

MILITARY ENGINEER SERVICES

NAME OF WORK: RENOVATION OF BLUE ROOM BAR ROOM DINING HALL IN OFFRS MESS OF MILIT AND PROVN OF ELECTRICAL WIRING AND FITTING AT MILIT OFFICER MESS AT MILIT GIRINAGAR, PUNE-25

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Total pages:		

Drawings: (NIL)

ACCEPTING OFFICER

(SIGNATURE OF CONTRACTOR)

SPEED POST/REGD A/D

Contd...../-

Tele/Fax: 020-24389660
Email. ge_rd_gnr@yahoo.com

Garrison Engineer (I) R & D
Military Engineer Services
Girinagar, Pune- 411 025

8806/ /E8

Oct 2024

M/s _____

**NAME OF WORK: RENOVATION OF BLUE ROOM BAR ROOM DINING HALL IN
OFFRS MESS OF MILIT AND PROVN OF ELECTRICAL WIRING AND FITTING AT
MILIT OFFICER MESS AT MILIT GIRINAGAR, PUNE-25**

Dear Sir (s),

1. Tender documents in respect of above work are uploaded on the site www.defproc.gov.in. The tender is based on single stage two cover/two stage three cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the NOTICE INVITING TENDER (NIT). No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide.
3. Bid will be opened on line on a due date fixed for opening as per critical dates given in the portal. Cover 1 will be opened first. Tenderers may see the result of the opening of Cover 1 on the tender portal. Date of opening of Cover 2 shall be decided after technical evaluation of Cover 1 keeping in view the various eligibility criteria given in the NIT and the same will be intimated to the tenderers while uploading the technical evaluation on the tender portal.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents through e-mail and /or depute your technical representative for discussion on tender/drawings and to clarify doubts, if any, before the bid submission starts. You are requested not to write piecemeal points and forward your points duly consolidated in one go. You may also attend the pre bid meeting on the date given in the tender.
5. Unlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT along with EARNEST MONEY DEPOSIT (EMD) and tender fee on procurement portal mentioned above and submit the physical documents in the office of Garrison Engineer (I) R&D, Girinagar, Pune within time limit specified in NIT. Inadequacy /deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. Enlisted contractors of MES shall submit the scanned copies (in pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office at GE (I) R&D Girinagar, Pune -411025 before date & time fixed for this purpose.

Contd...../-

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

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

9. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of Minimum Fair Wages and MES (SSR Part-I and Part-II) are not enclosed with these documents these documents. These are available for perusal in the Office of GE/AGE concerned and this office. Tenderer is also requested to keep the copy of these documents with him as same are available in the market.

10. **PERFORMANCE SECURITY**

10.1 After acceptance of the tender, the contractor will be required to loadge with the Accepting Officer **PERFORMANCE SECURITY DEPOSIT @5% of contract amount**. The amount is required to be lodged within 28 (twenty eight) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which action as stipulated in Condition 19 of GCC shall be taken.

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

Yours faithfully

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

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

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

- (a) Deposit at Call receipt from a Scheduled Bank in favour of GE/AGE(I) concerned.
- (b) Receipted Treasury Challan, the amount being credited to the Revenue Deposit of GE/AGE (I).

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

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

2. GENERAL INSTRUCTIONS FOR COMPLIANCE

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

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

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

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

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

3. BOQ :-

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

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

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

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

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

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

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

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

MILITARY ENGINEER SERVICES
NOTICE INVITING TENDE (NIT)

1. A tender is invited for the work as mentioned in Appendix 'A' to this NOTICE INVITING TENDER (NIT).
2. The work is estimated to cost as indicated in aforesaid Appendix "A". This estimate, however, is not a guarantee and is merely given as a rough guide and if the work costs more or less, a tender/bidder will have no claim on that account.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' in accordance with the phasing, if any, indicated in the tender from the date of handing over site, which will be on or about two weeks after the date of acceptance of tender.
4. Contractors whose names are no the MES approved list and within whose financial category the estimated amount would fall and unlisted contractors may submit tender/bid subject to other criteria mentioned in Appendix A. However in case of term contracts, enlisted contractors of Class SS to E may submit tender. Not more than one tender shall be submitted/uploaded by one contractor/firm. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same contract as separate competitors. Two firms shall be deemed to have business dealing if any of the partners/proprietor/director is common among both of them. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
5. The office of GE (I) R&D Girinagar, Pune will be the Accepting Officer here-in-after referred to as such for the purpose of this contract.
6. Not more than one tender/bid shall be submitted /uploaded by one bidder firm. Under no circumstances will a father and his sons(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same tender as separate competitors. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
7. The Technical Bid and Financial Bid (Cover-1 & Cover – 2) shall be uploaded by the contractor on or before the date & time mentioned in NIT. A scanned copy of DD with enlistment details and other documents as specified in Appendix A shall be uploaded as Cover-1 (technical bid) of the tender on e-tendering portal. DD is refundable is case contractor not considered eligible in tech evaluation of Cover 1 resulting in Non-opening of Cover-1. The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD including revalidation of DDs and shall not have any claim from Govt. whatsoever on this account.
8. Tender form and conditions of contract and other necessary documents shall be available on website defproc.gov.in for download and shall form part of contract agreement in case the tender/bid is accepted.
9. In case of MES enlisted contractor who has not executed the Standing Security Bond and un enlisted contractor, the Cover-1 shall be accompanied by Earnest Money for the amount mentioned in Appendix 'A' in the form of deposit at call receipt in favour of GE (I) R&D Girinagar, Pune by a Scheduled Bank or in received treasury challan the amount being credited to the revenue deposit of the concerned GE (I) R&D Girinagar, Pune. The GE (I) R&D Girinagar, Pune will return the Earnest Money, wherever applicable, to all unsuccessful tenderers/bidders by endorsing an authority on the deposit at call receipt for it's refund, on receipt of intimation from the Accepting Officer to do that.

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

11. Sample of materials and stores to be supplied by the contractor will also be available for inspection by the bidder at the office of concerned GE (I) R&D Girinagar, Pune during working hours. The bidder is advised to visit the site of work by making prior appointment with GE (I) R&D Girinagar, Pune, who is the executing agency of the work. The bidder shall be deemed to have full knowledge of all relevant documents, samples, site etc whether he has inspected them or not.

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

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

14. The bidder must be in possession of a copy of the MES Schedule (SSR) (Part-1 & Part-II of latest edition) including amendments and errata thereto.

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

16. The accepting Officer reserves the right to accept a tender submitted by a Public Undertaking/Small & Medium Enterprises (SMEs), giving a price preference/purchase Preference over other tender(s)/bid which may be lower, as are admissible under the Govt Policy. No claim for any compensation or otherwise shall be admissible for such tender/bidder whose tender/bid is rejected.

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

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

NOTICE INVITING TENDER (NIT)

1.	Name of Work	RENOVATION OF BLUE ROOM BAR ROOM DINING HALL IN OFFRS MESS OF MILIT AND PROVN OF ELECTRICAL WIRING AND FITTING AT MILIT OFFICER MESS AT MILIT GIRINAGAR, PUNE-25
2.	Estimated Cost	Rs. 47.03 Lakhs (At par market)
3.	Period of Completion	09 (Nine) Months
4.	Cost of tender documents	Rs. 500 /- in the form of DD/Bankers cheque from any Scheduled Bank in favour of GE (I) R&D Girinagar Pune -25 and payable at Pune -25. 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/potal address	www.defproc.gov.in
6.	Type of contract	The tender shall be based on IAFW-1779A & IAFW 2249 (General Conditions of Contract with Sch 'A' (list of items of work) to be priced by the tenderers.
7.	Timeline details :	
	(a) Bid submission start date	Ref critical dates shown on the website.
	(b) Bid submission end date	
	(c) Date of bid opening	
8.	Eliibility Critcria	
	(a) For MES enlisted contractors	Contractor shall be enlisted with MES in Class 'D' and above and category "a(i)" subject to satisfactory remarks wrt performance in respect of works in hand as reflected in Work Load return (WLR) or any other report circulated by competent engineer authority.
	(b) For contractors not enlisted with MES	(i) Contractor not enlisted with MES should meet the enlistment criteria of 'D' Class & "a(i)" category contractor with regard to satisfactorily completion of requisite value works with Central/State/Govt/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 (www.mes.gov.in). (ii) Not carrying adverse remarks in Work Load Report (WIR) or any other similar report circulated by any competent authority, if already working in MES. Notes : Scanned copies to be uploaded online and original/attested copies of supporting documents to be submitted offline before due date of opening of Cover I. (iii) Not suspended/debarred/blacklisted (either permanently or temporarily) from participating in any bid or for business dealings by any Central/State Govt Department or any Central/State Govt PSU or any Autonomous Body under Centrl / State Govt or any Local Body as on the bid submission end date.
	(c) Technical PQC criteria	In case of Solar Power Works and Runway /Pavments, technical PQC criteria as stipulated Manual on Contracts and as per policy letters issued by E in C's Branch from time to time shall be included suitably.
09.	Tender issuing and Accepting Officer	Name :GE (I) R&D Girinagar Pune -25 Address : GE (I) R&D GIRINAGAR, DIAT Pune -411025 Contact Detail : ge_rd_qnr@yahoo.com
10	Executing agency	GE (I) R&D Girinagar Pune -25
11.	Earnest Money	Rs. 94,500/- in the form of DD/Bankers cheque from any Scheduled bank in favour of GE (I) R&D Girinagar Pune 25. MES enlisted contractors are exempted from submission of EMD (scanned copy to be uploaded online and original to be submitted offline before due date of opening Cover 1.

Notes : -

1. After opening of Cover 1, if 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 contractors 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. However contractors of one/two classes below the eligible class shall not be considered in case their present residual work in hand is more than twice their present tendering limit. Such bidders shall upload in their Cover-1 bid 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. These details shall be verified by the tender issuing auth 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, if any fulfilling the other eligibility criteria given in NIT, are 7 (seven) or more, application of only those one class below the eligible class bidders shall be considered, who have previously completed similar works satisfactorily and are meeting the criteria of up gradation in respect of past experience of completed works (individual work experience and/or average annual turnover as applicable) and financial soundness (solvency/financial soundness and working capital) as per details given in Manual on Contracts. Therefore such contractor's shall upload the requisite information/documents in the Cover-1.
3. Unlisted 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 directors shall be considered subject to security clearance from the concerned authorities.
4. Contractors enlisted with MES will upload following documents in Cover-1 for checking eligibility:-
 - (a) Application for tender on Firm's letterhead
 - (b) Enlistment letter issued by the Registering Authority duly renewed for the cycle period in vogue.
 - (c) In case enlistment before 2015, copy of renewal /re-classification letter issued by competent authorities.
 - (d) 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.
 - (e) Any other document required as described in this Appendix.
5. Contractors not enlisted with MES will be required to upload following documents in Cover -1 for checking eligibility.
 - (a) Application for tender on Firm's letterhead.
 - (b) Scanned copy of DD/Bankers cheque toward cost of tender and Earnest Money Deposit (EMD) instrument.
 - (c) Copy of Police Verification Report/Police Clearance Certificate/ Character Certificate from the Police authority of the area where the registered office 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 documents required as described in this Appendix.

6. Tenders not accompanied by scanned copies of requisite DD/Bankers Cheque towards cost of tender and earnest money (as applicable) in Cover 1 shall not be considered for validation of 'T' bid and their Financial Bids will not be opened.

7. Contractors should ensure that their original physical DDs and Earnest Money Deposit (EMD) instruments (as applicable) reach the office of Accepting Officers within 07 days of bid submission end date (the number of days to be mentioned shall be as decided by the Accepting Officers, but it shall not be less than 05 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 towards cost of tender have been uploaded in Cover 1 but physical copies are not received within the stipulated period, their financial bids (Cover 2) will be opened. However non-submission of physical copies of cost of tender shall be considered as willful negligence of the tenderer with ulterior motives and such tender shall be banned from bidding for a period six months commencing from the date of opening of Financial Bid (Cover-2).

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

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

8. Contractor will not be allowed to execute the work by subletting or through power of attorney to a third party/another firm on his behalf. However a contractor can execute the work through power of attorney to sons/ daughters/ spouse of Proprietor/ Partner/ Director and firm's own employees, director, project manager **provided they are not having a separate enlisted firm in MES in their name as Proprietor/ Partner/Director.**

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

10. Invitation for e-tender does not constitute any guarantee for validation of technical bid and subsequent opening of financial bid of any applicant/bidder merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the technical bid and not to open the financial bid of any applicant/bidder. Technical bid validation shall be decided by the Accepting Officer based on eligibility of the firm as per criteria given in this Appendix. Tenderer/bidder will be informed regarding non – validation of his technical bid assigning reasons therefore through tender evaluation report which shall be uploaded on the website. Such tenderer, if desires may appeal to the next higher Engineer Authority (NHEA) viz Chief Engineer R&D Secunderabad on email id secunderabadengrs@gmail.com 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 unlisted 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 these purpose details of the works being executed by such a contractor shall be uploaded in the cover-1 of the bid and shall be checked / verified by the Accepting Officer.

12. In case the BOQ is revised through the corrigendum and the bidder has failed to quote on revised BOQ (ie he has quoted on pre revised BOQ), such bid shall be treated as willful negligence by the bidder and his quotation shall be considered non bonafide. In such cases the lowest tender shall be determined from amongst the valid/bonafide bids only. Accepting Officers 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 unlisted tenderer, Earnest Money deposited by him shall be forfeited. In case of MES enlisted tenderer having deposited the Standing Security Bond, an amount equal to the earnest money stipulated in the NIT, shall be notified to the tenderer for depositing through MRO and consideration of such tenderer in tender evaluation for future works shall remain suspended till the aforementioned amount is deposited in the Govt Treasury. No other disciplinary/administrative action shall be taken against such tenderers. In such a situation, the next lowest offer shall not be considered for acceptance, instead, retendering shall be resorted to in a transparent and fair manner and the defaulting tenderer and his related firm in any, shall not be eligible for this tender in second call or subsequent calls

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

(SIGNATURE OF CONTRACTOR)

File No : 8806/ /E8

ACCEPTING OFFICER

Dated : Oct 2024

GE (I) R&D, Girinagar
Pune - 411025

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

(TO BE READ IN CONJUNCTION WITH GENERAL CONDITIONS OF CONTRACTS IAFW 2249) (1989 PRINT)

MILITARY ENGINEER SERVICES

Tele: 25865886

Garrison Engineer (I) R&D
Girinagar, Pune - 25

8806/ /E8

Oct 2024

ITEM RATE TENDER AND CONTRACT FOR WORKS NAME OF WORK: RENOVATION OF BLUE ROOM BAR ROOM DINING HALL IN OFFRS MESS OF MILIT AND PROVN OF ELECTRICAL WIRING AND FITTING AT MILIT OFFICER MESS AT MILIT GIRINAGAR, PUNE-25

1. M/S _____ of _____ is/are hereby authorized to tender for the above work. The tender is to be uploaded in the eprocuremes.gov.in site before the critical dates as mentioned on web site.

2 Any correspondence concerning this tender should be addressed quoting the reference of tender ID to Garrison Engineer (I) R&D, Girinagar, Pune – 411025 and marked as CA NO. GE (I) R&D/GNR/TOKEN/66 OF 2024-2025

3. THE PRESIDENT OF INDIA DOES NOT BIND HIMSELF, TO ACCEPT THE LOWEST OR ANY OTHER TENDER.

(SIGNATURE OF OFFICER ISSUING THE DOCUMENTS)

APPOINTMENT: Garrison Engineer

SCHEDULE 'A'**NOTES:-**

1. The entire work under this contract shall be completed within **09 (Nine) Months** from the date of handing over of site. Sites for all items of work shall be handed over simultaneously.
2. For Sch of items refer BOQ sheet in excel format.
3. The quantities shown in Sch (BOQ sheet) in column 3 of Sch 'A' are approximate and are inserted as a guide only. They do not constitute any guarantee of the ultimate quantities which will be ordered on the contractor. They shall not however be varied beyond the limit laid down in condition 7 of IAFW-2249 (General conditions of contract).
4. The contractor shall enter the unit rate in column 5 of BOQ. The unit rates in figure shall be entered only.
5. Unless otherwise specifically stated in the description of the items, the unit rates quoted in col-5 shall be deemed to include for all labour and material complete required for executing the respective items of works.
 - (a) The unit rate quoted by the tenderer against respective items of Sch 'A' shall be deemed to include minor details of construction of work, not specifically mentioned in description of Sch 'A' items and/or in the particular specifications/drawings and which are fairly and obviously intended/essential for the execution of work in a workmen like manner and sound constructions.
 - (b) In case of difference of opinion between the contractor and the GE as to whether or not certain items of work constitute minor constructions details which is deemed to have been included in the contractor's quoted rates, the decision of the Accepting Officer shall be final conclusive and binding.
- 7 The description of Sch 'A' items in BOQ sheet (Excel format) shall be read in conjunction with particular specification.
8. The payment shall be made for net measured quantities. The method of measurements shall be as laid down in SSR-2009 (Part-I) specifications and (SSR-2020 Part-II) rates.
9. RM means running metre, cum means cubic metre , sqm means square metre, cm means centimetre, mm means millimetre, CM means cement mortar & Kg means kilogram and Qtl means Quintal, M&L means materials and labour and S&F means supply and fixing.
10. Rates quoted under col-5 shall be complete for material & labour or supply and fixing unless otherwise specified.
- 11 Contractor's attention is invited to the method of measurement and preambles in MES Sch of rates Part-I-2009 & Part-II 2020.
- 12 The rates quoted by the contractor shall be deemed to be inclusive of all taxes including sale Tax/GST/ Vat on materials sales Tax/Vat on works contracts. Turnover Tax, service Tax, labour welfare cess/tax etc) duties, royalties octori & other levies payable under the respective statutes. No reimbursement/refund for verification in rates of taxes, duties royalties, octori & other levies shall be made.
13. SALES/TAX It is incumbent on the part of tenderers to get themselves registered with sales Tax department and shall hold sale tax clearance certificate in form XI. Irrespective of whether any tenderer has got his firm registered or not for execution of the work contract shall be deducted at sources (the sum equivalent to percentage of the payment being made to the contractor as per policy vogue).
- 14 All the materials to be incorporated in the work shall be got tested as per the latest relevant IS codes and the cost of the same shall deemed to be included in the unit rates quoted.

SCHEDULE 'A' NOTES (Contd...)

15. Any items of SSR Part-II 2020, not available in the Sch 'A' and if required at site shall be measured and paid at SSR rates at par.

16. In case any repeated items in Sch 'A' lowest rate quoted by tenderer shall be considered for payment purpose.

17. Irrespective whatever elsewhere in the tender documents, the fine aggregate, coarse aggregate, bricks and other materials shall be procured only from the legal source.

18. Wherever else in the tender document, it is mentioned or equivalent in the makes, the equivalent makes shall be provided only in case the makes mentioned does not manufacture in respective item.

19. The payment due to the contractor shall be made by e-payment or by cheque. The contractor shall provide all the necessary details including bank account, IFC code etc to the GE. If, however the mode of payment is changed, no claim on this account shall be entertained.

20. The unit rate quoted by tenderer shall be deemed to include for service tax, GST, swatch Bharat cess and labour cess and other taxes as applicable by Center/State Govt.

21. The above instructions are compilation of certain existing orders on the subject. No contractor / firm shall be permitted to take advantage of ignorance of above provisions. The above instructions will be strictly implemented and release of payments to contractors / firms will be regulated as under: -

(a) In case of contracts for Outsourcing of services, Manning & Operation etc, which constitute human resources as part of contracts, the contractors/ firm will have to make payments to their staff/ employees by cheque or through NEFT in their Bank Account. No payments to contractors/ firms will be made, unless proof of payment of wages through bank account is submitted by the contractor/ firm.

