SPECIAL CONDITIONS

1. **GENERAL**

The following special conditions shall be read in conjunction with the General conditions of Contracts, IAFW-2249 (1989 Print) including Errata/amendments thereto. If any provision in these special conditions is at variance with that of aforesaid documents, the former shall be deemed to take precedence there over.

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

(a) The tenderer shall contact the AGE(I) for the purpose of inspection of site(s) and relevant documents other than those sent herewith, who will give reasonable facilities for this purpose. The tenderers shall also make themselves familiar with working conditions accessibility to site(s) availability of materials and other cogent conditions, which may affect the completion of work under this contract.

(b) The tenderers shall be deemed to have visited the site(s) and made themselves familiar with the working conditions irrespective of the fact whether they actually inspect the site(s) or not.

3. **SECURITY AND PASSES**

3.1. Employment of Personnel:

(a) Contractor shall employ only Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no person of doubtful antecedents and nationally is, in any way, associated with the work. As a proof that the contractor has employed only Indian Nationals, he shall render a certificate to GE within one month from the date of acceptance of tender to this effect. In case the GE desires, the contractor will have the police verification done of personnel employed by him. If for reasons of technical collaboration or other considerations the employment of foreign national(s) is unavoidable, the contractor shall furnish full particulars to this effect to the Accepting Officer at the time of submission of the tender.

(b) The GE shall have full powers and without giving any reason to order the contractor immediately to cease to employ, in connection with his contract, any agent, servant or employee whose continued employment is, in his opinion, undesirable. The contractor shall not be allowed any compensation on this account.

(c) The contractor’s attention is also drawn to condition 25 of IAFW-2249 in this connection.

3.2. Approval of Sample of Workmanship in Building:

(a) To determine the acceptable standard of workmanship, the area ordered to be completed (to be decided by the GE) shall be completed by the contractor well in advance as directed by GE under close supervision of the Engineer-in-Charge and shall be approved by the GE. The workmanship of various trades and shall serve as guiding samples for work in the remaining work.

(b) The sample area shall be completed in all respects as per time of completion ordered by GE in writing.

3.3. Damage to Existing Structures: Any damage to the existing structures, any existing road etc., during the execution of work shall be made good by the contractor at his own expense. Rectification, replacement, making good and touching up etc shall be carried out, conforming to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge. In case of any dispute on this account the decision of the GE shall be final, binding and conclusive.

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SPECIAL CONDITIONS (CONTD)

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

3.5**.** Location of Buildings and Works: There may be some changes in site of work to suit local conditions and/or departmental requirements. The contractor shall have no claim what-so-ever consequent to such changes in the location/siting of works.

3.6. Watch/Lighting**:** The contractor shall, at his own cost, take all possible precautions to ensure safety of life and property by providing necessary fencing, barrier, light, watchman etc during the progress of work and as directed by the Engineer-in-Charge.

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

4. **CONDITION FOR WORKING IN UNRESTRICTED/RESTRICTED AREA.**

(A) Condition for Working in Unrestricted Area.: If All works lie in Unrestricted Area. The restrictions for entry to work site and conditions of working in unrestricted area shall be as under:-

(a) The work lies in an Unrestricted Area. However, the contractor, his agents, servants, workmen and vehicles may pass through the unit lines, in which case, the Engineer-in-Charge at his discretion has the right to issue the passes, control their admission to the site of work or any part thereof. The contractor shall, on demand by the Engineer-in-Charge, shall submit a list of personnel etc concerned and any other information called for by the Engineer-in-Charge and shall satisfy the Engineer-in-Charge as regards the bonafide of such people. Passes shall be returned at any time on demand by the Engineer-in-Charge and in any case on completion of work.

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

OR

(B) Conditions for Working in Restricted Area. If All works lie in Restricted Area. The restrictions for entry to work site and conditions of working in restricted area shall be as under :-

(a) Entry and Exit .The contractor/his agents/representatives/workmen etc. and his materials, carts, trucks 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 to be used. Contractor's authorised representative is required to be present at the places of entry and exit for the purpose of identifying his carts, trucks etc to the person in charge of the security of the restricted area.

