s Polycab (Polycab)	M/s Panasonic Life Solutions (Panasonic Anchor) M/s GM Modular Pvt Ltd (GM), M/s RR Fans (RR Fans) M/s Goldmedal Electricals (Goldmedal)
74	Geyser	M/s Havells India Ltd (Havells), M/s Bajaj (Bajaj), M/s Racold, M/s Usha (Usha), M/s Venus, M/s Jaquar (Jaquar), M/s V Guard (V Guard)	M/s Madhuban, M/s Bharat, M/s Pearl
74A	Water Heater (Only Five Star Rating)	M/s Jaquar & Co Pvt Ltd (Jaquar)	

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
75	PVC insulated copper/Aluminum Cable 1100 Volts of all types	M/s SS Cable Industries (SCI), M/s Plaza Cables (Plaza), M/s Finolex Cables (Finolex), M/s Anchor Electricals (Anchor), M/s Havells India Ltd (Havells), M/s NICCO (Nicco), M/s Polycab Wires (Polycab), M/s RPG Cables (RPG), M/s Gloster (Gloster), M/s RR Kabel (RR Kabel), M/s KEI Ind (KEI), M/s Shalabh	M/s HPL Electric & Power Ltd (HPL), M/s Paragon cable india (Paragon), M/s Para Flex, M/s GM Modular Pvt Ltd (GM), M/s Dneo Cables Pvt Ltd, M/s Grandlay Electricals India, M/s V Guard Industries Ltd (V Guard), M/s Asian Galaxy Pvt Ltd, M/s Fortune Arts Wires & Cables pvt Ltd (Fortune Art Cable), M/s Kalinga, M/s CRI Pumps Pvt Ltd (CRI), M/s V K Industries (VINAY), M/s Cosmo Electric Ind Pvt Ltd (KOLORS), M/s Pressfit (Pressfit), M/s Tamra Dhatu Udyog (Tamra), M/s Bonton Cables India Pvt Ltd (BONTON)
76	AC Static Watt Hour Meter		M/s Niksun Automation (Niksun)
77	PVC conduits (Rigid or Flexible) FRLS rigid PVC conduits/fittings	M/s Anchor (Anchor), M/s Modi (Modi), M/s Pressfit Pipe & profile (Pressfit), M/s Precision, M/s Astral, M/s Panasonic Life Solutions (Panasonic Anchor), M/s Polycab Wires Pvt Ltd (Polycab), M/s Shalabh	M/s AKG Conduit Pipe (AKG), M/s Plaza Cable (Plaza), M/s Kalinga Tubes (Kalinga), M/s National Pipes Products (VIP), M/s GM Modular Pvt Ltd (GM), M/s VIP Extrusion (ATUL), M/s AVON Plastic Industries (Avonplast), M/s Asian, M/s Bajaj Plast (Bajaj Plast)
78	BLANK		
78A	PVC Tape	M/s GM Modular Pvt Ltd (GM), M/s Panasonic Life Solutions (Panasonic Anchor)	
79	MS Conduit	M/s BEC Industries, M/s Kalinga Tubes (Kalinga), M/s Jindal (Jindal), M/s Bharat, M/s AKG Conduit Pipe (AKG)	M/s NIC, M/s CTI, M/s Asian (Asian), M/s Viraj Industries, M/s RMG Steels Pvt Ltd (RMG)
80	Casing capping & Accessories	M/s Precision, M/s Modi (Modi), M/s Presto Plast (Presto Plast), M/s Supreme (Supreme), M/s Polycab (Polycab), M/s Plaza Cables, M/s Pressfit Pipe & Profile (Pressfit)	M/s Prince Pipes (Prince), M/s Asian (Asian), M/s National
81	Indicating Lamps Neon/LED Type	M/s Siemens (Siemens), M/s ABB (ABB), M/s Schneider (Schneider), M/s Larsen & Turbo (L&T), M/s EPCOS India Pvt Ltd (EPCOS), M/s Jaipuria, M/s C&S Electric Ltd (C&S)	
82	LT Relay Numercial/Static/Protective /Auxiliary	M/s Siemens (Siemens), M/s ABB (ABB), M/s Schneider (Schneider), M/s Larsen & Turbo (L&T), M/s EPCOS India Pvt Ltd (EPCOS), M/s Jaipuria, M/s C&S Electric Ltd (C&S)	M/s Voltech Manufacturing Co (VOLTECH)
83	Thermoplastic Polycarbonate Cable Juntion Box DB , LT Panel, Feeder Pillar, MCC Panel		M/s Hansel Electric India Pvt Ltd (HENSEL ENY CASE) (HENSEL ENY BOARD), M/s Durend Controls, M/s Juhi Electricals Pvt Ltd, M/s Bafna Electric Company (BECO), M/s Power System & Controls Pvt Ltd,
84	UPS		M/s Tata-Liebert, M/s APLAB, M/s Luminous, M/s Sukam, M/s Protect Services, M/s Microtech, M/s Labotech, M/s Power Conservation Tech, M/s Sinetrac, M/s Liveline Electronics K Cutta (Liveline), M/s Power One (Power One)
85	Automatic Voltage Stabilizer (servo controlled)	M/s Automatic Electric (AE), M/s Vintec Electronic Laboratory (Vintec), M/s Aplab, M/s V Guard Industries Ltd (V Guard), M/s Vintek Electronics (Valina)	M/s Sinetrac, M/s Microtech, M/s Andrew Yule, M/s Brent Ford, M/s Power Ware Meerut, M/s India Techno Indus (Spectron), M/s Power One Micro System (Power One)
85A	Solar Inverters		M/s Polycab India Ltd (Polycab), M/s Power One Micro System (Power One)