(b) In case of works contracts/Job work orders, No Payments to contractors/Firms will be made unless proof of payment of wages to the workmen is submitted by the contractor/firm. In case payments are made in current coins or currency notes, certificate will be submitted by the contractor/ firm along with undertaking by the concerned workmen asking for payment other than by cheque or by crediting in the bank account of the employee/ workmen.

22. Adherence to these instructions will be checked during various inspection as well as vigilance checks.

23. The rate quoted shall not be less than minimum wages as notified by Govt of India/State Govt/Local body whichever is higher including all statutory provisions such as EPF, ESIC, Bonus, taxes etc as applicable. In case the rates quoted are less than the minimum wages as notified by the Govt of India/ State Govt/Local body whichever is higher including all statutory provisions such as EPF, ESIC, Bonus taxes as applicable, his tender will be treated as non bonafide and will not be considered for acceptance. In such case, the lowest tender shall be determined by the lowest amount amongst valid/bonafide bids only.

24. PERFORMANCE SECURITY:

24.1 The Standing Security Deposit (SSD) given by the enlisted contractor shall serve the purpose of exemption from EARNEST MONEY deposit only.

SCHEDULE 'A' NOTES (Contd...)

24.2 The tenderers shall note that the successful bidder shall loadge performance security of **an amount equivalent to 5% of contract sum** within 28 days from the date of receipt of letter of Acceptance (AOC) in the form of FDR or he may choose to submit BGB or Govt. securities.

24.3 The Performance Security shall be in favour of Accepting Officer and shall be in any of the forms mentioned above. Work Order No 01 shall be placed only after submission of Performance Security of adequate value by the contractor. In case a fixed deposit receipt of any bank is furnished by the contractor to the Govt as part of the Performance Security and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Govt to make good the deficit.

24.4 The period of validity of the bank guarantee bond against Performance Security shall be initially valid up to the stipulated date of expiry of defects liability period plus minimum 60 days beyond that. In case final bill is not paid during this period, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time required for payment of final bill.

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

24.5 Failure of the successful contractor to comply with the requirements of submission of performance security in any prescribed forms for an amount equivalent to 5% of the contract sum within 28 days of receipt of the letter of acceptance shall constitute sufficient grounds for cancellation of the award of work and forfeiture of the Earnest Money. In case of MES enlisted contractor, amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO. Issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the Earnest Money is deposited in Government Treasury.

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

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

25. After detailed deliberations on the various aspects brought out in above paragraphs, it has been decided that a following note shall be included in Sch 'A' Notes of tender:-

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

SCHEDULE 'A' NOTES (Contd...)

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

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

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

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

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

26. The scope of work under this tender shall broadly comprises of following works:-

Ser No	Name of work	A/A
1.	Renovation of blue room, bar room, dining hall in Offrs Mess of milit girinagar, pune	MILIT Girinagar letter No MILIT/61053/LBW/2024-25/09 dt 04 Sep 2024
2.	Provn of electrical wiring and fittings at MILIT Officers mess	MILIT Girinagar letter No MILIT/61056/Min Wks/2024-25/14 dt 09 Sep 2024

It is an express Condition of the Contract that the Contractor shall quote the same rate for similar items under various works enumerated above failing which the lowest rate amongst all other rates for similar items shall be considered for arriving the work done of respective all similar items. Contractors claim of what so ever nature on this account shall not be entertained. No amendments to contract shall be made on this amount & this will be considered within terms and conditions of contract.

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

SCHEDULE OF CREDIT

Ser No	Description of items	Unit	Qty	Rate per Unit	Amt in Rupees	Remarks
1	2	3	4	5	6	7
1	Old chowkat with shutter n.exc 1.5 sqm.	EACH	20.00	300.00	6,000.00	Refer notes below
2	Old shutter with frame exc 1.5 but n.exc 4.0 sqm.	EACH	5.00	500.00	2,500.00	
3	Old WHB	EACH	9.00	100.00	900.00	
4	Old bib tap, stop cock.	EACH	37.00	50.00	1,850.00	
5	Old 15mm dia GI/CPVC pipeline.	RM	25.00	10.00	250.00	
6	Old 20mm dia GI/ CPVC pipeline.	RM	80.00	15.00	1,200.00	
7	Old Flushing cistern	EACH	8.00	40.00	320.00	
8	Old EWC/IWC/UR	EACH	19.00	150.00	2,850.00	
9	Old PVC Water tank with ball valve of any description.	EACH	2.00	750.00	1,500.00	
10	Old 20mm dia Gate valve	EACH	8.00	200.00	1,600.00	
11	Old U/S toilet paper holder	EACH	8.00	30.00	240.00	
12	Old U/S Health faucet/Jet spray	EACH	8.00	50.00	400.00	
13	Old U/s material obtained from point wiring (except fitting such as switches, ceiling rose, pendants, regulators, sockets, etc) including, casing-n-capings, conduits, clips and other fitting.	POINT	112.00	10.00	1,120.00	
14	Old U/s submain wiring any sizes and any capacity	RM	415.00	12.00	4,980.00	
15	Old U/s pandents, batten holders, utility light fitting/Surface lights/t/l fitting any type and size with brackets complete with shades holders etc.	EACH	207.00	10.00	2,070.00	
16	Old U/s switches, sockets, bell push, switch sockets combination, fan regulator, ceiling roses, TV/LAN socket any type/ patterns, 5/15 Amps with switch boards, cover plates complete.	EACH	266.00	2.00	532.00	
17	Old U/s VTPN/ SPN DBs any capacity	EACH	7.00	25.00	175.00	
18	Old U/s MCBs / Isolator any capacity and any amps	EACH	100.00	2.00	200.00	
Total of Schedule of Credit Rs.					28,687.00	

Note:-

- Credit at the rates indicated in this schedule will be deducted from contractor's sum quoted against Schedule 'A'. The contractor shall have no claim what so ever, against Govt./Department if the quantities of materials given in the schedule turn out to be different as the quantities given under Col 4 are 'PROVISIONAL'.
- Measurements for deriving credit will be taken in situ as existing at work site. Contractor shall segregate serviceable materials. Unserviceable materials as decided by Engr-in-Charge (Whose decision shall be final and binding in this respect) shall become property of the contractor who shall remove such material outside MD land at his own cost.
- The rates given under Col. 5 are firm and contractor shall take cognizance of this, while quoting the tender.
- All other materials other than listed above (obtained from demolition) shall be handed over to AGE at MES Store Yard at no extra cost to Govt.
- Dismantled materials shall not be taken away from site unless the amount of credit has been recovered from running Account Payments.

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

Contd...../-

GENERAL SUMMARY

- | | | |
|----|---|----------------------------------|
| 1. | Total BOQ items B/F from Ser page No ____ | Rs. _____ |
| 2. | Deduct Sch of Credit B/F from Ser page No _____ | Rs. (-) 28,687.00 (Minus) |
| 3. | Total contract sum | Rs. _____ |

(Rupees _____)

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

SCHEDULE 'B'

(ISSUE OF MATERIALS TO THE CONTRACTOR)
(SEE CONDITION 10 'B' OF IAFW-2249)

SI No	Particulars	Rate at which materials will be issued to the contractor	Place of issue by	Remarks
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-----NIL-----

(Signature of Contractor)

Accepting Officer

SCHEDULE 'C'

(LIST OF TOOLS & PLANT (OTHER THAN TRANSPORT)
WHICH WILL BE HIRED TO THE CONTRACTOR)

(SEE CONDITION 15, 34 & 35 OF IAFW-2249)

SI No	Quantity	Particulars	Details of MES crew supplied	Hire charges per unit per Working/day	Standby charges per unit per day	Place of issue (By name)
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-----NIL-----

(Signature of Contractor)

Accepting Officer

SCHEDULE 'D'

(TRANSPORT TO BE HIRED TO THE CONTRACTOR (SEE CONDITION 16 & 35 : IAFW-2249)

SI No	Quantity	Particulars	Rate per unit/per working day	Place of issue (By name)	Remarks
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-----NIL-----

(SIGNATURE OF CONTRACTOR)

ACCEPTING OFFICER

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

T E N D E R

To,

The President of India,

Having examined and pursued following documents: -

Specifications signed by Garrison Engineer (I) R&D Girinagar, Pune-411 025

Drawing as detailed in Particular Specifications.

1. Schedule 'A', 'B', 'C' and 'D' attached hereto.
2. MES Standard Schedule of Rates Part I, 2009 including amendment 1 (a), 1(b), 2 & 3 and MES Standard Schedule of Rates Part II, 2020 together with amendment No.1 to 122 as applicable.
3. General Conditions of Contracts, IAFW-2249 (1989 Print) together with Amendment No 1 to 49 and Errata No 1 to 20.
4. **WATER** : Refer condition 31 of General Conditions of Contracts, IAFW-2249
Water will be supplied by the MES and shall be paid by the contractor at Rs. 3.75 per every Rs. 1000/- worth of work done at contract rate.
5. SHOULD THIS TENDER BE ACCEPTED.
I/We agree

** (a) That the sum of Rs. _____/- (Rupees _____ only) forwarded as Earnest Money shall either be retained as part of Security Deposit OR be refunded by the Government on receipt of appropriate amount of Security Deposit as per conditions 22 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein at the item rates contained in the aforesaid Schedule 'A' or at such other rates as may be fixed under the provision of condition 62 and to carry out such deviations as may be ordered vide condition 07 of IAFW-2249 upto a maximum of **10% (Ten Percent)** and further agree to refer all disputes as required by condition 70 of IAFW-2249 to the sole arbitration to a serving Officer having degree of Engineering or equivalent or having passed final/direct final examination of sub division II of Institution of Surveyors (India) as recognized by Govt of India to be appointed by the Chief Engineer R&D Secunderabad-500 003 or in his absence the Officer Officiating as Chief Engineer whose decision shall be final, conclusive and binding.

** To be deleted wherever not applicable

Contd...../-

In lieu of IAFW – 1779A (Rev-1955)

Signature _____ Name of Signatory (Block Capital) _____
_____ in the capacity of _____ duly authorized to sign the
Tender on behalf of _____

(IN BLOCK CAPITAL LETTERS)

POSTAL ADDRESS _____

TELEPHONE NO. _____

ACCEPTANCE

_____ alterations have been made in these documents and as evidence that these alterations were made before the execution of the Contract Agreement; they have been initialed by Contractor & Accepting Officer.

The said officer is hereby authorized to sign and initial on my behalf on 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' and for the contract sum of Rs. _____
(Rupees _____)
on the _____ day of _____ 2024.

ACCEPTING OFFICER
For and on behalf of the President of India

In lieu of IAFW-1779A (Revised 1955)

GENERAL CONDITIONS OF CONTRACTS (IAFW 2249, 1989 PRINT)

1. It is hereby agreed by me/us that the GENERAL CONDITIONS OF CONTRACT (IAFW – 2249, 1989 PRINT) including condition 70 thereof pertaining to settlement of disputes by Arbitration containing 33 pages (Serial Page Nos ____ to ____ with errata No 01 to 20 and amendment No 01 to 49 containing 20 pages (Serial Page Nos ____ to ____)) form an integral part of tender documents.

2. The tender submitted by me/us* is subject to the aforesaid General Conditions of Contracts in IAFW-2249, and amended copy of which has been supplied to me/us* and is in my/our* possession and which I/we have read and fully understood, before submission of this tender.

NOTE: DISPUTES INTERPRETATION DUE TO WORDING OF ENGLISH AND HINDI VERSION

3. It is clarified that in case of difference interpretation due to wording to English and Hindi versions, the English version will prevail as per Article 348 of the Constitution of India as clarified vide CS/MD 17 vide letter No. 96569/GE/MT-17 dated 18 Oct 88.

4. My/Our* signature hereunder is in token of my/our* having accepted the aforesaid General Condition of Contracts together with Errata and amendments IAFW-2249 (1989 Print) and the Clause relating to Arbitration forming an integral part of this tender and schedule of minimum fair wages containing 06 pages (Serial Page No ____ to ____ forming part of this tender.

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

SPECIAL CONDITIONS**1 GENERAL**

1.1 The following special conditions shall be read in conjunction with General conditions of contracts (IAFW-2249:1989 Print) including amendments and errata thereto. If provisions in these special conditions are at various with the provisions in the aforesaid documents, the former shall be deemed to take precedence there over.

2. MES SCHEDULE (SSR 2009 PART I INCLUDING AMENDMENT 1 (a), 1(b) 2&3 & SSR PART II-2020 TOGETHER AMENDMENTS UPTODATE

2.1 Contractor's special attention is invited to the fact that this tender is based on MES schedule (SSR 2009 Part I including amendment 1 (a), 1(b) 2&3 and SSR 2020 Part – II together with & including amendment No. 1 to 122 as applicable.

3. GENERAL CONDITIONS OF CONTRACT (IAFW-2249: 1989 PRINT)

3.1 WHEREAS IAFW-2249 is mentioned it means GENERAL CONDITIONS of CONTRACTS; IAFW-2249: 1989 Print) including Errata/amendments as applicable.

3.2 Wherever the letter "CWE" (Commander Works Engineers) has been referred to in General conditions of contract (IAFW-2249 1989 Print) the same shall be amended to read as "CE" (Chief Engineer)

4. SECURITY OF CLASSIFIED DOCUMENTS (REFER CONDITION 2-A AND 3 OF (IAFW-2249)

4.1 Contractor's special attention is drawn to the conditions 2-A and 3 of the General conditions of contracts (IAFW-2249) and also the Indian Official Secret Act 1923 (Particularly Section 5). The contractor is bound by the provisions of the Act. The contractor shall not communicate any classified information regarding the work either to Sub contractor(s) or other without prior approval of Engineer-in-Charge. The contractor shall also not take copies of the Design/drawings and other documents furnished to him in respect of works and he shall return all the documents on completion of the works or earlier determination of the contract, The contractor shall alongwith final bill, attach a receipt from the Engineer-in-Charge of his having returned the classified documents as per condition 3 of the General conditions of contracts (IAFW-2249).

5. INSPECTION OF SITE AND RELEVANT DOCUMENTS (REFER CONDITIONS 4 OF IAFW- 2249)

5.1 The contractor is required to visit the site of works and make himself thoroughly aquatinted with the working conditions and the approaches/accessibility to site, availability of material and all other relevant conditions affecting the completion of entire work, He is required to make himself fully acquainted with the nature and scope of the work before tendering. For the purpose of inspection of relevant documents other than the GE who will give reasonable facilities. The contractor shall be deemed to have visited the site before submission of the tender irrespective of the fact whether he does it or not.

6. MATERIALS AND SAMPLES (REFER CONDITION 10 OF IAFW-2249)

6.1 The tenderer is advised to inspect samples of the local building materials maintained by the GE before submitting his tender. He will be deemed to have full knowledge of these materials whether he inspects them or not. The materials be provided by the contractor shall be conform to or be superior to the standard of samplers displayed in the office of the GE in the matter of quality unless otherwise specified.

SPECIAL CONDITIONS (Contd.../-)

6.2 All materials unless otherwise specified (excluding the materials issued under schedule 'B') supplied and incorporated in the works shall comply with the requirements of relevant Bureau of Indian Standard (BIS) including the latest applicable amendments etc and standard (as on the date of issue of the tender) mentioned in the MES schedule here-in-before. In case of goods complying with ISI certification marks will be given preference material, which does not bear ISI certificate mark.

6.3 The contractor shall produce the samples of materials for incorporation to the GE through AGE with advance information to GE and get them approved in writing by the GE before commencement of work. All approvals shall be in writing from GE to contractor. The materials, articles etc as approved shall be labeled as such and shall be signed by the GE and contractor and be kept in the safe custody by the GE/in sample room

7. PROPRIETARY BRAND MATERIALS

7.1 Proprietary brand materials such as water proofing compound, bitumen, paint etc. Quantity of which cannot be checked after incorporation in the works, shall when collected at site, be recorded in Measurement Book and signed both by the MES representative and the contractor as a check to ensure that the required quantity has been brought to site for incorporation in the works.

7.2 The contractor shall obtain proprietary brand materials from manufacture's/authorized stockiest have been appointed. The contractor shall produce original receipted vouchers/invoices of supplies to the GE, if called upon by the letter to do so to ensure that contractor has actually brought the material not only of specified dealer/manufactures. These vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge giving the contract number and name of work and a certified copy of each such vouchers signed both by the Engineer-in-Charge and the contractor, shall also be kept on MES record.

8. STANDARD OF WORKMANSHIP AND FINISH

8.1 To determine the acceptance standard of workmanship, the GE may order the contractor to execute certain portions of work, and service such as wall, floor, pointing to brick/stone work, plaster joinery and fittings in on room, sanitary fittings, electrical wiring and water supply in one block, and get these completed under the close supervision of the Engineer-in-Charge. On approval of these samples of workmanship in writing by GE to contractor these items shall be labeled as "Guiding samples" so that further works be executed to conform to these samples.

8.2 The contractor shall proceed with the work in bulk only after satisfactory compliance of this requirements of para 8.1 above. The total completion period allowed for work shall be deemed to have made allowances for this requirement.

8.3 Similar sample of acceptable standards shall be for all internal and external services / works before progressing of work in bulk.

9. CO-OPERATION WITH OTHER AGENCIES

9.1 The contractor shall permit free access and generally offered reasonable facilities to other Agencies such as pre-construction, Anti-termite treatment and other works of specialist nature or departmental workman engaged by Govt to carry out their part of the works, if any under separate arrangement.

9.2 The contractor's price shall be deemed to cater for all the above contingencies and nothing extra shall be admissible on this account.

Contd...../-

SPECIAL CONDITIONS (Contd.../-)**10. DAMAGE TO EXISTING STRUCTURE/BUILDINGS**

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

11. CONTRACT LABOUR (REGULATION AND ABOLITION ACT 1970)

- 11.1 The contractor, if required to employ more than twenty workmen, the work under this contract shall be bound by the (contract labour regulation and abolition Act 1970) and rules framed there under. No contractor can undertake or execute his work without a license issued by a licensing officer.

12. MINIMUM FAIR WAGES PAYABLE TO LABOUR (CONDITION 58 OF IAFW-2249)

- 12.1 The contractor shall not pay wages lower than minimum wages for labours as fixed by the Government of India/State Government whichever is higher.
- 12.2 The fair wages referred to in condition 58 of IAFW-2249 shall be deemed to be same as the minimum wages payable as referred to above.
- 12.3 The contractor shall have no claim what so ever, if on account any local, factor and/or regulations or otherwise he is required to pay the wages in excess wages as described above during the execution of work.

13. ANTECEDENCE OF CONTRACTORS AND THEIR NETS/PRESENTATIVES & WORKMEN

- 13.1 The contractor shall employ only Indian Nationals as his representatives, servants and verify their antecedents and loyalty before employing them for the work. He shall ensure that no person of doubtful antecedents and Nationality is in any way associated with the work and if for reasons of technical collaboration or other considerations, 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 tender. The GE shall have full power and without giving any reasons to the contractor immediately cease to employ in connection with this contract any representative, Agent, servant and workmen or an employee whose continued employment in his opinion is undesirable. The contractor shall not be allowed any compensation on this account.

14. CONDITION OF WORKING IN RESTRICTED AREA

- 14.1 Work under this contract lies in RESTRICTED area.

- 14.1.1 The following are the conditions for working within "RESTRICTED" area.

- 14.1.1.2 Visit to site within the Restricted area : -

Permission to enter the restricted area at the time of submission of tenders can be obtained through the GE. Tenders are advised to send prior intimation to the GE about the particulars of their Agents, representatives, etc if any date and time of their proposed visit so that necessary arrangements may be made by him to secure admission whether a tender visit the site or not shall be deemed to have full knowledge of the restriction on entering into/exit from and working within the Restricted area.