Contd…/-

SPECIAL CONDITIONS (CONTD)

(b) Identity of Workmen .

(i) Every workman shall be in possession of an identity card. The identity card shall be issued after a thorough investigation of antecedents of the labourers by the contractor and attested by Officer-in- charge of the unit concerned in accordance with the standing rules and regulations of the unit. Contractor shall be responsible for the conduct of his workmen, agents or representatives.

(ii) Identity Card or Passes .The contractor, his agents and representatives are required individually to be in possession of an identity card or pass which will be examined by the security staff at the time of entry into or exit from the restricted area and at any time or number of times inside a restricted area.

(c) Search: Thorough search of all persons and transport shall be carried out at each gate and for as many times the gate is used for entry or exit and may also be carried out any number of times at the site within the restricted area.

(d) Working Hours: The units controlling restricted areas usually work during six days in a week and remain closed Sunday. The working hours available to the contractor's labour and staff are however appreciably reduced because of the time of entry and exit during working hours. The exact working hours, working days and number of working days observed for these restricted area(s) where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting his tender. The tenderer's attention is invited to the fact that the number of working hours for a unit are prescribed in regulations and that these cannot be increased by the Garrison Engineer or authorities controlling the restricted area. The definition of “working days” as given under Condition 1(t) of IAFW-2249 does not apply in cases where the works are carried out in restricted areas.

(e) Working on Holidays**:** The contractor shall not carry out any work on gazette holidays, weekly holidays and other nonworking days except when he is specially authorised in writing to do so by the Garrison Engineer. The GE may at his sole discretion declare any day as holiday or non working day without assigning any reasons for such declaration.

(f) Fire Precautions:. The contractor, his agents, representatives, workmen etc shall strictly observe the order pertaining to fire precautions prevailing within the restricted area. Motor transport vehicles, if allowed by the authorities to enter the restricted area, must be fitted with a fire extinguisher in working condition.

(g) Female Searcher: If the contractor desires to employ female labour for works to be carried out inside the area of factory, depot, park etc and a female searcher is not borne on the authorised strength of the factory, depot, park etc. at the time of submission of tender, he shall be deemed to have allowed in his tender for pay and allowances etc. for a female searcher (Group D employee) calculated for the period female labour is employed by him inside that area. If more than one contractor employs female labour during any month and female searcher (s) has/have to be employed in addition to the authorised strength of the factory, depot, park etc, the salary and allowances paid to the additional female searcher(s) shall be distributed on equitable basis among the contractors employing female labour taking into consideration the values and periods of completion of their contracts. The GE’s decision in regard to the amount payable on this account by any contractor shall be final and binding.

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SPECIAL CONDITIONS (CONTD)

5. **MINIMUM WAGES PAYABLE**

(a) Refer Condition 58 of IAFW-2249. The contractor shall not pay wages lower than minimum wages for labour as fixed by the Government of India/State Govt/Union territory, whichever is higher.

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

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

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

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

6. **ROYALTIES**

Reference Condition 14 of General Conditions of Contracts (IAFW-2249). No quarries on defence land are available.

7. **AVAILABILITY OF LAND FOR TEMPORARY WORKSHOP, STORAGE OF MATERIALS ETC**

"(Reference Condition 24 of IAFW—2249)
The contractor shall be permitted to store his materials including erecting temporary sheds therefore at the areas of land marked on the site plan and he shall pay a licence fee of Rs……. Per year or part thereof in respect of each and every separate area of land allotted to him."

8. **WATER**

(A) Condition 31 of IAFW-2249**. (IF WATER WILL BE SUPPLIED BY MES)**

(a) Water will be supplied by MES to the contractor at points shown on site plan from piped system and shall be paid by the contractor @ Rs. 3.75 per Rs 1000/- worth of work done priced at contract rates in case of unmetered supply (where it is not possible to meter the supply of water viz works of repairs, addition/alteration etc involving number of locations) and at All-in-Cost rate of preceding year (to be decided by CE Zone/CCE) in case of metered supply. The contractor shall arrange at his own expense for storage of water and lifting, pumping, carrying or conveying water to the site of work as required. In case water points are not marked on the site plan, the water shall be supplied at one point as decided by GE.