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

## APPROVED LIST OF PRODUCTS &amp; MAKES/BRANDS : B/R &amp; E/M ITEMS (Updated upto 21 Jun 2022)

S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
86	DG Set (Engine)	M/s Kirloskar (Kirloskar), M/s Sterling Gen (Sterling), M/s Cummins (Cummins), M/s Greaves Cotton, M/s Ashok Leyland (leyland), M/s Mahindra (Mahindra), M/s Caterpillar	M/s Ruston (Ruston), M/s Eicher (Eicher)
87	DG Set (alternator)	M/s Kirloskar (Kirloskar), M/s Stamford, M/s Jyoti (JYOTI), M/s Crompton Greaves (Crompton), M/s Alstom (Alstom), M/s AREVA (AREVA), M/s Bharat Bijlee (Bharat Bijlee)	
88	DG Set Assembled with Sound Proof Canopy	M/s Kirloskar (Kirloskar), M/s Jackson (Jackson), M/s Sudhir, M/s Greaves Cotton, M/s Mahindra (Mahindra), M/s Cummins India (Cummins)	M/s Meera & Co, M/s Control & Swichgear
89	Induction Motors	M/s Crompton Greaves (Crompton), M/s Kirloskar Electric (Kirloskar), M/s Bharat Bijlee, M/s Siemens (Siemens), M/s NGEF, M/s ABB (ABB)	M/s Jyoti Ltd (Jyoti)
90	Gang operated devices (GOD)	M/s Pactil (Metro), M/s Jaipuria, M/s Atlas, M/s ECE, M/s AREVA	M/s Universal, M/s MEI (MEI), M/s GEC (GEC) M/s GR Power Switch
90A	Precast Concrete Cable Cover	M/s Mehtab Tiles, M/s Patel Furniture Mart (Patel Furniture)	M/s Lucky Cement Block Works (LC), M/s Sukhi Enterprises (SUKHI)
<b>SECTION-22 : HEATING &amp; VENTILATION</b>			
91	Air Handling Unit	M/s Bluestar, M/s National, M/s Zeco, M/s Voltas	M/s Universal, M/s Cooltech & Aerotherm, M/s Bhupati
92	Air Curtains	M/s Almonard, M/s Aircon, M/s Crompton Greaves	M/s Technocrat, M/s National, M/s Snehavardhan, M/s Filtrose
93	Cooling Towers	M/s Paharpur, M/s Mihir, M/s Delta (Delta), M/s Advance	M/s Polo
93A	Centrifugal Chillers & Screw / Scroll Chillers	M/s Carrier (Carrier), M/s Voltas (Voltas), M/s Daikin, M/s Hitachi, M/s Blue Star Industries Pvt Ltd (Blue Star)	M/s Kirloskar Chillers Pvt Ltd (Kirloskar)
94	Window type Air Conditioners	M/s Carrier (Carrier), M/s Voltas (Voltas), M/s Daikin (Daikin), M/s Hitachi (Hitachi), M/s Blue Star (Blue Star)	M/s Godrej (Godrej), M/s Samsung (Samsung), M/s Feeder Lloyed, M/s LG (LG)
95	Split type Air Conditioner	M/s Carrier (Carrier), M/s Voltas (Voltas), M/s Daikin (Daikin), M/s Hitachi (Hitachi)	M/s LG (LG), M/s Samsung (Samsung), M/s Feeder Lloyed, M/s Godrej (Godrej), M/s Blue star (Blue Star)
<b>SECTION-26 : SOLAR WATER SYSTEM</b>			
96	Solar water system	M/s Tata BP Solar System, M/s BHEL, M/s Best & Crompton Novel	M/s Novel Energy, M/s Solar Eqpt Mfg Noida, M/s Solautomatic Electrical Eqpt, M/s Digific Controls (I) Pvt Ltd, M/s Sollchrome System (I) Ltd, M/s Surya Jyoti Devices, M/s Jain Solar
<b>SECTION 27 : FIRE FIGHTING EQPT</b>			
97	Fire fighting eqpt like hose reel, nozzles, couplings, valves. etc	M/s Ceasefire, M/s Safex	M/s Flame Guard Indus, M/s Nitin
97A	Higher Capacity Fire Extinguisher (Trolley Trailer/Skid/Vehicle Mounted/Portable fire Extinguisher	M/s Vimal Fire Control Pvt Ltd	
97B	Fire Hose Delivery couplings, Brunch Pipes Nozzle & Nozzle Spanners with all Accessories etc	M/s Vimal Fire Control Pvt Ltd	
97C	Functional requirement for stand post type water monitor for Fire Fighting (Water/Foam/DCP)	M/s Vimal Fire Control Pvt Ltd	
<b>SECTION 28 : MECHANICAL LAUNDRY</b>			
98	Mechanical Laundry	M/s Supershine Laundry System (Supershine)	