Contd...../-

SPECIAL CONDITIONS (Contd.../-)

- 14.1.3 ENTRY/EXIT: The contractor, his Agent, representatives, workmen etc and his materials, cart, truck or other means of transport etc will be allowed to enter through and leave from only such gate or gates and at such times as the GE or authorities in charge of the Restricted Area, may at their sole discretion permit. The contractor's authorized representative is required to be present at the place of entry and exit for the purpose of identity of the carts, trucks etc and shall report to the personal in charge of the Security or Restricted Area.
- 14.1.4 IDENTITY CARDS OR PASSES: The contractor, his agents and representatives are required individually to be in possession of an identity cards or passes only verified by the Police Department. The Identity cards or pass will be examined by the Security staff at the time of entry from the Restricted Area and also at any time or number of times inside the Restricted Area.
- 14.1.5 IDENTITY OF WORKMEN
- 14.1.5.1 Every workman shall be in possession of Identity cards. The Identity cards shall be issued after thorough investigation of the antecedents of the labors by the contractor, attested by the Officer-in-Charge of the unit concerned in accordance with standing rules and regulations of the unit.
- 14.1.5.2 Contractor shall be responsible for the conduct and action of his workmen, Agents or representatives.
- 14.1.6 SEARCH : Through search of all persons and transport shall be carried out at each gate and for many times as a gate is used for entry or exist and may also be carried out at any time or any number of times at the work site within the RESTRICTED AREA.
- 14.1.7 WORKING HOURS : The units controlling restricted area usually work during six days in the week and remain closed on the 7th day. The working hours available to contractor's labour and staff are however, appreciably reduced because of the time taken by security Checks endorsed at the time of entry/exit or during working hours, the exact working hours of the day and non-working days observed for the Restricted area, when works are to be carried out shall be deemed to have been ascertained by the contractor for submitting his tender. The tender's attention is invited to the fact that the total number of working hours for a unit is prescribed in regulations and then they cannot be increased by the GE. Contractor's materials, transport etc shall normally enter the area between 0800 am to 0800 pm.
- 14.1.8 WORK ON HOLIDAYS : The contractor shall not carry out any work on Gazetted Holidays, weekly holidays and other non-working days except he is specially authorized in writing do so by the GE. The GE may at his sole discretion declare any reasons for such declaration.
- 14.1.9 ACCESS TO RESTRICTED AREA AFTER COMPLETION OF WORKS: After the works are completed and surplus stores etc, removed by the contractor, his agent, representative or workmen, etc may not be allowed access to Restricted area except for attending to any rectification of the defects pointed out to him by the GE/AGE.
- 14.1.10 FIRE PRECAUTIONS
- (a) The contractor, his Agents, representative, workmen etc shall strictly observed the order pertaining to Fire Precautions prevailing within the Restricted Area.
- (b) Motor transport vehicle, if any allowed by authorities to enter the restricted area, must be fitted with serviceable fire extinguishers.

SPECIAL CONDITIONS (Contd.../-)

- 14.2 In addition to the above, following restrictions shall be observed by the contractor.
- 14.2.1 Contractors materials, Transport etc shall normally be permitted to go out of area between 0930 AM to 1630 PM only.
- 14.2 Contractor may also be allowed to carry out the work beyond 4.30 PM (i.e day and night) but however, no movement of materials and transport out of site of works shall be permitted during night unless special permission is obtained from the concerned authorities.
- 14.2.3 Checking, searching of workmen's and transport shall be done by the Security staff of the concerned authority during movement of materials and transport out of site work.
15. WATER (REFER CONDITION 31 OF IAFW-2249)
- 15.1 Water will be supplied by MES at the points (s) as directed by Engineer-in-Charge at the rate of Rs. 3.75 per 1000 of work done. As the water supplied by the MES is intermittent, the contractor shall make his own arrangements for storing the water required for the work, labour and workmen, etc at his own expense. No extra claim will be permissible on this account.
16. ELECTRIC SUPPLY
- 16.2 Electric will be supplied by MES. The contractor will be charged for electric energy consumed at the rate of Rs.18.96 (Rupees Eighteen and paisa ninety six only) per unit for lighting ad power. Electric supply will be made available by MES. The main switch and KWH meter to register the electric energy supplied shall be provided and installed by the contractor at his own arrangement without any extra cost to the department. The contractor shall provide all necessary connections, cable, fittings, etc., from the main switch in order to ensure proper and suitable supply of electricity. The contractor shall obtain the prior written permission of the concerned authorities for availing the power. Govt will not give any guarantee for continuity of supply and no compensation shall be allowed if the supply becomes intermittent for break down or any reason whatsoever. The type of electric supply will be AC.
17. RECORD OF CONSUMPTION OF CEMENT
- 17.1 For the purpose of keeping a record of cement issued and consumed in work, the contractor shall maintain a pucca/bound register in the form approved by the Engineer-in-Charge showing daily receipt form MES, quantity used in works and balance in hand. This register shall be signed daily by the contractor, or contractor's representative and the Engineer-in-Charge in token of their verification of its correctness. This check will not however absolve the contractor his responsibility to justify the consumption of cement at the time of finalization of his accounts.
- 17.2 The register shall be kept at site in the safe custody of the contractor during progress of the work and he shall on demand produce the same for verification of inspecting officer. On completion of the work the register shall be handed over to the Engineer-in-Charge for the record of MES.

SPECIAL CONDITIONS (Contd.../-)

18. GUARANTEE BOND/FIXED DEPOSIT RECEIPT FOR PERFORMANCE SECURITY/RETENTION MONEY
- 18.1 Before or on acceptance of tender the Govt. may accept Guarantee Bond or Fixed Deposit receipt from State Bank of India or Scheduled Nationalized Banks for Performance security deposit / Retention money etc. The Bank Guarantee shall be on the form prescribed which is available in the office Garrison Engineer (I) R&D Girinagar, Pune-25 for Tenderer's perusal. The duration of fixed deposit shall not be less than twenty four months (here in after referred to as the defect liability period) after the completed works have been handed over to Government.
19. PERFORMANCE SECURITY DEPOSIT
- 19.1 The performance security deposit submitted by the contractor may be refunded to the contractor after the expiration of the defect liability period of twenty four calendar months after the works have been handed over to the Government (hereafter referred to as the defects liability period) for the works by the GE provided always that the contractor shall first have been paid the final bill and have rendered a No-Demand Certificate (IAFW-451).
20. SIGNING OF TENDERS
- 20.1 The person signing the tender on behalf of the another partner or on behalf of a firm shall attach with the tender a proper power of attorney duly executed in his favour by such other person or by all the partners, stating that he has authority to bind such other persons or the firm as the case may be in all matters pertaining to the contract including the Arbitration condition 70 of IAFW-2200.
21. PERIOD OF KEEPING THE TENDER OPEN
- 21.1 The tender shall remain open for acceptance for a period of 60 days from the date on which the tender is due to be submitted.
22. PRODUCTION OF VOUCHERS/INVOICES
- Original vouchers/invoices for the materials as decided by GE required for execution of work and materials claim in RAR as lying at site shall be produced by the contractor before claiming RAR payments.
- 22.1 The vouchers/invoices shall be from the manufacturers and/or from their authorized agents for full quantity of respective items required for the work under this contract. These vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge giving the contract number and name of work and a certified true copy of each such voucher signed both by Engineer-in-Charge and contractor shall be kept on MES record.
- 22.2 The quantity brought to site shall be recorded in measurement books and signed by contractor and Engineer-in-Charge as a check to ensure that the required quantity have been brought to site for incorporation in the work.
- 22.3 Proprietary materials brought at site shall be stored as directed by Engineer-in-Charge and those already recorded shall be suitably marked for identification.
- 22.4 The contractor shall ensure that materials are brought to site in original sealed containers or packing bearing manufacturers making.
23. MAJOR ELECTRICAL/MECHANICAL ITEMS
- Major Electrical/mechanical items such as transformer, Generator sets, pumps, motors, valves, voltage stabilizers, HT Panel etc shall be procured from the manufacturer of their authorized dealers only and original vouchers shall be submitted to Engineer-in-Charge which shall be defaced by the Engineer-in-Charge and recorded in MB with reference to purchase vouchers.

SPECIAL CONDITIONS (Contd.../-)

24. OFFICIAL SECRET ACT: - Reference to condition 2A of General Condition of Contracts IAFW-2249(1989) print. The contractor shall be bound by the official secret act and particularly section 5 thereof.
25. REIMBURSEMENT/REFUND ON VARIATION IN TAXES DIRECTLY RELATED TO CONTRACT VALUE.
- (a) The rates quoted by the Contractor shall be deemed to be inclusive of all taxes (including GST on materials, GST on Works Contracts, Labour welfare cess/tax etc), duties Royalties, Octroi & other levies payable under the respective statutes. No reimbursement/abolition of any new/existing taxes, duties Royalties, Octroi & other levies shall be made except as provided in sub para (b) (i) here-in-below.
- (b) (i) The taxes which are levied by Govt at certain percentage rates of Contract sum/amount shall be termed as "taxes directly related to Contract value" such as GST on materials, GST on Works Contracts, 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 of rates prevailing on the bid submission end date. Any increase in percentage rates of "taxes directly related to Contract value" with reference to prevailing rates on the bid submission end date shall be reimbursed to the contractor value" with reference to prevailing rates on the bid submission end date shall be refunded by the contractor to the Govt/deducted by the Govt from any payments due to the Contractor. Similarly imposition of any new "taxes directly related to Contract value" after the bid submission end date shall be reimbursed to the contractor and abolition of any "taxes directly related to Contract value" prevailing o the bid submission end date shall be refunded by the contractor to the Govt/deducted by the Government from the payments due to the Contractor.
- (ii) The contractor shall within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "taxes directly related to Contract value" give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The contractors shall also submit documentary proof/information as the GE may require.
- (iii) The Contractor shall, for the purpose of this condition, keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt, and shall further, at the request of GE furnish, verified in such a manner as the GE may require any documents so kept and such other information as the GE may require.
- (iv) Reimbursement for increase in percentage rates / imposition of "taxes directly related to contract value" shall be made only if Contractor necessarily and properly pays additional "taxes directly related to contract value" to the Govt, without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Govt Authority and submits documents proof for the same as the GE require.

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER

PARTICULAR SPECIFICATION**GENERAL**

1. (a) Specifications for materials and workmanship shall be all as described in MES Schedule Part-I 2009 with amendment 1 (a), (b), 2 & 3 & 3 except where specifically mentioned otherwise in these documents. General rules, preamble to various sections, special conditions, method of measurements etc given in MES schedule 2020 Part – II together amendments if any shall also apply to this contract unless otherwise mentioned in these documents
 - (b) Particular specifications given hereinafter are in brief and are meant only to particularize, amend and emphasize the specifications given in MES schedule.
 - (c) Particular specifications given hereinafter shall be read in conjunction with the provisions in MES schedule Part-II 2020 and relevant IS referred therein and these particular specifications. In case of discrepancy the provisions of these particular specifications shall take precedence.
 - (d) Materials provided by the contractor for incorporation in the works shall comply with the requirements of relevant Indian Standards (IS) of latest edition i.e. edition current at the date of issue of tender documents. The contractor is advised to log on to BIS web site www.bis.org.in for getting information about the availability of ISI marked materials and their manufacturers. The contractor shall procure the ISI marked materials from the firms listed in the list of firms/makes mentioned in this CA. In case the same is not being manufactured by the firms listed in the CA, the contractor shall get the name of firm/manufacturer approved for which ISI marked products are available on BIS web site. In no case the material without ISI marked shall be incorporated in the work for which ISI marked materials are available in the market/BIS buyers' guide (list of licences). After logging on to www.bis.org.in, click on 'ON LINE INFORMATION' then click on 'List of licences' the click on list of licences (Buyer's guide)' then insert relevant IS No in the specified field and then click "Report" to get the details of manufacturers making ISI
 - (e) The unit rate quoted for a particular item shall be deemed to include for any minor details/items of work and /or constructions which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work as per standard engineering practice. Decision of the Accepting Officer as to whether any minor details of work and/or constructions is obviously and fairly intended to be included in the contract or not shall be final, conclusive and binding.
2. **MATERIALS**
 - 2.2.1. Materials, which are not specified to bear IS certification mark shall strictly conform to samples kept in GE's office or shall be superior to respective samples kept in GE's office.
 - 2.2.2. The tenderer is advised to inspect materials, which are displayed in the office of GE, before submitting his tender. The tenderer shall be deemed to have inspected the samples and satisfied himself as to the nature and quality of materials, he is required to incorporate in the work irrespective of whether he has actually inspected them or not. The materials to be incorporated in the work by the contractor shall conform to, or shall be superior in quality to sample displayed and shall comply with specifications given hereinafter.
 - 2.2.3 Materials and articles to be incorporated in works shall bear ISI marking unless otherwise specified. In exceptional cases where situation so warrants, materials without ISI marking may be incorporated after written approval of the accepting officer subject to followings :-
 - (a) The materials/articles must conform to ISI/BIS requirements.
 - (b) The change shall be subject to price minus adjustment.

PARTICULAR SPECIFICATION (Contd...../-)**3. SAMPLES AND MATERIALS**

3.1. Sample of materials shall be supplied by the contractor to GE for approval within 07 days of the date of issue of work order :-

(a) The sample shall be mounted in a wooden board of suitable size. This sample board shall bear the CA No & Name of contractor. This board shall be kept in GE's office and shall be retained by GE after completion of work. The contractor rate is deemed to include for this.

(b) The contractor shall ensure that the materials used in the work are identical with the approved samples. The materials shall be brought to the site by the contractor in the maker's original packing with the seal intact or with wrapper and shall not be installed unless approved by the Engineer-in-Charge.

(c) All materials to be incorporated in the work shall be of the highest standard and unless specifically specified otherwise hereinafter, shall strictly comply with the relevant Indian Standards for which IS has been issued.

3.2. The contractor shall not procure bulk materials unless the samples are got approved in writing from GE.

4 STACKING & COLLECTION OF MATERIALS:

4.1. Full quantity of materials commensurate for the progress of work such as stone aggregate required for the work shall be collected alongside of works in the advance of lying. Stacks shall be uniformly distributed along the road. The collection of materials shall be complete for the entire work or for a complete stretch as directed by the Engineer-in-Charge. Aggregate shall not be stacked unless they have been screened to gauge and free from all earth rubbish etc or any rejected materials. All the rejected materials shall be removed.

4.2. Any additional material required for making good hollows and depression during rolling shall be supplied by the contractor at his own cost.

4.3. The quantities collected shall be sufficient for the work as specified and in addition (at no extra cost to the Govt) shall include for any extra quantity required to make good any undulation in the existing surface of the roads, defective work etc.

4.4. The contractor or his authorized representative and Engineer-in-Charge shall jointly record the materials collected at site for incorporation in the work in the measurement books, as the stacks are required to be compact and on level ground measurement of stacks shall not be subject to any deductions.

5. SCOPE OF WORK

5.1 The work under this contract is shall be carried out all as described in schedule 'A' and as specified and broadly comprises of **"RENOVATION OF BLUE ROOM BAR ROOM DINING HALL IN OFFRS MESS OF MILIT AND PROVN OF ELECTRICAL WIRING AND FITTING AT MILIT OFFICER MESS AT MILIT GIRINAGAR, PUNE-25"**

5.2 The work shall be carried out at the places and to the extent as ordered/directed by the Engineer – in - Charge.

PARTICULAR SPECIFICATION (Contd...../-)**6. EXCAVATION & EARTH WORK**

- 6.1 Excavation and earth work shall be carried out all as per applicable clause under section 3 of MES, SSR Part II 2020.
- 6.2 Excavation and earth work involved for the work shall be carried out as specified in the Sch A'. Contractors are advised to inspect the sites and satisfy themselves about the actual site conditions, nature of soil etc., which shall be taken into consideration in their tendered rates.

- 7.0 **HARDCORE:** Hardcore shall be provided all as described in BOQ and as per clause 3.27 of SSR part I as applicable.

8.0 CONCRETE**8.1 MATERIALS****8.1.1 CEMENT**

- 8.1.1.1 **General:** Cement required for the work under the contract shall be procured, supplied and incorporated in the works by the contractor under his own arrangement. Cement shall be of tested quality and shall comply with the requirements mentioned in the drawings, SSR, IS specifications as amended and particular specifications given here-in-after.

- 8.1.1.2 Type of cement for the subject work shall be Ordinary Port land cement Grade 43 (Forty three) in accordance with IS 8112-1989 or Portland Pozzolana cement (PPC) as per IS 1489-1991 (subject to conditions mentioned here-in-after) at the option of contractor without any price adjustment. Only OPC shall be used in water retaining structures such as OH water tank, static water tank etc., unless otherwise mentioned in the tender documents. However one type of cement shall only be used in an individual building. In case of non-availability of OPC 43 graded cement, then OPC 53 cement grade shall allowed to be used without any price adjustment.

- 8.1.1.3 When the contractor opts for using PPC in the work, GE (I) can allow incorporation of PPC subject to following:-

- (a) GE (I) is required to ensure that PPC meets the strength criteria of 43 grade OPC as laid down in IS-8112:1989.
- (b) The minimum period before striking formwork given in clause 11.3.1 of IS 456-2000 is to be suitably modified at sites by the GE (I).
- (c) The contractor shall give an undertaking that he shall not claim anything extra what-so-ever on account of extra time for stripping form work etc while using PPC in lieu of OPC.
- (d) In cold climate regions where temperature is lower than 15 degree Celsius and important structures like Over Head Reservoirs, Under Ground Sumps, Prestigious Buildings and Buildings with spans 10m or more only OPC shall be used.
- (e) Mixing of OPC and PPC shall not be allowed in work except for plaster and mortar.
- (f) While procuring PPC, the following requirements are to be ensured and certificate to that effect shall be obtained for each batch from the manufacturers.
- (g) The quality of fly ash is strictly as per IS 1489 (Part-I) – 2002
- (h) Fly ash is inter-ground with clinker not mixed with clinker.
- (i) Dry fly ash is transported in closed containers and stored in soils.
- (j) Only pneumatic pumping has been used.
- (k) The fly ash received from thermal power plants using high temperature combustion above 10000 degree Celsius has been used.