(b) The supply of water may not be continuous. The contractor shall be deemed to have ascertained the hours of availability of water before submitting his tender. MES does not guarantee continuity of water supply and no compensation shall be allowed for intermittent or inadequate water supply and break down in the system. If the supply is not sufficient the contractor shall make his own arrangement to supplement the water supply at his own cost. For this purpose the contractor shall be allowed to install hand pumps, tubewells at the site of work at places as directed by the Engineer-in-Charge without any charges from the contractor on this account. The contractor shall remove the hand pumps, tubewells as and when asked to do so by Engineer-in-Charge or GE and in any case on completion of work unless GE desires that these hand pumps, tube wells be left in position and the contractor agrees to do so without claiming cost thereof from the Department. No compensation whatsoever shall be admissible to the contractor if the GE requires him to remove the pumps before completion of work. Use of water from such sources shall be permitted only if found potable after testing, and fit for use in the work. The water from such sources shall be got tested by the contractor from a laboratory approved by the GE, who shall, after satisfying himself, permit the contractor to use the water from such sources. Testing charges shall be borne by the contractor.

SPECIAL CONDITIONS (CONTD)

(B) Condition 31 of IAFW-2249. **. (IF WATER WILL NOT BE SUPPLIED BY MES)**
Water will not be supplied by the MES. The tenderers are advised to visit the site of works to ascertain availability of water from civil sources or from nearby natural sources outside MoD land. The contractor shall be allowed, if he so desires, to install hand pumps, tube wells at site of work at places as approved by Engineer-in-Charge and nothing shall be charged from the contractor. The contractor shall remove the hand pumps, tube wells as and when asked to do so by Engineer-in-Charge/GE and in any case on completion of the work and before issue of completion certificate, unless GE desires that these hand pumps, tube wells be left in position and the contractor agrees to do so without claiming cost thereof from department. No compensation whatsoever shall be admissible to the contractor, if he is required to remove the pumps(s), tubewells before completion of work. Use of water from such sources shall be permitted only if found potable after testing and fit for use in the work. The water from such sources shall be got tested by the contractor from a laboratory approved by the GE, who shall, after satisfying himself, permit the contractor to use the water from such sources. Testing charges shall be borne by the contractor. GE shall also carry out the independent testing of water.

9. **COORDINATION WITH OTHER AGENCIES**
The contractor shall permit free access and afford normal facilities and usual convenience to other agencies or Departmental workmen to carry out connected works or services under separate arrangements. The contractor will not be allowed any extra payment on this account and no compensation shall be admissible to the contractor on this account.

10. **ELECTRIC SUPPLY**

In case the Contractor desires to buy electricity from the MES, he shall be charged for the electric energy consumed at the following rates as per Station Order issued by Stn HQ Udaipur dated 31 Aug 2020:-

(i) All in cost rates of the preceding year (i.e. Rs 11.22 per unit and Fixed charges Rs 275/- per connection).

Electric supply upto maximum of …….. KVA shall be made available by the MES at the incoming terminal of the main switch marked. The main switch and KWH meters to register electric energy supplied shall be provided and installed by the MES. The Contractor shall provide all necessary cables, fitting, etc. from the main switch in order to ensure a proper and suitable supply of electricity for the execution of work.

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

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

11. **SAMPLE OF MATERIALS**

(a) Refer to Condition of 10 of IAFW-2249.

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

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SPECIAL CONDITIONS (CONTD)

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

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

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

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

(e) The contractor shall not procure materials and articles unless the samples are first got approved by the GE or as specified in IAFW 2249.

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

The tender shall remain open for acceptance for a period of 90 days from the next day subsequent to the bid submission end date.

13. **ADVANCE ON ACCOUNT OF MATERIALS WHICH DO NOT LOOSE IDENTITY**

13.1 The contractor may be paid advance on account of the full value of the under mentioned materials only, brought on the site, on his furnishing guarantee Bonds from a Schedule Bank for the amount of retention money which should otherwise be recoverable from him under the contract.