## PARTICULARS SPECIFICATIONS (CONTD....)

## APPENDIX 'B'

APPROVED LIST OF PRODUCTS & MAKES/BRANDS : B/R & E/M ITEMS (Updated upto 21 Jun 2022)			
S. No	ITEM / PRODUCT	COMPANY NAME / BRAND NAME	
		(Category-I)	(Category-II)
1	2	3	4
1	GI AND SS CHAIN LINK FENCING / STEEL WIRE MESH	M/S SELECTED PRODUCT CO NEW DELHI, M/S A1 FENCING PRODUCT CO PVT LTD MUMBAI	
2	ROAD MARKING MATERIAL	M/S STP LTD, M/S MARUTI BITUMEN PVT LTD	
3	POLYMER MODIFIED BITUMEN (PMB)	OOMS POLYMER, HINCOL BRAND	
4	POTHOLE REPAIR MATERIAL	STP, FOSROC, CHOKSEY	
5	CURING COMPOUND	SIKA, FOSROC, STP, BOSTIK, CHOKSEY, M/S MARUTI BITUMEN PVT LTD	
6	FLOOR HARDNER	BOSTIK, SIKA, MARUTI BITUMEN	
7	REFRIGERATOR / WATER COOLER (5 STAR RATING)	SAMSUNG, LG, VOLTAS, KELVINATOR, WHIRLPOOL	
8	CONNECTORS	SIEMENS / L&T, TELEMECHNIC / LEGRAND / C&S	
9	CABLE GLANDS	DOWELL / SIEMENS / L&T / HENSEL / LEGRAND	
10	THIMBLES	DOWELLA / COMET	
11	SEWAGE TREATMENT PLANT	M/S ION EXCHANGE (INDIA) LTD/ M/S NITASHA CONSTRUCTION/ M/S HYDROTECH PARYAVARAN (INDIA) PVT LTD./ M/S OPTIMUS ENVIROPRO PVT LTD. / M/S SOMBANSI ENVIRO ENGG PVT LTD/ M/S SOPHISTICATED INDUSTRIES MATERIALS ANALYTIC LABS PVT LTD	
12	WATER TREATMENT PLANT	M/S SOMBANSI ENVIRO ENGG PVT LTD/ M/S OPTIMUS ENVIROPRO PVT LTD/ M/S SATHYA SAI AQUA PURA	
13	ROAD DELINEATOR, CAT EYE, SPEED BREAKER	DARK EYE, 3M, TATA, BP, ROAD STAR	
14	DESERT COOLER FAN MOTOR	KHAITAN, GEC, BAJAJ, CROMPTON, POLAR, HAVELLS	
15	DEEP FREEZER	VOLTAS, USHA, BLUE STAR	
16	REINFORCEMENT / CONCRETE PROTECTIVE COATINGS / SYSTEM	M/S SIKSA INDIA PVT LTD, M/S FOSROC CHEMICALS, M/S MAPEI CONSTR PRODUCT INDIA PVT LTD, M/S THERMAX LTD, M/S HINDCON CHEMICAL LTD, M/S MARUTI BITUMEN PVT LTD, M/S BOSTIK INDIA PVT LTD	
17	Fire Alarm System with PA System	M/s ASES Security Pvt Ltd (ASES)	
18	Fire Rated Door and its Hardware	M/s ASES Security Pvt Ltd (ASES)	

**NOTE FOR APPX 'B':-** (1) In case there are less than 3 makes in the approved list for any material/item/product then only generic description/specification of the material/item/product as specified in tender and relevant codal provision shall be followed.

(2) The items for which makes are not included in above list of make, the makes for these items shall decide by Accepting Officer. AGE(I) shall take action as per HQ E-in-C's Branch, New Delhi letter No.66546/Manual/57/E8 dated 01 Sep 2022. The make shall be ISI marked and in case there is no BIS certification system / Indian Standard for such material / products, these shall be certified by accredited (NABL) laboratories to conform to other standardeds of repute, like British Standard / EU Standards / American Standards. Accepting Officer will also simultaneously apprise the concerned CE Command / ADG through proper channel to include the product in the standard list for approval of makes at their level.

Signature of Contractor  
Dated\_\_\_\_\_

AE (QS & C)  
AGE (Contracts)  
for Accepting Officer