PARTICULAR SPECIFICATION (Contd...../-)

8.1.2.1

SOURCES OF PROCUREMENT : Cement shall be procured by the contractor directly from any of the following main producers of cement:

APPROVED CEMENT MANUFACTURERS FOR MES WORKS ON PAN INDIA LEVEL

Sl. No.	Company Name	Address	Type of Cement	Valid upto
1	2	3	4	
1.	M/s The Associated Cement Companies Ltd. Brand : “ACC”	414-421, Splendor Forum (4 th floor),3, District Centre, Jasola, New Delhi-110044 Ph:011-46583600	All	-
2.	M/s Ultra Tech Cement Ltd. Brand : “ULTRATECH”	‘B’ Wing, 2 nd floor, Mahakali Caves Road, Andheri (East) Mumbai-400093 Ph:022-66917800	All	-
3.	M/s The India Cement	Dhun Building, 827 Anna Salai, Chennai – 600002	All	-
4.	M/s Dalmia Cement (Bharat) Ltd Brand : “DALMIA INFRA PRO”	Dalmiapuram Dist:Truchirappalli Tamilnadu – 621651	All	
5.	M/s Century Cements Brand : “CENTURY”	Industry House, 159 Church gate Reclamation, Mumbai-400020 Ph:022-22023936	All	
6.	M/s Saurashtra Cement Brand : “SAURASHTRA”	Gala No. A-1, Ground floor, Udhog Sadan No. 3, MIDC central Road, Andheri(East), Mumbai-400093 Ph:022-32955557/ 67, Mob:9320290081	All	-
7.	M/s The Ramco Cements Brand : “RAMCO”	Auras Corporate Centre, 98-A, Dr. Radhakrishnan Salai, Mylapore, Chennai-600 004 Ph: 044-28478666	All	
8.	M/s Mangalam Cement Ltd. Brand : “MANGALAM”	PO Adityanagar, Morak, Dist. Kota, Rajasthan-326520 Ph:9351468076	All	-
9.	M/s Birla Corporation Ltd. Brand : “BIRLA”	Birla Building (3 rd &4 th floor), 9/1, RN Mukherjee Road, Kolkata-700001 Ph:033-30573700	All	-
10.	M/s Orient Cement Brand : “BIRLA A1”	5-9-22/57/D, 2 nd and 3 rd Floor GP Birla Centre, Adarsh Nagar Hyderabad-500 063	All	-
11.	M/s Nuvoco Vistas Corporation Ltd Cement (Formerly Lafarge Cement) Brand : “NUVOCO”	Crescenzo, 1004 B-wing, 10 th floor, C-38/39,G Block, Bandra Kurla Complex, Bandra (East), Mumbai-400051	All	-

Contd...../-

PARTICULAR SPECIFICATION (Contd...../-)

12.	M/s Shree Cement Brand : “SHREE”	Bangur Nagar, Beawar, Dist. Ajmer, Rajasthan- 305901 Ph:01462- 228101-06	All	-
13.	M/s JK Cement Brand : “JK”	Kamla Tower Kanpur – 208001	All	-
14.	M/s JK Lakshmi Cement Ltd. Brand : “JK LAKSHMI”	Jaykaypuram, Dist. Sirohi, Rajasthan Ph:02971- 244409/10	All	-
15.	M/s Jaypee Rewa Cement Brand : “JAYPEE”	Jaypee Nagar, P.O. – Jaypee Nagar, Rewa – 486450 (MP)	All	-
16.	M/s Ambuja Cement Ltd Brand : “AMBUJA”	Kodinar, PO-Ambujanagar, Taluka-Kodinar, Dist. Junagadh, Gujarat-362715 Ph: 02795-237000	All	-
17.	M/s Shree Guru Kripa Cement (Pvt) Ltd. Brand : “SARTAJ”	4/4, Trikuta Nagar, Jammu Ph:0191- 2472043	OPC-43 PPC	05 Nov 2023
18.	M/s Parasakti Cements Ltd. Brand : “PRASAKTI CEMENT”	123/3RT, Plot#8-3-214/21, Srinivasa Nagar Colony (EAST), Hyderabad- 500038, Ph:040- 44119100/200 Fax:040- 23747561	OPC-43 PPC	25 Sep 2023
19.	M/s Chettinad Cement Corporation Ltd Brand: “CHETTINAD CEMENT”	4 th floor, Rani Seethai Hall Building, 603, Anna Salai Hall Chennai-600006 Ph:044- 42951800 Fax:044-28291558 email:info@chettinadcement.c om www.chettinadcement.com	OPC-43 PPC	30 Jan 2024
20.	M/s JSW Cement Ltd., A.P Brand: “JSW PSC (PORTLAND SLAG CEMENT”	JSW Centre, opp MIMRDA Ground Bandra Kurla Complex, Bandra (East) Mumbai-400051 Ph:022-42865047 Fax: 022- 26502001 www.iswcement.in	PSC	01 Apr 2024
21.	M/s Sanghi Industries Ltd Brand : “SANGHI”	10 th Floor, Kataria Arcade, Off. SG Highway, PO- Makarba, Dist: Ahmedabad, PIN-380051 Mob:09825803690 Ph:079-26838000, Fax:079- 26838111 www.sanghicement.com	OPC-53 OPC-43 PPC	18 Nov 2023
22.	M/s My Home Industries Ltd. Brand : “MAHA CEMENT”	9 th floor, Block-3, My Home Hub, Madhapur, Hyderabad-500081 Ph:040-66929696 Fax:040-66929797/98	OPC-43 PPC PSC	16 Jan 2024

PARTICULAR SPECIFICATION (Contd...../-)

23.	M/s Wonder Cements Ltd Brand : “Wonder Cement”	17, Old Fatehpura, Seva Mandir Road, Udaipur- 313004 Rajasthan(India) Ph: 0294-33991133 Fax:0294- 3006333	OPC-43 OPC-53 PPC	26 Nov 2023
24.	M/s Kesoram Industries Ltd Brand : “BIRLA SHAKTI”	M/s Kesoram Industries Ltd Unit 12 th 1201 of T 19 Towers Indira Nagar Ginwala Compound, M.G Road, Secunderabad, Hyderabad, Telangana - 500003 Tele - +91-40-4334-4555 Fax - +91-40-4334-4534, Website: www.kesocorp.co	OPC-43 OPC-53 PPC	27 Dec 2024
25.	M/s Penna Cement Industries Ltd Brand : “PENNA CEMENT”	M/s Penna Cement Industries Ltd Lakshami Niwas, Plot No 705, Road No 3, Banjara Hills, Hyderabad - 500034 Tele - 40 44565100 Mob - 7288897007 Email: Prakash.s@pennacement.com	OPC-43 OPC-53 PPC PSC	09 Jan 2024
26.	M/s Kalburgi Cement Pvt Ltd, Karnataka Brand : “BHARATHI CEMENT” & “VICAT”	M/s Kalburgi Cement Pvt Ltd 8-2-626, Reliance Majestic, Road No 10, Banjara Hills, Hyderabad - 500034 Mob - 077023019118 Ph - 040 30006999, Fax- 040 30006977 Email: obulareddy.c@vicat.com	OPC-43 OPC-53 PPC PSC	26 Jan 2024

8.1.2.2 The contractor shall furnish the particulars of the manufacturer/main producers of cement along with the date of manufacturer to the Asst 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 Asst Garrison Engineer shall verify the documents in support of the purchases of cement. Before placing the order for supply of cement by the contractor, he shall obtain written approval from the GE (I) regarding name of manufacturer, quantity of cement etc. Cement shall be procured for minimum requirement of one month and not exceeding the requirement of the same for more than two months at a time. The cement shall be consumed in the work within three months after receipt. Cement shall conform to the requirement of Indian Standard specification and each bag of cement shall bear relevant ISI mark. The weight of each consignment shall be verified by the AGE and recorded. The content of cement shall be checked at random to verify the actual weight of cement per bag. However, the content of cement per bag shall be 50 Kg only, subject to tolerance given in relevant clause and Annexure ‘B’ of IS - 8112 of 1989. When the total requirement of cement for the entire work is less than 1200 bags, the same can be procured from the authorized dealer of the above mentioned manufacturer with the approval of GE (I).

PARTICULAR SPECIFICATION (Contd...../-)

8.1.2.3 For each lot of cement brought by the contractor, before acceptance of the cement the following actions will be taken by the Engineer-in-Charge:-

- (a) Inspect the lot and verify the general conditions of the cement.
- (b) Obtain the vouchers (IN ORIGINAL) of the manufacture of cement for each lot containing the date of manufacturing, from the contractor.
- (c) Obtain from the contractor for each lot of cement the manufacturer's Test Certificate (IN ORIGINAL) along with Test Sheets giving the result of each physical test and chemical composition of cement or authenticated copy thereof duly signed by manufacturer. The Test Sheet should include the results of the following mandatory test :-
 - (i) Specific surface by Blains air Permeability method.
 - (ii) Soundness Test by Le" Chatlier method.
 - (iii) Initial setting time.
 - (iv) Final Setting time.
 - (v) Compressive strength test at 3, 7 & 28 days as specified in the relevant IS code.
 - (vi) The test report should also show the chemical properties of the cement as per relevant IS Codes.
 - (vii) Verify the documents listed at Clause Nos. 8.1.2.3 (b) & (c) above given by the contractor from the manufacturer.

8.1.3 TESTING OF CEMENT

8.1.3.1 The contractor shall submit the manufacturer's test certificate in original or attested true copy along with test sheets giving the results of each physical test as applicable in accordance with relevant IS provision and the chemical composition of cement or authenticated copy thereof duly signed by the manufacture with each consignment, as per the following IS provision :-

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

8.1.3.2 The test certificate and test sheet shall be furnished with each batch of manufacture. The Engineer-in-Charge shall record these details in cement acceptance register to be maintained by him which will be signed by Junior Engineer (Civil), Engineer-in-Charge, Garrison Engineer and the contractor as given in the format hereinafter for verification.

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

PARTICULAR SPECIFICATION (Contd...../-)**8.2 INDEPENDENT TESTING OF CEMENT**

8.2.1 The Engr-in-Charge shall carry out independent testing as per the tests mentioned in the 'CEMENT SUPPLY/ACCEPTANCE FORM' (Physical and Chemical requirement) of random samples of cement drawn from various lots. The testing shall be carried out through National test house, SEMT, CME, Regional Research Laboratories, Govt. approved Laboratories, Zonal Laboratories/ISI/ISO certified laboratories/Govt. Engg. Colleges/NIT's/IIT's at the discretion of contractor as per IS-3535 (method of sampling hydraulic cement), IS-4031 (method of physical test for hydraulic cement) and IS-4032 (Method of chemical analysis of hydraulic cement) referred to above. The decision as to where the testing of cement is to be done shall be taken by AGE. In case the cement is not of requisite standard despite manufacturer's test certificate, the contractor shall remove the total consignment from the site within 24 hours at his own cost after written rejection order of the consignment by the AGE. The cost of testing, transportation and of material used in testing etc. shall be borne by the contractor irrespective of the results of testing and no extra claim whatsoever shall be admissible.

8.3 SAMPLING FOR INDEPENDENT AND ADDITIONAL TESTS

8.3.1 Sample of cement from each lot should be collected by the Engineer-in-Charge in accordance with IS 3535-1986, for independent or additional tests. Minimum of 2% of the cement bags shall be tested. The cement shall be tested within 1-3 weeks on supply but before incorporation of the same in works. The cost of testing, transportation and of material used in testing etc. shall be borne by the contractor irrespective of the results of testing and no extra claim whatsoever shall be admissible. The record of such samples selected by the AGE for testing shall be properly maintained in the 'Cement Testing Register' giving cross reference to relevant consignment of cement and quantity received etc.

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

8.4 DOCUMENTATION

8.4.1 The following documents will be maintained by the Engineer-in- Charge for cement supplied by the contractor in addition to the documents specified here-in-before:-

- (a) Original vouchers of cement shall be kept in the concerned file of the contract in AGE's office, serially numbered on each page.
- (b) Original Test Certificate and Test Sheet should also be kept in the concerned file of the contract in the AGE's office duly numbered.
- (c) Cement Acceptance Register as per **Appendix 'A'**.
- (d) In/Out Register for Cement as per **Appendix 'B'**.
- (e) Register containing results of independent and additional testing by GE.
- (f) Register containing records of surprise checks and BOO.
- (h) Inspection Register.

8.4.2 The contractor shall submit original purchase vouchers 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 EIC alongwith the relevant documents to ensure the requirements as mentioned hereinbefore, before acceptance. The original purchase vouchers and the test certificates shall be verified for subject contract and defaced by the Engineer-in-Charge and kept on record in the office of the Garrison Engineer duly authenticated and with cross reference to the consignment/control number recorded in the Cement Acceptance Register. The cement acceptance register shall be signed by the Junior Engineer (Civil), Engineer- in-Charge, GE and the contractor.

PARTICULAR SPECIFICATION (Contd...../-)

8.4.3 The GE will personally check the documents concerned with cement periodically at least once in a month and record of these checks will be kept in the cement Acceptance Registers. The contractor shall maintain schedule of supply of cement for each consignment.

8.4.4 & 8.4.5 -BLANK-

8.6 STORAGE / ACCOUNTING / PRESERVATION OF CEMENT

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

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

(a) Each cement consignment shall be stacked separately and shall be issued to work on the basis of 'First come First go'.

(b) Adequate top cover will be provided

(c) Stacks in no case shall be higher than 12 bags. The maximum width of each stack shall be 3.00 m. If the stack is to be more than 7 or 8 bags high, the bags shall be arranged in header and stretcher fashion, i.e., alternatively lengthwise and crosswise so as to tie the piles together and avoid danger of toppling over.

(d) Adequate space shall be kept between two stacks

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

PARTICULAR SPECIFICATION (Contd...../-)

8.6.4 Cement shall be removed from the store only according to daily requirement with the knowledge of both parties and daily consumption of cement shall be recorded in cement consumption register which shall be signed by the Engineer-in-Charge and the contractor. For design mix concrete the cement constant shall be as mentioned here-in-after. For item not covered under Appendix 'C' the cement consumption for the same shall be worked out based on actual requirement at site through a Board convened for the purpose including a representative from the contractor. The design mix approved shall not be changed unless a fresh design mix is made due to change of source and quality of material.

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

8.7 SCHEDULE OF SUPPLY

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

8.8 MEASUREMENTS AND PAYMENT OF CEMENT

8.8.1 The entire quantity of cement shall also be suitably recorded in the Measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

8.9 RELEASE OF PAYMENT

8.9.1 The payment shall only be allowed after production of original purchase vouchers, certified copies of test certificates from manufacturer for each consignment and results of testing carried out in laboratory on receipt of cement (7 days compressive test) are found satisfactory after testing as specified hereinbefore and taking action on points enumerated in Para 8.1.3 here-in-before and completing the documents in this regard as mentioned in Para 8.4. Cement shall be paid as material lying at site as per Condition 64 of IAFW-2249.

8.10 ACCEPTANCE/REJECTION OF CEMENT

8.10.1 The contractor will keep a separate stack of cement brought at site for inspection, away from the accepted lot of cement. In case the new lot is rejected by the AGE/GE, it will be removed from the site within 24 hours, at the cost of the contractor. The cement may be rejected if it does not comply with any of the requirement as per relevant IS codes. The cement should be weighed and each bag shall be of nominal average net mass of 50 Kgs. The tolerance on weight of the cement shall be as per the relevant IS Codes.

PARTICULAR SPECIFICATIONS

1. CA No. & Name of Work :

Appendix 'A'
2. Control No.* : CEMENT SUPPLY & ACCEPTANCE REGISTER
3. Name of Manufacturer/Brand Name/Gde of Cement (A) Manufacturer _____(b) Brand _____(c) Grade _____
4. Qty of Cement & Lot No/Week No (in Bags) : (a) Qty _____(b) Lot No./Week No._____
5. Manufacturer's test Certificate No. _____
6. Random Test Details (a) Physical test report from _____vide their letter No. _____

(Name of approved Lab/Engg College)

(b) Chemical test report from _____vide their letter No. _____

(Name of approved Lab/Engg College)
7. Details of Physical & Chemical properties :

	Physical Requirements (As per IS 4031)										Chemical Requirements (As per IS 4032)							
	Specific surface 2 (M/Kg)	Soundness by Le Chatelier	Soundness by Auto Clave	Initial Setting Time(Minutes)	Final Setting Time(Minutes)	Compressive Strengths (Mpa)			Temp during testing 0 C	Standard Consistency(%)	Lime Saturation Factor (Ratio)	Aclumina iron Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride (%)	Loss on ignition (%)	Alkalis (%)	Chlorides (%)
						03 Days	07 Days	28 Days										
As per relevant IS																		
As per manufacturers test certificate																		
As per random test certificate																		

Remarks with signature

Accepted/ Rejected Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

Remarks of BOO/Inspecting Officer/GE

* To be allotted serially by GE Consignment wise

PARTICULAR SPECIFICATIONS (Contd..../)**Appendix 'B'****IN/OUT CEMENT REGISTER**

Sl No	Date	Cement IN		Cement OUT			Qty Balance (In Bags)	Signature		Remarks
		Qty (In Bags)	Contract No.	Qty (In Bags)	Reasons*	Age of cement		Contractor	AGE /GE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(k)	(l)

***NOTE:** The following reasons may be mentioned for taking out cement from store:-

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

9 **COARSE AGGREGATE** : Coarse aggregate for cement concrete shall be hand broken or machine crushed hard granite / black trap graded stone conforming to IS-383 obtained from approved quarries.

10 **FINE AGGREGATE (SAND)** : Fine aggregate for concrete shall be approved quality of Natural River Sand / crushed stone sand (stone dust shall not be permitted) and as specified in MES schedule. Fine aggregate shall conform to grading zone II or III of IS 383. The sand shall be washed with clean and fresh water if percentage of deleterious matter exceeds the limits of 5% specified in IS.

11 **FLY ASH BRICKS** : The clay fly ash bricks shall conform to IS : 13757 : 1993 : Specification for burnt clay fly ash building bricks. The bricks shall be sound, compact and uniform in shape and colour. Bricks shall have smooth rectangular faces with free lime and organic matter. The bricks shall be hand or machine moulded. The bricks shall have frog of 100 mm in length, 40 mm in width and 10 to 20 mm deep on one of its sides. If made by extrusion process, the bricks may not be provided with frogs. Fly ash shall conform to grade 1 or grade 2 of IS : 3812 : 1981 : Specification for fly ash for use as pozzolana and admixture (First Revision).

11.1 Unless otherwise specified all fly ash bricks masonry work shall be built in CM 1:6. Sand for mortar shall be Natural River sand/crushed stone sand as approved.

12. **BRICK WORK:**

12.1 Common burnt clay building sub class B bricks shall conform to the requirements laid down in IS 1077:1992 of size 230x115x75mm with tolerance +8%. Bricks may be hand or machine moulded and shall be made from suitable soil. They shall free from cracks, flows and nodules of free line bricks shall have physical characteristics as specified below:-

- (a) Water absorption -20% max.
- (b) Compressive strength: 75Kg/cm².
- (c) Efflorescence – Moderate upto class 12.5.

Brick work shall done with cement motor 1:6 and all as specified in SSR & as directed by Engr-in-charge.

12.2 Unless otherwise specified all bricks masonry work shall be built in CM 1:6. Sand for mortar shall be natural river sand/crushed stone sand as approved.

PARTICULAR SPECIFICATIONS (Contd..../)

13. to 14 BLANKS

15 **FORMWORK:** Form work should be carried out as per section 7 of SSR Part –I 2020.

16. **WOOD WORK AND JOINERY**

16.1 **TIMBER**

16.1.1 Timber for all woodwork shall be IInd class hard wood unless otherwise specifically mentioned.

16.1.2 Timber shall be well seasoned. Maximum permissible moisture content of timber for various purposes shall be as stipulated in clause 7.7 of MES Schedule Part I.

16.1.3 Timber for all joinery and wood work shall conform to specifications given in clause 7.3 of MES Schedule Part-I and shall be within the permissible limits of defects defined in clause 7.4 and 7.5 of MES Schedule Part-I. Species of timber shall be as under: -

(a) First class hardwood – Indian teakwood (Tectona Grandis)

(b) Second class hardwood – BENTEAK/BIJASAL/SALWOOD/KARIMARADU

16.1.4 **TOLERANCE**

16.1.4.1 Tolerance for the wrought faces of woodwork (carpenter's work) shall be allowed all as specified in MES Schedule.

16.2 **PRESERVATION OF TIMBER**

16.2.1 Preservation / Anti-termite treatment shall be carried out to all wood work and joinery fabricated by the contractor at site. Factory made plywood / Particle boards / block boards need not be treated with any chemical.

16.2.2 Chemical used for Anti-termite treatment to wood work and joinery shall be copper NAPTHENE or any other chemical specified in IS 401 – 1982 applied in any one of the manner specified in ibid IS

16.3 **JOINERY**

12.3.1 Timber for all joinery work shall be second class hard wood unless otherwise specifically mentioned.

16.3.2 Tolerance in the thickness of joinery shall be + 2 mm.

16.4 **SURFACE FINISH**

16.4.1 The surface of timber in contact with or buried in masonry / concrete / plaster shall be clean sawn. All other surfaces shall be wrought.