(a) Glazed/PCC Tiles, factory made shutters, PVC door, steel windows, sanitary fittings, WPT, kota stone & steel etc.
(b) Electrical cables, wires/fittings /fixtures.
(c) Water supply pipes, fittings/fixtures.
(d) All other non- perishable materials as decided by GE/AGE(I)

13.2 The Bank Guarantee Bonds shall be executed for a period on a form as directed by the Accepting Officer. The contractor shall further arrange to extend the period of Guarantee Bond if and when necessary, as directed by the Accepting Officer or shall furnish fresh guarantee bond of similar value.

13.3 It will be noted that advance on account to the full value to materials brought on the site is permissible only in respect of fittings and fixtures and other manufactured items which do not loose their identity. Materials like bricks, aggregate, pre-cast concrete and similar items shall not be taken in the list.

14. **SECURITY OF CLASSIFIED DOCUMENTS**

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

15. **OFFICIAL SECRETS ACT**

The contractor shall be bound by the official secret Act 1923.

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SPECIAL CONDITIONS (CONTD)

16. **RECORD OF MATERIALS AND PURCHASE VOUCHERS**

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

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

(c) Materials to be Procured by Contractors.

(i) Vouchers in respect of cement, steel, major E/M equipment like transformers, DG Sets, pumps, motors, AC and lift equipment will be submitted invariably. For all original works, keeping in view specific provisions and circumstances for each contract, it may be necessary that certain additional items require verification of vouchers.GE shall require vouchers other than mentioned above require prior approval of accepting officer .

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

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

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

17. **ACCEPTANCE QUALITY OF WORK AND FINISHES**

17.1 To determine the acceptance standard of materials and workmanship/final finishes and layout fittings etc. the contractor shall execute stages of work viz excavation, foundation concrete walling up to plinth/lintel/roof levels, roofing, flooring, joinery built-in items finishes and the like and services i.e. Internal Electrification, Water supply, plumbing sanitary fitting of work under the close Supervision of Engineer-in-Charge and shall get it approved by the GE. The workmanship of various trades and finishes as such shall serve as guiding samples for the remaining work.

18. **REFUND OF PERFORMANCE SECURITY:-**

The performance security deposit mentioned in condition 19 shall be refunded to the contractor after the expiration of defects liability period liability period (Refer condition 46 of IAFW-2249) by the GE provided always that contractor shall first have paid the final bill and have rendered no demand certificate (IAFW-451).

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SPECIAL CONDITIONS (CONTD)

19. **CLEANING DOWN**

Refer Condition 49 of IAFW-2249. The contractor shall clean all floors, remove cement, lime or paint drops, clean joinery, glass panels etc, touch up all paint work and carry out all necessary items of work in connection therewith and have the whole premises clean and tidy to the entire satisfaction of Engineer-in-Charge before handing over the items/works. No extra payment shall be admissible to the contractor for his operation.

20. **OUTPUT OF ROAD ROLLERS FOR ROAD WORK**

20.1. Where road rollers are hired by the Department to contractors, a log book for each road roller shall be maintained by the Department recording hours of working of the road roller. However, when the contractor procures road rollers from sources other than the Department, a log book for each road roller shall be maintained by him for recording hours of working of the road roller. Entries in the log book shall be signed by the contractor or his authorised representative and the Engineer-in-Charge.

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

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

(b) Where a road roller is hired by the Contractor from sources other than the department at Rs 1,500.00 (Rate to be inserted as stated in Note 2 above) per working day of 8 hours.

(c) Where a road roller is hired by the contractor from the Department as also from sources other than the Department, at higher of the two rates given in Schedule 'C' of contract and Para 2 (b) above.

20.3. The above provision shall, however, not absolve the contractor of his responsibility of properly consolidating surfaces as required under the provisions of the Contract.