16.5. **FACTORY MADE SHUTTERS:**

16.5.1. Shutters of doors, windows and ventilators shall be any one of the following makes as approved by GE. Factory made shutters except panels shall conform to IS - 1003 [Part I & Part II]. The panelled and open rebated shutters shall be as detailed in BOQ and as approved and as directed by the GE. The door shutters shall be provided with 2 tenon joints. The panel insert for factory made panelled door shutters shall be 12mm thick veneered particle-board in one piece and shall conform IS - 3097. The particle board shall be bonded using phenol formal dehyde synthetic resin adhesive.

PARTICULAR SPECIFICATIONS (Contd..../)

- 16.5.2. Timber used for joinery shall be kiln seasoned and chemically pressure treated such as "ASCU" treatment or other approved treatment as specified in IS - 1003, Part - I for shutters as approved by the GE.
- 16.5.3. The samples of shutters shall be tested for identification of species, moisture content, chemical treatment and dimensions as per IS. Contractor shall provide all facilities for inspection of the materials at the factory by the Engineer-in-charge. Tolerance on width and height of the factory made shutters shall be +/- 3mm provided that the shutters properly fit in the frame. All factory made joinery incorporated in this contract shall be provided with an aluminium label of size not less than 50 X 25mm indicating thereon, C. A. No. and year in addition to the name of the contractor and the name of the manufacturer of the shutters. The location for fixing labels shall be as directed by the Engineer-in-Charge.
- 16.5.4. The species for factory made joinery shall be of Sal, Bija Sal [Venga], Laurel [Nalla Maddi] for frames [Chowkats] and Bija Sal [Venga] Haldu [Kamba] for shutters.
- 17 **GLAZED/SKELETON SHUTTER:** Glazed/skeleton shutter shall be provided as per clauses under 8.21 on page No. 160 & 161 of SSR Part –II 2020.
- 18 **PVC DOOR SHUTTERS:** 30 mm thick Factory Made Solid Panel PVC Door Shutter consisting of frame made out of MS tubes of 19 mm X 19mm for stiles, & 15mm X 15mm for top & bottom rails. MS frame shall be covered with 5mm thick heat moulded PVC sheet 'C' channel having a 5mm thick PVC sheet strip of 20 mm width stuck inside with solvent cement, forming stiles, and 5mm thick PVC sheets for top rail, lock rail & bottom rail on either side, and 10mm (5mm X 2) thick, 20mm wide cross PVC sheet as gap inset for top rail & bottom rail. Panelling of 5mm thick PVC sheet to be fitted in the MS frame welded/sealed to the stiles & rails with PVC sheet beading, and joined together with solvent cement adhesive etc. shall be complete as per direction of EIC, manufacturer's instructions and drawing. The width of stiles & rails shall be in proportion to the width of the door shutter.
- 18A. **FLUSH DOOR :** Flush door shutter shall be solid core types with particle board core, as indicated, and shall conform to IS 2202 (Part I)-1999, specification for wooden flush door shutters (solid core type) Part-I plywood face panels; except with regard to the sizes of shutters which shall be as indicated in drawings. Flush door shutters shall be non-decorative (commercial) type; or decorative type as specified. The thickness of shutter shall be 35mm unless otherwise indicated on drawing. Factory made shutters shall be approved / nominated from the any one of those in the list of makes specified in this tender as approved by the Accepting Officer. The factory made shutters of any description shall be brought to site without application of primer. The primer shall be applied only after the prior approval of the Accepting Officer.
19. **BUILDERS HARDWARE :** All items of builder's hardware shall be as specified in Sch 'A'. Anodizing for aluminum hardware shall not be less than 10 microns. All fittings shall bear ISI mark.
- 19.1 Hinges where indicated as MS hinges shall be cold rolled mild steel of medium weight quality (with mild steel Pin) as per clause 9.7.1 and 9.7.2 of MES Schedule Part I and shall be bright finished with smooth surface. Aluminum hinges shall conforming to IS-205 and as specified in clause 9.7.3 of MES Part-I

PARTICULAR SPECIFICATIONS (Contd..../)

- 19.2 Barrel tower bolt shall be as per MES Schedule Part-I. The dia of bolt shall be 12 mm for size 150 mm and above and 10mm for size up to 150 mm. Fixing shall be of all as directed by Engineer-in-Charge.
- 19.3 Aldrop bolts (i.e. sliding Door bolts) shall be as per section a MES Schedule Part-I and shall be sliding door bolts with hasp, staple and fixing clips of sheet.
- 19.4 Aluminum Handles shall be D-type, aluminum alloy fabricated handles with continuous plate and shall be as per clause 9.11 & 9.11.1 of MES schedule Part-I.

20 STAINLESS STEEL WIRE CLOTH

- 20.1 These shall be of 0.26mm nominal diameter stainless steel wire and average width of aperture shall be 1.40 unless otherwise when fixed in panels of door, window or opening shall be secured into the rebates of stiles and rails or frames and fixed with beads.

21 STEEL AND IRON WORK**21.1 GENERAL**

- 21.1.1 All steel required for the work under this contract shall be procured, supplied and incorporated in the works by the contractor under his own arrangements. The reinforcement steel as well as the structural steel like angles, I-sections, channels etc shall be of tested quality and shall comply with the requirement mentioned in the drawings, SSR and particular specifications here-in-after. The specifications mentioned in the tender documents shall be read in conjunction with the provisions laid down in SSR Part I Section 10 - Steel and Iron work. The contractor shall submit test certificate from the manufacturers.

21.2 TYPES OF STEEL

- 21.2.1 Steel supplied by the contractor shall conform to the following grades and quality:-

(a) STEEL FOR CONCRETE REINFORCEMENT

- (i) High strength deformed steel bars produced by Thermo Mechanical Treatment process (TMT) steel bars of grade **Fe 500 D** meeting all other requirements of IS-1786:1985.
- (ii) Mild steel bars shall conform to IS-432 (Part I) and grade I.
- (iii) Fabric Reinforcement for concrete shall conform to IS: 1566

21.2.2 STRUCTURAL STEEL

- (i) Definition of structural steel as given in Clause 10.4 of SSR Part I shall be applicable. Standard quality steel of grade E-250 (Fe -410 W quality A) conforming to IS: 2062 for all types of steel structures including those subject to dynamic loading shall be used.
- (ii) Ordinary quality structural steel wherever mentioned shall be conforming to IS-2062 of grade E-165 (Fe-290) and shall be used for doors, windows, guard bars, grills, steel gates, hand railing, fencing posts etc.
- (iii) Galvanised steel sheets (plain and corrugated) shall conform to IS -277. Grade of zinc coating to be used shall be the one which is given in Clause 10.29.1 of SSR Part I which is dependent on thickness of sheet. Minimum coating of zinc shall be 450 g/sqm.
- (iv) Steel tubes for structural purposes shall conform to IS-1161 and shall be of Grade YST-240.

PARTICULAR SPECIFICATIONS (Contd..../)**21.2.3 SOURCE OF PROCUREMENT**

21.2.3(c) **STRUCTURAL STEEL**: The contractor shall procure Structural steel sections directly from the following approved Structural steel manufacturers.

Sl.No.	Company Name	Address	Type of Steel
1	2	3	4
1.	Rashtriya Ispat Nigam Limited (RINL) Brand : "RINL"	Visakhapatnam Steel Plant, Visakhapatnam-530031 Ph:0891-518226,518376, Fax:0891-518316 email: cmdvsp@itpvis.ap.nic.in	Structural Steel(Angle, Beam, Column, Channel, Plate, etc)
2.	Tata Iron & Steel Company (TISCO or Tata Steel) Brand : "TATA"	Bombay House, 2,4 Homi Modi Street, Mumbai – 400001 Ph:022-2049131 Fax:022-2049522, 2870840 email:corpcomm@jsr.tatasteel.com (Br. Office for North: Jeevan Tara Building, Patel Chowk, New Delhi)	Structural Steel (Angle, Beam, Column, Channel, Plate, etc)
3.	Steel Authority of India Limited (SAIL) Brand : "SAIL"	Central Marketing Organisation, Northern region, 17 th floor, Scope Minar, Laxmi Nagar, Dist. Centre, Delhi – 110092	Structural Steel (Angle, Beam, Column, Channel, Plate, etc)
4.	M/s Jindal Steels and Power Ltd. Brand : "JINDAL"	Jindal centre, Plot No. 2, Sector-32, Gurgaon – 122001, Haryana Ph: 0124-6612000 Fax: 0124-6612125 www.jindalsteelpower.com	Structural Steel (Angle, Beam, Column, Channel, Plate, etc)

NOTES:-

(i) Contractor shall submit manufactures test certificate alongwith test sheet for the steel procured.

(ii) Steel sections for grills, gratings, railings etc which do not constitute structural members can be procured from above main/primary producers as approved by E-in-C's Branch/ BIS marked manufacturers or their authorized dealers at the option of the Contractor without any price adjustment. Tests will not be insisted upon for such steel sections.

(iii) Galvanised sheets and fabric reinforcement for concrete shall be procured directly from the above main/primary producers or other as approved by E-in-C's Branch/BIS marked manufacturers or their authorized dealers at the option of the Contractor without any price adjustment. Tests will not be insisted upon for such steel sections.

(iv) In no case TMT Steel bars of any size shall be procured from other than the above mentioned main producers / primary producers.

PARTICULAR SPECIFICATIONS (Contd..../)

21.2.3 (d) **STRUCTURAL STEEL:** The contractor shall procure Structural steel sections directly from SAIL/RINL/TISCO/JINDAL. In case non availability of structural steel with SAIL/RINL/TISCO the same can be procured from approved secondary producers given below with a reduction of 5% (five percent) of the accepted rates of structural steel with prior approval of the Accepting Officer. In case the desired section of structural steel is not rolled/manufactured by SAIL/RINL/TISCO/JINDAL, there shall be no price adjustment in case of structural steel procured from approved secondary producers given below:

1 M/s KL Steel Pvt. Ltd, Post Box No 61, Lalkuan, Bulandshahar Road Ghaziabad (UP) Tele : 0120-2867911, 2867915 Fax : 120-2867917	2. M/s SRMB Udyog Ltd. 46, BB Ganguli Street, Kolkata – 700 012 Tele : 22369999
3 M/s Shir Badrinarain Alloys & Steels Ltd. 95, Stephen House, 4 BB D Bag Kolkata – 700 001, Tele : 033-22205381/22481601 Fax : 033 22488664	4 M/S Shree Parashnath, Re Rolling Mills Ltd, 14C Maharshi Devendre Road 3 rd Floor, Kolkata – 700 007 Phon : 033-22740045/4475 Fax : 033 22740039
5 M/s Pushpak Steel Industries Pvt. Ltd, Gate No 119, Alandi Markal Road Dhanore, Tah Khed Pune Tele : 020-26444700, Fax - 070	6 M/s Tata Steel Structural, Tata Steel – tube Division, Jeevan Tara Building, 1 st Floor, 5 Sansad Marg, New Delhi Tele : 991112334, 264601734, 309983, 309986
7 M/s Amba Shakti Ispat Ltd, Plot No Phase-II Insustrial Area Kala Amb Dist, Sirmour, 173030 (H.P) Tele : 01734-309983, 309986 Fax- 1702-238927	8 M/s SKL Concast Pvt Ltd Z-18, Naraina, New Delhi

21.2.4 (e) Galvanized sheets and Fabric Reinforcement for concrete shall be procured directly from SAIL / RINL / TISCO or other BIS marked manufacturers at the option of contractor without any price adjustment.

21.3 All finished steel shall be well and clearly rolled to the dimensions, sections and weights specified. The finished material shall be reasonably free from cracks, surface flaws, laminations, rough jagged and imperfect edges and any other harmful defects and shall be finished in a proper manner. Tolerance on size and weight of reinforcement bars shall not be more than as specified in Clause 10.17.4 and 10.17.5 of SSR Part I and as specified in IS-1786 and IS-2062 and as per relevant IS codes.

21.3.1 Contractor shall submit to EIC the manufacturer's test certificate (IN ORIGINAL) alongwith the test sheet giving result of each mechanical test and the chemical composition of steel (as per IS 1786-1985) for reinforcement steel or authenticated copy thereof duly signed by manufacturer with each consignment. The documents such as original purchase vouchers and test certificates in support of the purchases of steel shall be produced by the contractor to the site staff & GE (I) for verification and record.

PARTICULAR SPECIFICATIONS (Contd..../)**21.4 APPROVAL OF STEEL BROUGHT BY THE CONTRACTOR**

Following action shall be taken by the EIC before incorporating steel procured by the contractor for the work :-

21.4.1 Physical verification of steel received to confirm the actual quantity of steel as well as to verify aspects brought out in foregoing.

21.4.2 EIC will obtain original machine numbered purchase vouchers of manufacturer from contractor.

21.4.3 Verify the documents listed in Ser (b) & foregoing submitted by the contractor from the manufacturer.

21.5.3.1 No consignment or part thereof will be allowed to be incorporated in the work until and unless the test results of independent testing are obtained and the consignment is passed by GE (I). Schedule of procurement will be prepared keeping in view the time lost for testing etc.

21.4.4 Three samples of pieces (3.00m long) of each section of each consignment will be retained at the project site till completion of the work. These samples will be suitably marked and properly preserved.

21.5 TESTING OF STEEL

21.5.1 (a) The manufacturers of steel are to carry out inspection and testing of steel in accordance with the relevant BIS provisions. The contractor shall submit manufacturer's test certificate in original or authenticated attested true copy by the manufacturers only along with the test sheet giving the result of each mechanical test as applicable in accordance with relevant IS provision and the chemical composition of the steel or authenticated copy with each consignment. The Engineer-in-Charge shall record these details in a steel acceptance register which will be signed by the Junior Engineer, Engineer-in-Charge, GE (I) and Contractor as given in the format as **Appendix 'E'** here-in-after, after due verification and Engineer-in-Charge shall send a certified true copy of test sheet to GE (I) for his records.

(b) Independent testing of steel / structural steel / GI Sheets and fabric reinforcement for concrete by the GE (I) shall be optional at the discretion of the GE (I) in case of procurement of steel from main producers and testing charges shall be borne in accordance with Condition 10A of IAFW 2249 i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the Contractor.

(c) Independent testing of steel / structural steel / GI sheets and fabric reinforcement by the GE (I) shall be mandatory in case of procurement of steel from secondary producers and testing charges shall be borne by the Contractor irrespective of the outcome of test results.

(d) For independent testing random samples of steel drawn from various lots and shall be got tested from a National Test House / SEMT CME / Regional Research Labs / Government approved Labs / Zonal Labs / Govt. Engg. Colleges / IIT / NIT / ISO certified labs or test houses etc as per the minimum frequency given below. Samples from each lot shall be also tested for quality and elongation. The elongation shall not be less than 18%.

(e) In all cases mentioned above contractor at his cost shall provide all facilities required for the testing. Cost of materials consumed in tests shall also be borne by contractor.

Contd...../-

PARTICULAR SPECIFICATIONS (Contd..../)

21.5.2 Ultimate tensile strength, elongation, bend and rebend test for reinforcement steel bars shall be carried out as per Clause 9 and test specimen shall be as per Clause 11 and delivery inspection shall be as per Clause 12 of IS-1786. Bend tests and tensile tests for structural steel shall be carried out as per IS-2062.

21.5.3 **FREQUENCY OF SAMPLING FOR INDEPENDENT TESTING (NORMAL MASS, TENSILE, BEND AND REBEND TEST OF STEEL)**

21.5.4 Frequency for nominal mass, tensile strength, bend and re-bend tests of steel for checking nominal mass, tensile strength, bend, re-bend test, test specimen at random shall be selected by the EIC at following frequency :-

21.5.4.1 **STEEL FOR CONCRETE REINFORCEMENT**

- (i) Bars size less than 10mm : Sample (3 specimens) for each test for every 25 tonnes or part thereof
- (ii) Bars size 10mm to 16mm : Sample (3 specimens) for each test for every 35 tonnes or part thereof
- (iii) Bars size over 16mm : Sample (3 specimens) for each test for every 45 tonnes or part thereof

21.5.4.2 **STRUCTURAL STEEL**

- (i) Tensile test : 1 test for every 25 tonnes of steel or part thereof.
- (ii) Bend test : 1 test for every 25 tonnes of steel or part thereof.

NOTE: For various tests, acceptance criteria, tolerance etc. refer to Appendix 'A' and relevant BIS codes.

21.5.4.3 The testing by EIC as per above frequency is mandatory before payment is released to the contractor in case of structural steel from secondary producers. The EIC may also increase the frequency and number of samples / tests for his satisfaction. The cost of these additional tests shall be governed as per condition 10 (A) of IAFW-2249. However cost of samples, transportation and other overheads shall be borne by the contractor irrespective of test results.

21.5.4.4 Test shall not be insisted upon for the steel required for guard bars, holdfasts, grills and such other allied items.

21.5.4.5 In case test results of testing pursuant to Clause **here-in-before** are not within the acceptable limits, then that consignment of steel shall stand rejected and contractor shall remove the same from site at his own cost. The rejected material shall not be incorporated in the work. The contractor shall have no claim on this account.

21.5.4.6 Cost of test samples as per frequency given in Clause **21.6.3** above shall be borne by the contractor irrespective of test results.

PARTICULAR SPECIFICATIONS (Contd..../)**21.6 DOCUMENTATION**

21.6.3.1 Original purchase vouchers from the manufacturer, and original or authenticated test certificates of the manufacturers for the total quantity of steel supplied under each consignment to be incorporated in the work shall be produced to the Engineer-in-Charge of the work by the contractor. All consignments received at the work site shall be inspected by the GE (I) alongwith the relevant documents before acceptance. The original vouchers and the test certificates shall be defaced and signed by the Engineer-in-Charge and kept on record in the office of the GE (I) duly authenticated and with cross reference to the control number recorded in the steel acceptance register. The steel acceptance register shall be signed by JE, Engineer-in-Charge, GE (I) and contractor. The entire quantity of all consignments shall also be suitably recorded in the measurements book for record purposes as 'NOT TO BE ABSTRACTED' before incorporation in the work and shall be signed by the Engineer-in-Charge and contractor. The following provisions shall also be complied :-

21.6.4 All original vouchers will be kept in a file serially numbered and to be kept in AGE office.

21.6.5 Test certificates of each steel consignment will be kept in a file, serially numbered and to kept in AGE office.

21.6.6 Steel Acceptance Register as per Appendix 'E' will be maintained by the AGE.

21.6.7 In/Out Register for details of receipt, acceptance/rejection and consumption of steel will be maintained as per Appendix 'D'.

21.6.8 Register containing results of independent and additional testing by AGE.

21.6.9 Inspection registers.

21.6.10 EIC will check the documents personally, connected with the steel, at least once in a month and record of this check will be kept in the Inspection Register.

21.7 STORAGE ACCEPTANCE/PRESERVATION OF STEEL : The steel procured by the contractor shall be stored in the site of work as directed by Engineer-in-Charge neatly in separate stacks at least 15 cm above GL for various grades/quality / sizes / consignments with distinct paint marks for identification. The steel so stacked shall be removed for incorporation in the work only in the presence of departmental representative. The quantity of steel for various sizes received at site and recommended for incorporation in the work shall be entered in a separate register and signed by the contractor and the Engineer-in-Charge daily.

21.7.1 Steel will be stored in a manner so as to prevent distortion and corrosion till it is consumed in the work. Any section that has deteriorated and corroded or if considered defective for any other reason, the same shall be removed from site by contractor at his cost.

21.7.2 The contractor will keep a separate stack of steel brought at site for inspection, away from the accepted stack of steel. In case, the consignment does not meet any of the requirements of the relevant IS codes, the steel will be rejected by the GE and it will be removed from the site within 24 hours at the cost of the contractor.

21.8 CONVERSION WEIGHT OF STEEL

21.8.1 The weight of steel shall be calculated as per the conversion factors specified in the SSR. For sections not listed in SSR, ISI conversion table shall be followed or manufacturer's certificate if the weights are not available in SSR/ISI tables.

Contd...../-

PARTICULAR SPECIFICATIONS (Contd..../)

21.8.2 Normal waste and off-cuts shall be stacked neatly which shall be the property of contractor. Contractor shall be allowed to remove such cut pieces after inspection and certification by the Engineer-in-Charge.

21.8.3 Advance on account of payment made towards these cut pieces shall be adjusted from advance on account of payment immediately falling due and before removal of such cut pieces from site.

21.9 BLANK

21.10 **PAYMENT IN RAR** : Payment of the steel brought by the contractor should only be released by the GE (I) after completing the documentation mentioned here-in-before in this regard. Before procurement of steel, contract and structural drawing shall be read thoroughly and various grades/types of steel to be incorporated in the work shall be identified by contractor and got approved by the GE (I). Steel shall be procured sufficiently in advance.

21.11 **SAFETY OF STEEL**

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

21.12 **SCHEDULE OF SUPPLY**

21.12.1 Contractor shall work out complete requirement of steel size wise and phase the same as per the activities planned to be executed in terms of CPM networking. The contractor shall procure all the steel sections in accordance with this CPM chart. Schedule of supply of steel will be finalized by EIC in consultation with contractor and same will be incorporated in CPM chart so that supply of steel is monitored in such a way to avoid any delay in completion of the work. The schedule of supply of steel will be vetted by GE (I) from time to time.

21.13 **WELDING**

21.13.1 Welding wherever shown on drawing shall be by metal arc process in accordance with IS 816 and IS 822 unless specifically indicated otherwise on drawings.

21.14 **BINDING WIRE**

21.14.1 Binding wire for reinforcement shall be mild steel wire annealed not less than 0.9mm dia.

Appendix 'D'

{Refer Clause No. 21.7.7}

SI No	Date	<u>Steel IN</u>			<u>Steel OUT</u>			Qty Balance
		Qty (Tons)	Section	Control No	Qty (Tons)	Section	Reasons*	

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

21.14.1.1 For testing purpose

21.14.1.2 For use in work

21.14.1.3 Rejected steel taken out of site

Contd...../-

PARTICULAR SPECIFICATIONS (Contd..../)

STEEL SUPPLY & ACCEPTANCE REGISTER

Appendix 'E' (Refer Clause No.21.7.6)

- 1 CA No & Name of work

2 Control No

3 Name of Manufacturer's T. C. No

4 Manufacturer

5 Random Test Details
- (a) Physical test report from-----vide their letter No
(Name of NABL approved Lab/ Govt. Engg Collage)

(b) Chemical test report from ----- vide their letter No
(Name of NABL approved Lab/ Govt. Engg Collage)

6. Types of Steel, Dia&Qty (a) Type : TMT/CRS (b) Dia----mm (c) Actual Wt ---- MT (d) Conversion Wt-----MT

	Chemical Test						Mechanical Test						Rem arks
	Carbon %	Sulphur %	Phosph- orous %	Sulphur + Manga- Phosphorus nese %	Silico n %	Corrosion Resistant Element (CRE)	Wt per meter	Yield Stress (N/mm²)	Tensile Strength (N/mm²)	Percent Elongation (Min 18%)	Bend Test	Reb end Test	
As per IS 1786-2008													
As per manufacturer's test certificate													
As per independent test													

Remarks with Signature

Accepted/Rejected

Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

Remarks of BOO/Inspecting Officer/GE

PARTICULAR SPECIFICATIONS (Contd...)**21.15 HOLD FASTS / LUGS**

21.15.1 Flat iron hold fasts / lugs shall be provided by welding as and where shown on drawings. Hold fasts / lugs shall be embedded in PCC (1:2:4) type B1 (using 20mm graded stone aggregate) bed blocks of size 230 x 200 x 75mm. Hold fasts/lugs shall be hot tarred and sanded before fixing in position

22. **PRESSED STEEL DOOR FRAMES :** Chowkats (frames) for doors, (except for PVC doors for which PVC frame shall be provided all as specified in Clause 12.1 hereinafter) windows and ventilator shall be pressed steel frames manufactured out of 1.25mm thick plain black sheet pressed to shape and profile all as shown on drawings and as specified in IS-4351. Hold fasts and butt hinges shall be filled with PCC (1:3:6) type C0 (12.5mm grade stone aggregate). Doorframes shall be taken up to 40mm below FFL in GF and upto floor slab in case and subsequent floors. Pressed steel frames shall be of makes as approved by GE and shall be obtained from any one of the manufacturer listed in manufacturers list.

23. ALUMINIUM SECTION FOR DOORS / WINDOWS / PARTITIONS

23.1 (a) Sized and type of aluminium sections given in IS 1948-1961 as manufactured by reputed firms shall be used. Chemical and mechanical properties of sections shall comply with requirements given in IS-733-1983, Specification for wrought aluminium and aluminium alloys bars, rods and sections, IS 737-1986, specification for wrought aluminium and aluminium alloys sheet and strip for general engineering purposes and IS 1285-2002, specification for wrought aluminium and aluminium alloys extruded round tube and hollow sections for general engineering purposes.

(b) Anodised aluminium sections and fittings shall be anodized to a minimum thickness of anodizing 25 microns and shall conform to IS 1868-1996, testing of anodizing coating shall be in accordance with IS : 5523-1983.

(c) Where powder coating is indicated in BOQ the same shall be 50 micron thick and colour shall be as indicated.

(d) Joining of sections, providing fittings, lugs, method of fixing etc shall be as per IS 1948-1961.

(e) Aluminium doors, windows, ventilators, partitions, composite units etc shall have matt, scratch-brush or polished finish as indicated.

(f) Glazing:- Glass panes shall be as indicated. Unless otherwise.

24. STAINLESS STEEL WIRE MESH:

24.1 Wire cloth shall comply with IS-1568, Specification for wire cloth for general purposes. Wire shall be of stainless steel and the dimensions shall be as indicated in BOQ. Wire cloth shall be regularly woven with a number of equally spaced parallel wires in both warp and weft directions to produce uniformly square meshes or openings. The wire cloth shall be properly selvaged by one or more wires in each edge. Steel wire cloth shall be of approved quality and of make as approved by the GE.

PARTICULAR SPECIFICATIONS (Contd...)

- 24.2 Stainless steel wire mesh shall be with 0.36 mm dia of wire and 1.4 mm width of aperture. The mesh shall be of grade A1 S1 316-L with MOLYBDENUM. The contractor shall submit manufacturer's test certificate and in the opinion of GE, he may carry out tests of selective random samples from approved laboratories and cost of such tests shall be borne by the contractor.
25. **GALVALUME SHEET** : Galvalume sheet shall be 0.50mm thick (base metal thickness), 550 Mpa minimum, yield strength. It shall be coated with hot dip alloy of 55% aluminium 43.5% Zinc 1.5% Silicon and finished with resin coat on both surfaces @ 150gm/sqm of coating (total both surfaces) having overall width and laid width as specified and shall be fixed using hot dip galvanized, self-drilling and self-tapping screws neoprene and EPDM washers. Penetrations and laps in sheet shall be sealed by using proper sealant profile. HDPE fillers shall be provided wherever required to close voids between sheets, sheet & fasteners, etc. Fixing system shall be as per manufacturer's instructions and shall be safe against effects of Wind velocity.
26. **FALSE CEILING** –The workmanship and fixing shall be all as specified in zonal specification clause No. 13 of CE R&D Secunderabad.
27. **PLYWOOD** : Plywood shall conform to the requirements of IS 373-1975, Specification for plywood for general purposes. Plywood shall be of grades BWP (boiling water proof) or BWR (boiling water resistant), as indicated. The quality requirement of each face of the plywood as given in Table 1 of the IS, shall not be inferior than type B. Along with the thickness of plywood, the number of plies shall also be indicated. Plywood boards shall be uniform thickness and free from warp and cracks. The faces of plywood boards shall be reasonably smooth with face veneers of uniform thickness. The edges of the boards shall be trimmed square.
28. **Granite/Green marble slab**: Polished machine cut granite/Green marble slab shall be 18-20mm thick and confirming to sample kept in GE's office and shall be provided over 15mm thick screed bed and all as directed by Engr-in-Charge
29. **CUDDAPAH STONE SLABS**: The cuddaph slabs shall be of selected quality, hard, sound, dense and homogeneous in texture, free from cracks, decay, weathering and flaws. They shall be hand or machine cut to the requisite thickness and they shall be of uniform colour. The slabs shall have the top and all exposed surfaces machine polished before being brought to site.
30. **GLAZED CERAMIC TILES** : Provide glazed ceramic/Vitrified tile grade first quality conforming to IS as applicable and updated over backing coat jointed and pointed in white cement mixed with colouring pigments of matching colour. The workmanship and laying of tiles shall be all as specified in CI No 13.40 of MES Schedule Part.
31. **NON SKID CERAMIC TILES** :. The tiles in floors shall be laid over cement mortar screed. The ceramic tiles shall be set, jointed and pointed with white cement to match the colour of tiles. The work shall be carried out all as specified in clause 13.40 of MES schedule Part I and/or as per manufacturer instructions.

PARTICULAR SPECIFICATIONS (Contd...)

- 32. VITRIFIED DOUBLE CHARGED TILES:** Vitrified polished floor tiles shall be of double charged 1st quality and as mentioned in schedule of finishes drawing. These vitrified tiles are classified under group B1 a of the International Standard for ceramic tiles ISO : 13006 / IS 13712. Tiles shall be hard, dense, impervious and frost resistant. Water absorption of tiles shall be less than 0.5% and flexural strength (Modulus of Rupture) shall be more than 35 N/sq.mm. Vitrified polished porcelain floor tiles shall be provided of sizes, colour, shades, texture and designs and indicated in drawing and as approved by GE and if size not indicated it shall be 600mm x 600mm / 605 x 605 mm. Tiles shall be laid as specified in SSR or as per manufacturers instructions.
- 33. PRECAST INTERLOCKING PAVER BLOCKS:** Precast interlocking paver blocks shall conform to IS - 15658, Specification for precast concrete blocks for paving. Paver blocks shall be sound and free from cracks or other visual defects. The tolerance on length or breadth of paver blocks shall be +2mm and tolerance on thickness of tiles shall be +3mm. Water absorption shall not be more than 6 percent by mass. Shapes shall be Triangular, Zigzag, Hexagonal or other shapes as indicated. Colour of paver blocks shall be as indicated or as decided by GE. The thickness of paver blocks shall be 60mm and grade of concrete shall be M-35. Make of blocks shall be as approved by GE.
- 34. PLASTERING**
- 34.1 General :** Surfaces to be plastered shall be prepared and well watered as specified MES Schedule. Curing of plaster shall be properly done by means of stirrups pumps or similar devices. The contractor shall take every precaution right from the commencement of the surface of plaster and shall be responsible to make good any portion of plaster work which in the opinion of the Engineer-in-Charge requires removal and redoing.
- 34.2 Sand :** Sand for all plaster and pointing work shall be fine crushed stone sand and shall conform to IS-453 as specified in various surface. Sand shall be procured from source as mentioned here in before in concrete work.
- 34.3 Cement Plaster :** Cement plaster shall be provided of thickness and proportion as described in Sch 'A' and shall be carried out as specified in Clause 14.16 of MES Sch Part-I.
- 34.4 Rounded Angle :** All internal and external angle of plaster shall be slightly rounded off, as directed by the Engineer-in-Charge.
- 35. GLAZING :** Glazing to doors / windows / ventilators shall be as shown on the relevant drawings. Unless otherwise specified or shown on drawings glazing to doors / windows / ventilators shall be 5mm thick and Glass used shall be plain float glass except in baths / WC / Toilets, where it shall be figured glass of thickness specified.
- 36. WHITE WASHING :** White wash shall be prepared and applied all as specified in clause 15.12.1 to 15.12.3, and 15.12.5 of MES Schedule Part – I. For white washing on ceiling, adequate quantity of zinc oxide shall be added to lime wash for achieving egg white shade. Skirting and dado are not to be white washed. Lime shall be ready mixed type and shall be procured from any of the reputed firms.

PARTICULAR SPECIFICATIONS (Contd...)

- 37 **Cement Base Paint;** Cement base paint shall be carried out as per clause 15.15.1 to 15.15.12 of SSR Part -II (2020)
- 38 **OIL BOUND DISTEMPERING** Where oil bound distemper as specified in Schedule 'A', apply two coats of oil bound distemper over a coat of primer. The tint of the paint shall be as directed by GE(I). Preparation of surfaces and application of distemper shall be done as specified in clause 15.13.1, 15.13.3 to 15.13.5 of MES Schedule Part-I.
- 39 **EXTERIOR WEATHER PROOF PAINT**
- 39.1 **GENERAL:** Unless samples of all materials are approved, the contractor will not be allowed to commence the work. Brushing for painting etc., shall be got approved by Engineer-in-Charge based on manufacturer's recommendations. No improvised brushes or substandard brushes shall be brought to site and used.
- 39.2 **MATERIALS** Paint shall be weather proof Acrylic emulsion, exterior grade (100%) acrylic) premium quality. Paint shall be any of the following make:-
- (a) APEX ULTIMA from Asian paints.
 - (b) Weather Coat Smooth from Berger paint.
 - (c) Weather Shield Max Exterior Acrylic from ICI Dulux.
 - (d) Outsmart from NITCO
- 39.2.1 Shade of the paint shall be as approved by GE.
- 39.2.2 Primer shall be water based acrylic suitable for exteriors as per manufacturer's instructions. Primer shall be of same make as of paint.
- 39.2.3 The paint and primer shall be brought in manufacturer's sealed containers only by the contractor duly marked with batch number from the manufacturer.
- 39.2.4 The contractor shall produce manufacturers test certificate along with purchase voucher in original for the paint and primer brought to site before claiming payment for the same. Purchase voucher of paint and primer shall contain the complete description of material, batch No., net weight, test certification No., quantity in each package, No. of packages etc., The quantity of material brought at site indicating No. of packages, quantity in each package, batch No., purchase voucher number, test certification number, date of manufacturing, date of expiry etc., shall be entered in MB as "Not to be Abstracted " and shall be signed by the JE, Engineer-in-Charge, GE and contractor.
- 39.2.5 Each container of paint and primer shall bear the following particulars:-
- (a) Manufacturer's trade mark.
 - (b) Reference to Indian Standard to which they comply.
 - (c) Name of product.
 - (d) Net weight.
 - (e) Date of manufacturing.
 - (f) Batch No.
 - (g) Storage requirement.
 - (h) Storage life.
 - (j) Date of expiry.
- 39.2.6 Each lot of paint and primer shall be checked by Engineer-in-Charge and approved by him after verifying from invoices, package, batch No. and test certificate. Materials shall be incorporated in the work only after written approval from Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (Contd...)**39.3. WORKMANSHIP**

39.3.1 All brushes, tools, pots, kettles etc., used in carrying out the work shall be free from foreign matter and shall be thoroughly cleaned with hot water and solutions at the end of a day's work or before use for a different type of material. No finish shall be executed until a sample of the finish to the required colour and shade has been approved by the GE. Where more than one finish is indicated, each coat shall be approved by the GE before the subsequent coat is applied.

39.3.2 The colour shall be even shade over the whole surface, if it is patchy or otherwise bad, the work shall be redone by the contractor at his own expense.

39.4. PREPARATION OF SURFACES

39.4.1 The surface shall be thoroughly cleaned of loose particles, dust, dirt, efflorescence, chalking, grease, mortar drops and other foreign matter. The surface shall be sand papered with grade I abrasive paper and dusted off to achieve an even and smooth surface free from all dust particles. The contractor will use electric blowers for this purpose. If surface so obtained is uneven, it shall be brought to a perfectly even surface by applying putty and allowing it to dry completely and then it shall be rubbed with the abrasive paper and dusted off and finally area cleaned by use of electric blower.

39.5 PRIMING COAT

39.5.1 After preparing the surface as approved by GE, one coat of exterior water based acrylic primer as approved by manufacturer, thinned with water in 1:1 ratio shall be applied with brush as per manufacturer's instructions and as directed by Engineer – in – Charge.

39.6. APPLICATION OF WEATHER PROOF PAINT

39.6.1 The acrylic emulsion weather proof paint shall be applied by brush or roller. No stainer or colorants shall be used. The paint shall be stirred well before use. The primer coat shall not be left without application of top coats for a long period time.

39.6.2 Two coats of 100% Acrylic emulsion weatherproof paint thinned with 400 ml water per litre of paint shall be applied. The drying period between two coats shall be minimum 4 hours or as per Manufacturer's instructions. The shade shall be as approved by GE. The finish of Acrylic emulsion weather paint shall be smooth matt finish.

39.6.3 The paint shall be as per Manufacturer's original colour as available or shade card. No mix of tint shall be made into original shade.

39.7 GUARANTEE

39.7.1 The work of applying primer and paint shall be got carried out under the supervision and guidance of accredited representative of the manufacturer. A certificate from their representative shall be obtained by the contractor to the effect that work of painting and primer has been carried out under their strict supervision and as per manufacturer's instructions. The same shall be submitted by the contractor to GE. The contractor shall also obtain a written guarantee for effectiveness of paint against fading out, peeling off, cracking, dust / algae accumulation etc for **7 (Seven) years** from the certified date of completion of entire work from the manufacturer and submit the same to GE before completion of work.

PARTICULAR SPECIFICATIONS (Contd...)

- 39.7.2 Should the GE at any time during construction or reconstruction or prior to the expiry of the Guarantee period, finds defective performance of the paint, the contractor shall, on demand in writing from the GE specifying the locations complained of, notwithstanding that the same may have been inadvertently passed / certified and paid for, undertake to carry out such treatment as may be necessary forthwith to rectify the defects to the full satisfaction of GE. In the event of his failure to do so, within the specified period to be specified by the GE in his demand aforesaid, the GE may undertake such defective work at the risk and expense of the contractor. The liability of the contractor under this condition shall not extend beyond the period of five years from the certified date of completion, unless the GE had previously given notice to the contractor to rectify the defects.
- 39.7.3 The amount of security deposit for Guarantee for Acrylic Emulsion painting shall be 2.5% on the amount of Acrylic Emulsion painting work at contract rates (subject to a minimum of 5000.00) shall be retained by the Government from the contractor's dues. If contractor fails to rectify the defects noticed in the treatment or found in the material the aforesaid amount so retained shall be utilized for rectification of defects and contractor shall have no claim whatsoever on this account. The contractor may submit Bank guarantee Bond or Fixed Deposit Receipt from any Nationalised Bank pledged in favour of GARRISON ENGINEER for the said sum valid for the period of 07 (Seven) years from the date of completion of work in which event no further amount will be recovered from the final bill on this account. Defect liability period under condition 46 under General Conditions of Contracts IAFW-2249 shall be deemed to be amended to the extent mentioned above for Acrylic emulsion paint.
- 39.8 **SCAFFOLDING**
- 39.8.1 The exterior painting work shall be carried out by using scaffolding. No zoola is permitted for the work under any circumstances. Suitable scaffolds shall be provided for workmen.
- 39.8.2 Scaffolding or staging more than 3.5 Metres above the ground or floor, swung or suspended from any overhead support or erected with stationary support shall have a guard rail properly attached, braced and otherwise secured at least 1 Metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
- 39.8.3 Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 Metre.
- 39.8.4 Safe means of access shall be provided to all working platforms and other working places.
- 39.8.5 The rates quoted are deemed to include the above provision of scaffolding and no extra will be payable to contractor on this account. The scaffoldings shall be removed only after obtaining clearance of Engineer-in-Charge / Garrison Engineer after considering the quality of the work undertaken on completion of the painting.