20.4. The output of road rollers should be as under:-

S.NO.	**Description**	Output per day of 8 hours work (SQM)
(i)	Consolidation of formation surfaces/subgrade	1850
(ii)	Consolidation of stone soling 23cm thick with 8 to 10 Tonne Roller	518
(iii)	--Ditto—15cm thick –Ditto---	800
(iv)	Consolidation of water bound macadam (stone metal) 11cm spread thickness including spreading and consolidation with binding materials	248
(v)	--Ditto-7.5 Cm—Ditto--	372
(vi)	Consolidation of single coat surface dressing	774
(vii)	--Ditto—two coat surface dressing	558
(viii)	Consolidation of 2.50 cm thick premix carpet including seal coat.	600
(ix)	Consolidation of 2 cm thick premix carpet including seal coat.	744
(x)	Consolidation of bituminous mixture 2 parts of broken stone metal and one part of sand and bitumen, consolidated thickness 4 cm.	372

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SPECIAL CONDITIONS (CONTD)

21. **ADOPTION OF TIME AND PROGRESS USING CRITICAL PATH METHOD:**

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

(b) During the currency of the work the contractor is expected to adhere to the time schedule and this adherence will be a part of the contractor's performance under the contract. During the execution of the work the contractor is expected to participate in the reviews and updating of the network undertaken by the GE. These reviews may be undertaken at the discretion of the GE either as a periodic appraisal measure or when the quantum of work ordered on the contractor is substantially changed through deviation orders or amendments. Any revision of the schedule as a result of the review will be submitted by the contractor to the GE within a week who will approve it after due scrutiny. The contractor will adhere to the revised schedule thereafter. In case of a contractor disagreeing with the revised schedule, the same will be referred to the Accepting Officer whose decision will be final, conclusive and binding. GE’s approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in condition 11 of IAFW- 2249 and separately regulated

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

(d) No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the Department.

Notes:

(a) This tender is based on CPM.

(b) The tenderer is expected to be fully conversant with this technique and employ technical staff who can use this technique in sufficient detail. Sufficient books and other literature on the subject are widely available which the tenderer may take use of.

(c) The time allowed for the completion of the work shall be worked out through CPM after dividing the work in broad stages.

(d) The tenderer’s attention is drawn to the Special Condition of the tender regarding preparation of the detailed network and time schedule/CPM and his liability for employing sufficient resources to adhere to his schedule. Any inability on the part of the tenderer in using the technique will be taken as his technical insufficiency and will affect his class of enlistment and further prospects of receiving tenders for works.

(e) The contractor shall also deploy Engineer having experience in use of Primavera/MS Project tools for project monitoring on day to day basis for works costing Rs 15 Crore or more. The dated project time schedule shall be jointly prepared by GE and contractor using these tools within four weeks of conclusion of contracts. The project time schedule shall be updated weekly with all necessary details and work done report shall be signed by the contractor and included as part of the Works Diary by the JE ,which will be checked by the Engineer-in-Charge.

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SPECIAL CONDITIONS (CONTD)

22. **SPECIAL CONDITION FOR INCLUSION IN TENDERS APPLICABLE WHEN ESTIMATED COST AT MARKET RATE EXCEEDS RS 50 LAKHS**

Refer Condition 64 of IAFW-2249 Advances on Account. Add the following in continuation of Para 8.

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

*Accepting officer to list out the materials before the issue of tenders. The materials shall be confined to “fittings and fixtures" and other manufactured items which do not lose their identity.

(a) Sanitary fittings
(b) Water Supply pipes and Fittings
(c) Electric Fittings
(d) CI manhole covers
(e) Iron Mongery/Fittings
(f) Factory made paneled/flush doors
(g) Steel windows, rolling shutters
(h) Electric cables, conductors
(i) DI pipes, SGSW pipes, CI, soil, waste, vent, RW pipes
(j) Steel

2. The Bank Guarantee Bond (s) shall be executed for a period and on a form as directed by the Accepting Officer. The Contractor shall further arrange to extend the period of Guarantee Bond(s) if and when necessary, as directed by the Accepting Officer or shall furnish fresh Guarantee Bond(s) of similar value in lieu”.

23. 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/refund for variation in rates of taxes, duties, Royalties, Octroi& other levies and/or imposition/abolition of any new/existing taxes, duties, Royalties, Octroi & other levies shall be made except as provided in sub para (b) here-in-below:-

(b) (i) The taxes which are levied by Government at certain percentage rates of Contract Sum/Amount shall be termed as “taxes directly related to Contract value” such as GST on 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 rates prevailing on the bid submission end date. Any increase in percentage rates of “taxes directly related to Contract value’ with reference to prevailing rates on the bid submission end date shall be reimbursed to the Contractor and any decrease in percentage rates of “taxes directly related to Contract value” with reference to prevailing rates on the bid submission end date shall be refunded by the Contractor to the Govt/deducted by the Government 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 on 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.