PARTICULAR SPECIFICATIONS (Contd...**39.9 SAFETY PRECAUTIONS**

39.9.1 Contractor shall provide all safety precautions for the labour engaged for this work. All the labours shall be provided with safety belts, helmets, Nose screens etc and the contractor shall adhere to all safety precautions as per Labour Welfare Act.

39.9.2 It is also advised, contractor to have insurance cover for his workmen working at heights against any eventuality from any reputed insurance agencies. Department will not be responsible for any untoward incident happening due to lack of safety precautions taken by contractor.

39.10. STAGE PASSING

39.10.1 The work shall be executed in a workman like manner and to the entire satisfaction of the GE. Contractor shall obtain the approval of GE stage wise as indicated below. The contractor shall give due notice in writing with sufficient time in advance to the Engineer-in-Charge and the GE, when each stage is about to be completed. The contractor shall start the work of subsequent stage only after obtaining written approval of the GE for previous stage. In default of such notice being received from the contractor, if he commences the work of subsequent stage without approval of the GE, then the GE shall have all the rights reserved to reject the work and ask the contractor to demolish the said portion executed. The contractor shall have no claim on this account or otherwise. The decision of the GE in this regard shall be final and binding.

39.11 STAGES

- (i) Extent of area to be painted.
- (ii) Sample of painting work (Area to be decided by GE)
- (iii) After preparation of surface and before applying priming coat.
- (iv) After applying priming coat.
- (v) After applying first coat of Acrylic emulsion paint.
- (vi) After applying second coat of Acrylic emulsion paint.

39.12 CLEANING

39.12.1 Before commencement of plastering / painting work all doors / windows / ventilators, Balcony railings etc shall be covered properly for protecting from the drips of paint / primer while painting, to the entire satisfaction of Engineer-in-Charge. Covering shall be done with tarpaulin or ply wood. After completion, the surrounding area, glass panes, flooring shall be cleaned and all the paint marks on it shall be removed.

39.12.2 Contractor's quoted rates shall be deemed included of the above said provision and nothing extra shall be admissible on this ground.

39.13 **GENERAL** : Surface imperfections such as holes, dents, cracks are to be filled only by using mixture of white cement and fine sand (in the ratio 1:3).

40 **FRENCH POLISHING** : French polishing shall be done as per clause 17.7.4, 17.7.4.1, 17.7.4.2, 17.7.4.3 & 17.7.4.4 of SSR Part-II (2020).

PARTICULAR SPECIFICATIONS (Contd...)

41. **PAINTING:** Painting shall be of quality as specified in relevant IS as per clause 17.2 of SSR Part-I and as described in relevant item of Schedule 'A' Workmanship and reparatory works shall be as per clause 17.6 of SSR Part- I as applicable for new works. Painting shall be with priming coat, under coat and one finishing coat unless mentioned otherwise. Primer for woodwork shall be pink primer and for steel shall be red oxide generally. Priming coat shall be redone at his own cost, if more than six months have lapsed before executing the under coat and after application of priming coat. The final finish of paint shall be glossy, suitable for internal/external use, as approved by the GE. Galvanized steel articles (sheet, pipes, etc and wire cloth and builders hardware) shall be left untreated. All paint shall be synthetic enamel paint and shall be obtained from any one of the approved manufacturers and shall be of first grade/first quality.
42. **SYNTHETIC ENAMEL PAINT :-**
(a) The synthetic enamel paint shall be of make as listed in list of makes of quality grade-I. The thinner shall be added if required. The paint shall be ready made paint brought in company packed scaled containers.

(b) The surfaces of wood and steel shall be cleaned as prepared to receive the paint as specified in clause No. 17.6.1, 17.,6.1.1, 17.6.1.2, 17.8.1 of SSR Part-I.

(c) The paint shall be applied by brush as specified in clause No. 17.5 to 17.5.4 of SSR Part-I. Generally painting work shall be carried out as specified in clause No.17.3 of SSR Part-I. Provide scaffolding wherever required as specified in clause No.15.11 of SSR Part-I.
43. **GI TUBING & FITTINGS:** GI tubing and fitting shall confirm to relevant IS. Tubing shall be medium grade. The permissible tolerance in weight shall be (+) 10 percent or (-) 8 percent. Pipes and fitting shall be clearly finished, well galvanised, in and out reasonably straight and shall be free from scale, cracks, surface flaws and other defects. Zinc coating shall be uniformly adherent, reasonably smooth & free from impurities such as flux, pimples, lumping etc.
44. **PTMT SANITARY FITTINGS :** PTMT (Polytetra Methylene Terephthalate) fittings shall be of colour as approved by the GE and weight of each fittings shall not be less than specified in sch 'A' fixed with steel screws to wooden plugs embedded in walls.
- 45 TO 50 BLANK
- 51 **SANITARY APPLIANCES FITTINGS AND FIXTURES**
- 51.1 All sanitary appliances & fittings shall be vitreous china, white, first quality conforming to IS 2556 and shall bear ISI mark. The sanitary appliances & fittings shall be procured from any one of the make as listed in manufacturer's list as approved by GE(I).
- 51.2 **WATER CLOSET PEDESTAL TYPE**
- 51.2.1 Provide pedestal type including 'P' or 'S' trap as directed.
- 51.2.2 The closet shall be fixed to the floor by means of 75mm long, 6.5 mm diameter counter sunk bolts embedded in concrete floor.

PARTICULAR SPECIFICATIONS (Contd...)**51.2.3 FIXING OF SEAT AND COVER**

The seat shall be fixed to the pan by means of two 8 mm diameter corrosion resistant hinge bolts with a minimum length of shank of 65 mm and threaded to within 15 mm of the head. Each bolt shall be provided with two suitably shaped washers of rubber or other similar material for adjusting to level of the seat while fixing it to the closet. In addition one 8 mm non-ferrous metal washer shall be provided with each bolt. One arm of the hinge in each bolt shall be fixed to the underside of the seat by three Nos. 20 mm long wood screws. The other arm of the hinge shall be fixed to the underside of the cover, flush with the surface by means of three Nos. 10mm long wood screws.

51.3 FLUSHING CISTERN

51.3.1 Flushing cistern shall be all as specified for water closet and shall be of the makes as listed herein after 10 litres discharge capacity low level flushing cistern made of hard durable plastic (HDPE/PP) finger touch operated bearing IS-7231 diaphragm bearing IS 13049 and valve float bearing IS 9762 model water bird of commander brand fixed with standard cast iron brackets, 32mm dia polythene flushing pipe of required length with suitable plastic coupling, nuts and other accessories all as specified in para as 18.32.2 18.35 and 18.36 of MES Sch Part I. Fixing shall be done as specified in para 18.87 of MES Sch part I.

51.4 **WASH HAND BASIN :** Provide wash hand basin of size and type as given in BOQ'. Wash basin of vitreous china ware flat back pattern white with waste union of brass chromium plated. Wash hand basin shall be vitreous china ware white conforming to IS 2556 (Part 4) – 2004 and as specified in clause 18.32.5 of MES Schedule.

51.5 **STAINLESS STEEL SINK WITH DRAIN BOARD:** The sink shall conform to IS - 13983. It shall be manufactured from Austenitic stainless steel of grade designation X04Cr19Ni9 [Numerical Symbol 304] or X07Cr18Ni9 [Numerical symbol 302] conforming to IS - 5522. Nominal thickness of stainless steel sheet used in the construction of sink shall be not less than 1.0mm. The sink shall be of type C. All other specification shall be all as specified in clause No.18.100.2 to 18.100.10 of MES Schedule Part - I.

51.6 **BIB TAPS AND STOP VALVES :** They shall be screw down type and shall conform to IS-781 and ISI marked as given in Sch 'A'. Spindles, glands, crutches etc. shall be of extruded brass.

51.7 **GUN METAL GATE VALVE / GLOBE VALVE:** Gun metal globe valve/gate valve shall conform to IS - 778. Gun metal gate valve shall be all as specified in MES Schedule Part - I, Section 18 and fixing shall conform to clause No. 18.62 of MES Schedule Part - I.

51.8 **MIRROR:** Mirror shall be of size as indicated in BOQ. It shall be with approved selected quality sheet glass duly silver plated uniformly on the back edge 5.5 mm thick and plywood backing 3 ply 6 mm thick conforming to IS-303-1975 of General purpose and shall be of BWR grade with type 'B' face on the both ends. The plywood shall be given a coat of zinc chrome primer.

51.9 **SHOWER ROSE :** Shower rose shall be of brass chromium plated swivel type 100 mm dia rim suitable for 20 mm bore inlet with swivel joint and including chromium plated 300mm arm. The make of shower rose shall be as approved by the GE.

PARTICULAR SPECIFICATIONS (Contd...)**52 PVC SOIL, WASTE AND RAINWATER (SWR) DRAINAGE PIPES**

52.1 PVC (SWR) pipes shall conform to IS 13592-1992 as under :
Type 'A' Pipe : For use in ventilation pipe work and rain water application.
Type 'B' Pipe : For use in soil and waste discharge system.
The size of pipes shall be indicated.

52.1.2 Rubber rings for pipes and fittings shall conform to IS 5382-1985.

52.1.3 UPVC (SWR) fittings shall be used as per recommendations of the manufacturer of the pipes. In case there is no IS code for the fittings, these shall generally conform to the requirements of BS 4515 DIN 19531 and DIN 19534

52.1.4 CPVC PIPES AND FITTINGS:-

CPVC Tube and fittings shall be all as specified in Schedule A conforming to IS 15778 and ISI Marked.

53 **WATER STORAGE TANKS** PVC water tanks shall be "Rotational moulded polyethylene water storage tanks" as per IS - 12701. The tanks shall be ISI marked and shall be of triple layered. Hoisting and fixing in position connecting up pipes etc shall be executed as per manufacturer's instructions

54 **RCC PIPES**: Reinforced cement concrete pipes for drains and culverts shall be non-pressure type, class NP2, as indicated; and shall conform to IS 458-1971, Specification for concrete pipes with or without reinforcement. The ends of concrete pipes shall be suitable for butt end joints. The butt ends shall be prepared for collar joint with grooves. Concrete pipes shall be straight and free from cracks except craze cracks. The outside and inside surfaces of pipes shall be smooth, dense and hard and shall not be coated with cement wash or other preparation. Laying and jointing of pipes shall be carried out all as described in clauses 18.74.1 to 18.74.5 of MES Schedule Part - I.

55 INTERNAL ELECTRIFICATION

55.1 **SCOPE OF WORK**: The work included in this schedule comprises of internal electrification complete including testing and as specified in Schedule 'A'. The layout of conductors/cable route shall be as directed by the Engineer-in-Charge.

55.2 **GENERAL**: (a) This installation shall strictly comply with the provisions contained in the latest edition of the Indian Electricity Rules and amended IS-732-1989. Code of practice for Electrical wiring and fittings in buildings as applicable to these works except where such regulation and rule are modified by these specifications.

(b) All electrical work shall be executed properly by skilled licensed electricians (minimum ITI holder) under the supervision of suitable qualified electrical supervisors. The contractor on demand by Engineer-in-Charge shall produce such evidence of qualification of his workmen, supervisors(s) either at the time of commencement of the work or at any time thereafter during the contract period.

(c) The position of various electrical fittings and fixtures shown on the drawings may be changed by the Engineer-in-Charge at the time of execution if found necessary.

PARTICULAR SPECIFICATIONS (Contd...)

(d) The run of conduits shall be marked on the walls and soffits of roof floors slabs for the wiring. Approval of the Engineer-in-Charge shall be obtained in writing before starting the works.

(e) Looping back system of wiring shall invariably be used throughout the installation

(f) All electrical fittings and wirings shall be clear of door, windows and other openings.

(g) The main switches and controls should have the voltage of supply clearly painted on them.

(h) The phase indication (RYB) should be provided at the main incoming switches and controls.

(j) The name of functions of each distribution board shall be clearly and neatly painted on the distribution boards.

(k) Colour code system for internal electrification of conduit wiring shall be followed as per IS for phase neutral and earthing. For phase RYB cable colour shall be red, yellow and blue respectively. For neutral and earthing cable shall be of black and green colour.

55.3 **MATERIALS AND SAMPLE BOARD** All materials unless otherwise specified shall possess ISI mark or conform to relevant IS specifications or to BSS if ISS is not available. Approval of AGE(I) referred to in clause 19.2.1 and 19.2.2 of MES Schedule Part - I shall be in writing. Approved samples shall be labeled as such and signed both by the contractor and the Engineer-in-Charge. They shall remain in the custody of Engineer-in-Charge, till final completion of work.

55.3.2 The contractor is deemed to have included in rates, cost of making holes/chases where required through masonry or concrete work for taking in cables/conduits and conductors etc and making good the same to match with existing work under Schedule 'A' .

55.4 **TYPE OF ELECTRIC SUPPLY:** Type of electric supply will be AC-415 volts, 3 phase and 240 volts single phase at 50 cycles.

55.5 **SCREWS, NAILS ETC:** All screws, nails used in the electrical works shall be of brass, unless otherwise specified. Laminated sheet cover for pressed steel boxes shall be fixed with cadmium plated iron screws.

55.6 **CABLES:** All cables to be used in this work shall be indigenous make with ISI mark conforming to IS-694 including amendments if any for PVC insulated and unsheathed copper conductor cables.

55.7 **LIGHT FITTINGS:** Light fittings shall be of approved make with ISI mark and shall conform to the description given in Schedule 'A'. The rates quoted shall be deemed to include for fixing the fittings and connecting up complete with necessary connectors, cables etc, all as directed by Engineer-in-Charge. The make shall be any one of the make as specified here-in-after. The make shall be got approved from AGE.

55.7.1 Particular attention is drawn to the neatness in appearance which is to be achieved by judicious location of light fittings, switches socket outlets and main controls etc. Due regard shall be given to door, window, opening etc. in fixing the run of cables, position of fittings, control switches etc. The location of fittings etc. shall be marked in advance on walls etc. as approved by AGE.

Contd...../-

PARTICULAR SPECIFICATIONS (Contd...)

- 55.8 **SWITCH SOCKET OUTLET:** Switch socket outlet shall be as specified in Schedule and of approved best indigenous make and provided with piano type control switch and shall be ISI marked.
- 55.9 **SOCKET OUTLET:** Socket outlet shall be of approved best indigenous make and shall bear ISI mark. The socket outlet shall be as specified in Clause 19.40 of MES Schedule Part – I. The number of outlets and capacity shall be as specified in Schedule 'A'. Unless otherwise specified the socket outlets shall be of surface flush and non-shuttered type.
- 55.10 **PVC CONNECTION :** These shall be of best indigenous make conforming to relevant IS suitable for AC single phase 230 volts 5 amps and shall be as approved by the AGE(I) before incorporation in the work. The terminal of grub screws shall be of cadmium plated and shall be concealed.
- 55.11 **SWITCH BOXES:** Pressed steel switch boxes for housing regulators, switches etc. shall be made of 1.6mm thick. The size shall be sufficient to house all the equipment with proper clearance if not specified in the description of respective item in Schedule 'A'. The box shall be coated with two coats of red oxide zinc chrome. It shall be embedded in the walls with cement mortar (1:2) so that the cover is flush with the finished wall surfaces.
- 55.12 **MAIN SWITCH BOARD:** Main switch board distribution board shall be sheet metal construction all as specified in schedule.
- 55.13 **DISTRIBUTION BOARD AND MCBs:** Provide distribution board and MCBs as indicated in Schedule 'A'. Miniature circuit breaker shall comply to the requirement of IS-8828-1996. The MCBs shall have rupturing capacity of 10 KA. The terminals of MCBs should be brought out sufficiently to connect cable lugs directly. No adopter should be used for terminating the cables. The MCBs should have quick-break-trip free mechanism to ensure that contact cannot be closed against persistent fault. Bus bars shall be electroplating copper tin plated and rated 200 Amps. Exposed faces of sheet steel enclosures shall be painted with epoxy polyester powder coating at factory. Neutral has same number of outgoing holds as the number of MCBs. Unit rate in Schedule 'A' shall also be deemed to include for all internal connections in the distribution board and bus bar system is completely insulated and fitted in PVC channel to avoid accidental toner, bus bar available in single phase and 3 phase shall be colour coated suitable for both flush and surface mounting.
- 55.14 **END TERMINATION:** All cable termination for internal electrification for various switches, light fittings, MCBs, MCCBs junction boxes, connectors etc shall be provided with suitable crimped legs/studs/sleeves as required to avoid any possibility of loose connections and sparking.
- 55.15 **CONDUIT, CONDUIT ACCESSORIES AND CONDUIT WIRING :** Non-metallic PVC rigid conduit shall conform to IS-9537 (Part-III) medium grade and bear ISI mark. The dia of conduit shall be as specified in clause 19.125 of MES Schedule Part - I. Conduit and conduit accessories shall conform to type of conduit and as specified in Clause No. 19.29 of MES Schedule Part – I.
- 55.16 **MS PRESSED STEEL TERMINAL BOXES :** Mild steel pressed terminal boxes shall be made out of 1.6mm thick MS sheet of suitable size. The boxes shall be embedded in the walls with cement mortar (1:2). Clear depth of the box shall not be less than 60mm and this shall be increased suitably to accommodate mounting of fan regulators. The box shall be painted with one coat of red oxide primer.

PARTICULAR SPECIFICATIONS (Contd...)

- 55.17 **LAMINATED SHEET** : Laminated sheet shall be 3mm thick fixed in MS pressed steel terminal boxes by using cadmium plated iron screws. Make of laminated sheet shall be 'HYLAM' or equivalent.
- 55.18 **POINT WIRING / SUB MAIN WIRING** Cable and earthing lead for internal wiring, sub main wiring shall be as specified in Schedule 'A'. Cables and cords shall be from fresh stocks and shall be of approved make. The capacity of current per circuit shall be as specified in Clause No. 19.24.2 of MES Schedule Part – II.
- 55.18.1 Cable for internal wiring work shall be as specified in Schedule 'A'. Unless otherwise specified the cable shall be copper conductors and as specified in clause No. 19.25 of MES Schedule Part – I.
- 55.18.1 Ceiling rose shall conform to IS 371 of 1979. No of terminal plates shall be as specified in Schedule. Ceiling rose shall be surface type and provided as specified in Clause No. 19.32 of SSR Part –II.
- 55.19 **ELECTRICAL TEST:** On completion of wiring, the whole installation will be tested in accordance with IS-732, clause 8 (a) (b) & (c) and test certificate as per Appendix 'B' of the above IS rendered duly signed by the contractor and Engineer-in-Charge. If the test results are not acceptable, all repairs and replacement and extra work of removal and relaying or refixing shall be carried out by the contractor at his own expense and installation retested, until test result indicate compliance with the pre scribed requirement. The contractor shall supply all necessary apparatus, lab and instruments or equipments required for testing. The quoted rates shall be deemed to include for the above provision. In the event of Contractor's failure to comply with the GE(I)'s directions within the stipulated period, the work shall be carried out at the risk and cost of the contractor.
56. **EARTHING:** (a) Earthing shall be all as per ISS, IEE regulations and electrical plate No.3 in SSR Part-II. The contractor shall obtain the approval of GE for layout of earthing before the commencement of work and it shall be executed in the presence of an appropriate MES representative.
- (b) The earth plate shall be GI of size 600 x 600 x 6.0 mm thick placed vertically with its top not less than 1.5 below the ground level and shall be surrounded with charcoal dust to packed thickness of 30mm round the plate i.e. below, above in outwards on all sides. GI strip/GI wire capable of withstanding mechanical and electrical stresses revetted/soldered with GI earth electrode shall be measured and paid separately.
- (c) The charcoal dust and return filling shall be done in layers not exceeding 150mm thick and shall be properly watered and rammed. Surplus soil shall be disposed off and site left clear and tidy on completion.
- (d) All earth electrodes shall be tested for earth resistance by means of standard earth megger. The tests shall take place in months preferably after a protected dry spell.
- (e) The resistance of earth shall not exceed one Ohm. In case resistance of earth exceeds one Ohm due to soil conditions then the earthing shall be carried out through another method as per IS-3043 and cost variation adjusted through deviation order. The decision regarding this will be given by the GE which shall be final and binding.
- (f) Earth mat shall be provided to ensure absolute protection to the men working at places where isolators and switches are to be operated manually.