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SPECIAL CONDITIONS (CONTD)

(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 Government, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require any documents so kept and such other information as the GE may require.

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

24. **TESTING OF MATERIALS**

(a) **'A' Level Tests for Works Costing 100 Lakhs and Above** .The contractor shall set up a site laboratory for testing of materials (except Schedule ‘B’ materials) for ‘A’ level tests as listed in Annexure-I hereto. The contractor shall arrange all equipment/machines for the tests specified in Annexure-I as 'A' level tests at his own cost with prior approval of GE. This cost shall be included in the lump-sum cost quoted by the contractor. The contractor shall employ a competent technical representative as approved by the GE for the purpose of testing and all such tests shall be carried out in the presence of Engineer-in-Charge. The successful tests results thereof shall be recorded and signed jointly by the contractor and the Engineer-in-Charge. The charges for these tests ie 'A' level tests carried out in the site laboratory of the contractor shall not be recovered. In case, the contractor has not set up the site laboratory and the tests are carried out in Zonal lab or any other laboratory setup/approved by GE, the recovery shall be made at rates applicable ie as given in Annexure I.

(b) **'A' Level Tests for Works Costing upto 100 Lakhs** .The contractor may set up a site laboratory at his option for works costing upto 100 lakhs. Other stipulations will be the same as specified in preceding para (a). However in case the contractor has not set up the site laboratory and tests are carried out in Zonal or any other laboratory approved/setup by GE, the recovery shall be made at rates applicable ie as given in Annexure –I.

(b) **'B' & 'C' Level Tests** .For tests of ‘B’ and ‘C’ level as indicated in Annexure-I, the contractor shall provide all facilities for testing of materials at Zonal laboratory/NABL Accredited laboratories /IITs at his own cost. The lump sum/rates quoted by the contractor shall be deemed to be inclusive of these tests. The rates of various tests conducted in the laboratory of MES are indicated in Annexure-I. The contractor shall bear the actual charges of ‘C’ level tests (to be done in labs other than MES labs) irrespective of rates indicated in Annexure-I. Wherever it is convenient to get ‘B’ level tests done at NABL Accredited laboratory, the same can be done at the cost of the contractor and no separate recoveries will be made by the Department for the same.

(c) The recoveries on account of testing charges wherever applicable shall be effected from the Running Account payments due to the contractor payable after completion of the respective tests or whenever the test is due whichever is earlier.

SPECIAL CONDITIONS (CONTD)

25 **INSPECTION OF SITE BY THE TENDERER.**

(a) The tenderer is advised to contact the Garrison Engineer for the purpose of inspection of site(s) and relevant documents other than those sent herewith, who will give reasonable facilities for the purpose. The tenderer shall also make himself familiar with the working conditions, accessibility of site(s), availability of materials and other cogent conditions which may affect the entire completion of work under this contract.

(b) The tenderers shall be deemed to have inspected the site(s) and made themselves familiar with the working conditions, whether they have actually inspected the site(s) or not.

26. **REFERENCE CONDITION NO 25 OF IAFW-2249**

26.1 The requirement of Engineering Staff to be deployed by contractor for supervision of work for this work shall be as under :-

(a) Cost of work between Rs 60 Lakhs and Rs 100 Lakhs other than those covered in 'D' below:- A Degree holder in Engineering from a Govt. Recognised Institution or equivalent final or direct final pass or sub div II of institution of surveyor (India) with at least 3 year practicable experience of works. or A Diploma holder in Engineering from a Govt. Recognised Institution with at least 05 years practical experience of works.

(b) Cost of work between Rs. 7.5 Lakhs and Rs 60 Lakhs other than those covered in 'D' below:- A Degree holder in Engineering from a Govt. Recognised Institution or equivalent final or direct final pass or sub div II of institution of surveyor (India) with a lease 2 years practicable experience of works. OR A Diploma in Engineering from a Govt. Recognised institution with at least 06 years practical experience of works.