PARTICULAR SPECIFICATIONS (Contd...)

(g) All the electrical installation shall be tested by the contractor in presence of Engineer-in-charge as specified in MES Schedule Part-I. Test results shall be recorded duly signed by the contractor and Engineer-in-charge of the following:-

(i) Earth test (ii) Continuity test (iii) Insulating resistance test.

(h) The installation shall be taken over only when the Engineer-in-charge has ensured that the installation has been certified as per laid down rules of the Indian Electricity Act and IE rules.

57. SPLIT TYPE AIR CONDITIONER:

57.1 The split type air conditioner shall conform to IS 1391 Part (I & II) 1992, suitable for operation of 230 volts +10% single phase AC supply. The unit shall be capable of cooling, dehumidifying, air circulation, ventilation and filtering in the sizes of nominal cooling capacities provided with environment friendly refrigerant. The cabinet shall be made out of GI sheet powder coated anticorrosive pre-treatment comprising of degreasing, phosphating and passivation. The unit shall be fitted with energy efficient rotary of reciprocating compressor. The air conditioners shall be provided with Bureau of Energy Efficiency (BE Star rating) ratings.

57.2 The indoor unit i.e fan coil unit shall be fitted with bacteriological filters, remote operation sensors and suitable drainage arrangement for dehumidified water in fan coil unit. The connection piping between outdoor and indoor unit shall conform to relevant IS. The wiring between indoor and outdoor unit shall be with copper stranded conductor of adequate size.

58. **DEMOLITION AND DISMANTLING/TAKING** : Demolition/Dismantling/Taking down work necessitated to undertake the work under this contract shall be carried out with at most care & without any disturbance to the adjoining structure. Any damage caused to the structure/adjacent structure during dismantling/demolition due to carelessness & negligence of contractor shall be made good at his own expenses. Concrete debris & other materials retrieved shall be removed from the site of work as directed by Engineer-in-Charge and site shall be kept clean and tidy. All precautions prior to & during dismantling/demolition shall be taken all as specified in Sec 21 of MES Schedule 2009 Part I

59. **LIST OF MANUFACTURERS** : (a) Makes of various items shall be as indicated below unless otherwise specifically mentioned in Schedule 'A' or Particular specifications or drawings. In case different makes are specified in Schedule 'A' / Particular specifications / drawings than those given below, provisions of Schedule 'A' / Particular specifications / drawings shall take precedence over makes given below.

(b) Items for which ISI/BIS is available - ISI/BIS marked products shall only be used.

(c) Where model No. / catalogue no. of a particular brand is specified in Schedule 'A' / Particular specifications alongwith other makes but without their model No. / catalogue no., techno-commercially equivalence shall be decided by AGE (I) whose decision shall be final and binding.

PARTICULAR SPECIFICATIONS (Contd...)

SI No	Item	Make/Brand Name
1	2	3
1.	ALUMINIUM SECTION	JINDAL / HINDALCO / ASSOCIATED GROUP (ELESAR FOCCI-NIVRAV COMMERCIALS LTD) / MAAN ALUMINIUM / CENTURY EXTRUSIONS LTD / BANCO ALUMINIUM LTD / STERLITE / AJIT INDIA
2.	GLASS	SAINT GOBAIN/MODIGUARD/ATUL GLASS INDUSTRIES
3.	LOOKING MIRROR	MODI GUARD / ATUL/ASAHI (AIS) GLASS/SAINT GOBAIN /KOHINOOR/SWASTIK
4.	GLAZED CERAMIC TILES / NON-SKID CERAMIC TILES/ MATT FINISH CERAMIC TILES/VITRIFIED TILES	JOHNSON TILES / SOMANY / KAJARIA / NITCO / AGL TILES
5.	TILE ADHEHIVE/ TILE GROUT	BAL ENDURA / FEVIMATE/ FAIRMATE/ LATICRETE/ FOSROC / PIDILITE/ STP LTD
6.	HEAVY DUTY TILES	NITCO/ DECO/ CLASSIC/ DURACRETE/ ULTRA
7.	CP / COPPER / BRASS ALLOY PILLAR TAP/ BIB TAP / WALL MIXER / SHOWER / DIVERTERS / WASTE COUPLING / BOTTLE TRAP / HEALTH FAUCER / ANGLE COCK / CONCEALED STOP COCK / STOP COCK/ SOAP DISPENSER AND OTHER RELATED ACCESSORIES	HINDWARE / MARC / JOHNSON / SIEKO / JAQUAR
8.	TOWEL RAILS/BRACKETS AND TOILET PAPER HOLDER	CERA/PARRYWARE/JAQUAR/HINDWARE/JOHNSON /KOHLER/
9.	SANITARY FITTINGS	NEYCER KERMAG (Standard) / HINDUSTAN SANITARY WARE INDUSTRIES (1st quality) / PARRY-WARE (Super fine) / CERA (1st quality)
10.	SEAT AND COVER FOR WC AND PVC LOW LEVEL FLUSHING CISTERN	WATER BIRD OF COMMANDER BRAND / SLIM LINE / NEYCER / HINDUSTAN SANITARYWARE / JHONSON / JAQUAR
11.	TOWER RAILS (SS / CP)	ESS & ESS / JAQUAR / HINDWARE / MARC / DIAMOND / JINDAL
12.	LOW DENSITY / HIGH DENSITY POLYETHYLENE PIPES & FITTINGS	FINOLEX /PRINCE / SUPREME / JAIN IRRIGATION SYSTEM
13.	UPVC (SWR) PIPES	PRINCE / SUPREME / FINOLEX / KISAN / SFMC
14.	HDPE PIPES AND FITTINGS	FINOLEX/PRINCE/SUPREME/JAIN IRRIGATION SYS
15.	CPVC PIPES AND FITTINGS	FINOLEX/DUTRON/SFMC/ASTRAL/PRAYAG POLYMERS/SENTINI FLO PIPES
16.	GI TUBING	TATA / ZENITH / JINDAL / SWASTIK / BST
17.	GI FIXTURES	HB / R-BRAND / JINDAL / ARK / M-BRAND / BELL
18.	SYNTHETIC ENAMEL PAINT 1ST QUALITY	APCOLITE (ASIAN) / BROLAC (J& N) / LUXOL HI GLOSS (BERGER) / SUPERLAC HI GLOSS (SHALIMAR)
19.	LIME	(i) SURYACEM (ii) LOVELYCEM (ALL ARE 1 st QUALITY)

PARTICULAR SPECIFICATIONS (Contd...)

20.	PLASTIC EMULSION PAINT	ASIAN PAINTS / BERGER / NEROLAC / SHALIMAR / JENSON & NICHOLSON
21.	EXTERIOR EMULSION PAINT (WEATHER PROOF PAINT)	APEX ULTIMA from ASIAN PAINTS/ WEATHER COAT SMOOTH from BERGER PAINTS / XTRA from SHALIMAR PAINTS / EXCEL EXTERIOR EMULSION by GOODLASS NEROLAC
22.	CEMENT BASE PAINT	SUPER SNOWSEM/DURACEM/AQUACEM/SHALIMAR/BERGER/ASIAN PAINTS/ACCROCEM/JENSON & NICOLSON
23.	PRIMER FOR WOOD / STEEL	JENSON NICHOLSON / ASIAN / SHALIMAR / BERGER LUXOL
24.	WALL CARE PUTTY	BIRLA WALL CARE / JK WALL PUTTY / TRUECARE WALL PUTTY from ASIAN PAINTS
25.	PLY WOOD ANY TYPE / PARTICLE BOARD / BLOCK BOARD	CENTURY / GREENLAM / ECOBOARD / KITPLY / BHUTAN BOARD
26.	PRE-LAMINATED PARTICLE BOARD / MDF BOARD	GREENLAM / ECOBOARD / KITPLY / CENTURY
27.	LAMINATED SHEET	SUNGLOSS / FORMICA / SUNMICA / GREENLAM/CENTURY/DECOLAM
28.	PVC DOORS AND FRAMES	RAJSHRI / SINTEX / ASHISH
29.	ALUMINIUM HARDWARE	CROWN / JYOTHI / CLASSIC / SHALIMAR
30.	MS IRON MONGREY	PRESTIGE / MOWJEE / GARG / CROWN by MOHAN METALS / MEPRO
31.	GATE VALVES/ GLOBE VALVE/ ANGLE VALVE	ZOLOTO / LEADER / KIORLOSKAR/ BIR
32.	BALL VALVE	BIR / LEADER / PRAYAG / ZOLOTO / KARTAR
33.	WATER PROOFING COMPOUND	CICO / FOSROC / Dr FIXIT / PIDILITE / SIKA / SNOWCEM / ACCORPROOF from ACC
34.	PVC (SWR) PIPES & FITTINGS	PRINCE/ SUPREME / FINOLEX / KISAN / INFRA
35.	ASBESTOS, PLAIN OR CORRUGATED SHEET, RIDGE, VALLEY GUTTER	EVEREST/CHARMINAR/VISAKHA/RAMCO (ISI MARKED)
36.	APP MEMBRANE	THERMOLAY APP PL (STP LTD) / HYDROSTOP (TIKITAR DONASA (I) PVT LTD) / MOPLY FP (TEXA INDIA LTD) / HYPERPLAS POLYESTER (IWL LTD) / SIKA WP SHIELD 103 P (SIKA INDIA) / SMART CARE APP MEMBRANE (ASIAN PAINTS)
37.	SGSW PIPE	NAVODAY / INDO PIPE / KHANDELWAL / DEVRAJ ANAND / GUPTA REFRACTORIES / NAVNEET CERAMICS / PERFECT
38.	CENTRIFUGAL MONOBLOCK PUMPS	KIRLOSKAR/BEACON/CROMPTON GREAVES/KSB/MATHER & PLATT/JYOTI/GRUNDFOS PUMPS INDIA PVT LTD
39.	SLUICE /NON RETURN VALVES	KIRLOSKAR/LEADER/UPADHYAY/L&T/AUDCO

PARTICULAR SPECIFICATIONS (Contd...)

40.	FLUSH DOOR SHUTTERS / FACTORY MADE PANELLED DOOR AND WINDOWS SHUTTERS	M/s Archidply Industries Ltd I Merino Group of Industries I United Timber Works(Brand-SAAR) I Indian Timber Products I Haryana Plywood Industries (Brand-Jwala) I Jain Wood Industries, New Delhi (Jayna) I Century Plywood Kolkata I Vidya Ply & Board ,Shahjahanpurl Anand wood Crafts, SecunderabadI Kitply From their Margherita 11 unit Tinsukia, Assam I Jain Doors Pvt Ltd (Silverline) I Green Ply Industries I SardaPlywood Industries (Duro Door) I Plywood India I Kutty flush door & furniture Co Pvt Ltd / Pioneer / Indian Timer / Standard Doors
41.	SS SINKS / SS PLATE RACKS	PARRYWARE/SHAKTI/PRAYAG POLYMERS/PHOENIX/JAYNA/NIRALI/JAINKO
42.	PCC CHEQUERED TILES	NITCO TILES HYDERABAD / BHARAT TILES BANGALORE / BASANT TILES BANGALORE BOMBAY TILES / TOPAZ TILES / MEHATAB TILES INDORE / AMCON / HICONS
43.	PVC WATER STORAGE TANK (ISI MARK ONLY)	SINTEX / INFRA / POLYCON
44.	GALVALUME SHEET	TATA / JINDAL / LLYOD STEEL
45.	INTERLOCKING PAVER BLOCKS	TOPAZ TILES PUNE / M/S ULTRA TILES / NITCO / ASTRA TILES AND PAVERS / BASANT BETONS / CEME / SUPREME TILES
46.	STAINLESS STEEL GRIL PATTERN BOTTLE RACK	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH
47.	STAINLESS STEEL GRIL PATTERN BASKET	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH
48.	STAINLESS STEEL PERFORATED CUTTERY BOX	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH
49.	STAINLESS STEEL GRIL PATTERN GRAIN TROLLY	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH
50.	STAINLESS STEEL GRIL PATTERN PLATE RACK	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH
51.	STAINLESS STEEL GRIL PATTERN CUP AND SOUCER RACK	JOHNSON KITCHEN, HAFELE, GODREJH INTERIO AND HEATTICH

E/M PORTION

52.	PVC CONDUIT / CASING & CAPPING	FINOLEX / MODI / AVON / SUDHAKAR / PRESTOPLAST / PRECISION
53.	CEILING ROSE	ANCHOR / LEADER / MARU /HAVELLS / STANDARD
54.	SWITCHES / SOCKETS / BELL PUSH / TELEPHONE SOCKET	ANCHOR / HAVELLS / HPL / STANDARD/ INDO ASIAN
55.	MODULAR SWITCHES / SOCKETS	ROMA ANCHOR / CRABTREE / L&T / INDO ASIAN / SCHNEIDER / STANDARD
56.	INDUSTRIAL PLUG & SOCKET	L&T / LEGRAND / C&S / BCH / HPL
57.	LT / HT XLPE UG CABLE	PLAZA/FINOLEX/ANCHOR/HAVELLS/NICCO/RPG
58.	LT / HT CABLE JOINTS	DENSON / RAYCHEM / M-SEAL / 3M / IXCON (CCI)
59.	MCB & DBS	LEGRAND / L&T / SCHNEIDER / C&S / HAVELLS / HPL / STANDARD / INDO ASIAN
60.	MCCB / RCCB / ELCB	LEGRAND / L&T / SCHNEIDER / C&S / HAVELLS / GE POWER

Contd...../-

PARTICULAR SPECIFICATIONS (Contd...)

61.	EXHAUST FAN/CEILING FAN/ WALL MOUNTED FAN	HAVELLS / USHA / ORIENT
62.	ELECTRONIC FAN REGULATORS	ANCHOR / HAVELLS / CROMPTON GREAVES / BAJAJ / USHA
63.	LED LIGHT FITTINGS	WIPRO/HAVELLS /PHILIPS/BAJAJ/CROMPTON
64.	HT INSULATOR	MODERN INSULATORS / DHEL / WS INDUSTRIES / BIRLA NGK INSULATORS / SARAVUNA
65.	RCC HUME PIPE	INDIAN HUME PIPE / HINDUSTAN
66.	FRP Junction Box	SINTEX / HENSEL /HAMSU CONTROL
67.	FRP JUNCTION BOX	SINTEX / HENSEL /HAMSU CONTROL
68.	DG SET ENGINE	CUMMINS / GREAVES INDIA / ASHOK LEGRAND / CATERPILLAR / KIRLOSKAR ELECTRIC
69.	DG SET ENGINE	CUMMINS / GREAVES INDIA / ASHOK LEGRAND / CATERPILLAR / KIRLOSKAR ELECTRIC
70.	DG SET ALTERNATER	CATERPILLAR / JYOTI / STANFORD / CROMPTON
71.	AFMC PANEL / OEM	POWERICA / SUDHIR / JACKSON
72.	LT PANEL BOARD	CPRI APPROVED
73.	SELECTOR SWITCH	AEI/ IMP/ SIMCO/ JYOTI/ L&T / KAYPEE/ C&S
74.	DIGITAL VOLTMETER/ AMPERE METER / ENERGY METER / POWER FACTOR METER / TRIVECTOR METER/ MULTI FUNCTIONAL METER	AE / IMP / MECO / MEI / HPL / L&T / SIEMENS
75.	TRANSFORMER	VOLTAMP /ESENNAR TRANSFORMER(P) LTD/INDIAN TRANSFORMER AND ELECTRICALS/ANDREW YULE
76.	POLE STEEL TUBULAR	INDIA TUBE AND CO/INDIA ELECTRIC POLES MFG CO.,MAHARASHTRA/BOMBAY TUBES/THE NATIONAL TUBING COMPANY KANPUR/KALINGA TUBES/SINGH PROFILE PUNE/METAL COATS CHENNAI/BHARAT CONDUIT AND STEEL WORKS KANPUR/QUALITY STEEL PRODUCTS LTD KANPUR
77.	PUMPS FOR FIRE FIGHTING	CROMPTON GREAVES/KIRLOSKAR/MATHER & PLATT/BHARAT BIJLEE
78.	GANG OPERATED SWITCH	PACTIL,MUMBAI/JAIPURIA BROTHERS/MYSORE ELECTRICAL INDUSTRIES(MEI)/BHEL/SOUTHERN SWITCHGEAR/ELPRO/YAMUNA POWER/ATLAS
79.	ELECTRICALLY OPERATED PASSENGER/GOODS LIFT WITH ARD	OTIS ELEVATORS/MITSUBISHI/SCHINDLER/ HITACHI/ KONE/THYSEN KRUPP/TOSHIBA/ JOHNSON/PREMIER ENGINEERING SYSTEM
80.	RELAYS	SIEMENS / GE / ALSTOM / BCH /ENGLISH ELECTRIC
81.	LUGS / STUDS	DOWELLS / JAINSONS / HPL
82.	PUSH BUTTON	L&T / RAS / CONTROL & SWITCH GEAR / SCHNEIDER / VAISHNO
83.	INDICATING LAMPS & SELECTOR SWITCH	AEI / IMP / SIMCO / JYOTI / L& T/ KAYPEE/ C&S / VAISHNAVI / SIEMENS
84.	ROAD MARKING PAINT	ASIAN / APCOMARK / STP / SUNRISE / FAITH / AUTO MARK / SUNNY
85.	ROAD SAFETY ANY TYPE FITTING or ROAD	TATA BP/ ABS ENGINEERING / DARK EYE / 3M /GLOBAL SAFETY EQUIPMENT/ KING SUN / DISHA

PARTICULAR SPECIFICATIONS (Contd...)

	FURNITURE	ASSOCIATES
86	RELAYS	SIEMENS / GE / ALSTOM / BCH /ENGLISH ELECTRIC
87	LUGS / STUDS	DOWELLS / JAINSONS / HPL
88	RELAYS	SIEMENS / GE / ALSTOM / BCH /ENGLISH ELECTRIC
89	LUGS / STUDS	DOWELLS / JAINSONS / HPL
90	PUSH BUTTON	L&T / RAS / CONTROL & SWITCH GEAR / SCHNEIDER / VAISHNO
91	INDICATING LAMPS & SELECTOR SWITCH	AEI / IMP / SIMCO / JYOTI / L& T/ KAYPEE/ C&S / VAISHNAVI / SIEMENS
92	HI WALL SPLIT UNIT	Voltas / Blue star / Carrier / Hitachi / Daikin
93	STABILIZER	V Guard/ Elicon/ Voltas / Microtek

SOURCES FOR BUILDING MATERIALS

1.	Hard core broken stones of any guage / Moorum	Best locally available
2.	Fine Aggregate	Best locally available
3.	Graded Stone Aggregate (Granite)	Best locally available
4.	Stone for Masonry (Granite)	Best locally available
5.	Bricks/ Fly ash bricks	Best locally available

Note: 1.The items for which makes have not been specified in the contract shall be as per latest E-IN-Cs Branch and ADGs Chennai approved list of products/makes.

2. Any superfluous clause not pertaining to this work shall stand cancelled and no amendment to contract shall be constituted on this account.

SIGNATURE OF CONTRACTOR

ACCEPTING OFFICER.