(c) Cost of work between Rs 2 Lakhs and Rs 7.5 Lakhs other than those covered in 'D' below:- A Degree or Diploma holder in Engineering from a Govt. Recognised Institution with adequate practicable experience of work.

(d) Work of any value for repairs to building and roads, periodical services to building, term contracts, grass cutting and fending. A competent person with adequate practical experience of works.

26.2 The provision above shall be applicable irrespective of the fact whether contractor himself is a Qualified Engineer or not.

26.3 Contractor shall employ additional Engineers as directed by GE where there are scattered sites.

27. The minimum requirement of T&P, Machinery and Transport to be deployed at site during execution of whole work shall be as follows, as applicable for the respective eligible class & category of work as indicated in Appx 'A' of NIT.

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SPECIAL CONDITIONS (CONTD)

Cate-gory	Special T&P/Machinery/Transport	Minimum Nos required for respective class as per Appendix 'A' of NIT.							Remarks
		SS	S	A	B	C	D	E	
a (i)	Building & Road Category								
	1. One bag capacity concrete mixer (diesel)	-	-	-	3	2	1	1	
	2. Vibrators (Needle and Plate type)	20	15	6	4	4	2	2	
	3. Tower/builder's hoist.	4	2	1	1	1	-	-	
	4. Steel shuttering with spans, props etc. (Sqm)	6000	4000	2000	1500	1000	500	200	
	5. Truck/Tippers	5	2	1	1	-	-	-	
	6. DG Sets 5/10 KVA	3	2	1	1	-	-	-	
	7. Total Stations	3	2	1	1	-	-	-	
	8. Concrete cube testing machine (Hydraulically operated)	3	2	1	1	-	-	-	
	9. Fully automatic concrete batching plant	1	1	1	-	-	-	-	
	10. Transit Mixers.	3	2	2	-	-	-	-	
	11. Concrete Pumps	3	2	2	2	1	-	-	
	12. Concrete mobile weigh batchers.	3	2	2	2	1	-	-	
	13. Cranes.	2	2	1	1	-	-	-	
	14. Excavators (Power shovels/draglines).	2	2	1	1	-	-	-	
	15. Bull dozers	2	2	1	1	-	-	-	
	16. Road Rollers	2	2	1	1	-	-	-	
	17. Drilling Machines	3	2	1	1	-	-	-	
	18. Boring rig	5	4	3	2	1	1	1	Optional in case of tube well boring work.
	19. Pile driving equipment (sets)	5	4	3	2	1	1	1	Optional in case of pilling work
	20. Pipe testing equipment (sets)	3	2	1	1	-	-	-	-do-

SPECIAL CONDITIONS (CONTD)

27. **QUALIFIED TRADESMEN (APPLICABLE FOR WORKS COSTING RUPEES ONE CRORE OR MORE)**

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

28. **ELECTRICAL WORKS**

28.1 The Electricity Act, 2003 has come into force and Indian Electricity Act, 1910 stands repealed with effect from 10 Jan 2003. In exercise of the powers conferred under Section 177 of this Act, Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulation, 2010 was promulgated by Central Electricity Authority. Rule 29 under Part III of Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulation, 2010 reads as under:-

"No electrical installation work including additions, alterations, repairs and adjustments to existing installations except such replacement of lamps, fans, fuse, switches, low voltage domestic appliances and fittings as in no way alters its capacity or character shall be carried out upon the premises of or on behalf of any consumer, owner or occupier, for the purpose of supply to such consumer, owner or occupier except by an electrical contractor licensed in this behalf by the State Government and under the direct supervision of a person holding a certificate of competency and by a person holding a permit issued and recognized by the State Government".

28.2 The exemption referred in Section 184 of Electricity Act, 2003 is not applicable in MES contracts.

28.3 Valid Electrical License issued by concerned State Government/Union Territory shall only be applicable.

28.4 For execution of electrical works/ electrical component of works requiring Electrical License in accordance with Rule 29 mentioned above, the contractor shall have valid Electrical License issued by the concerned State/ Union Territory in the name of the Firm or get the work executed through an agency having valid Electrical License.
Items of works under category (C) [including its sub-categories (i) to (vii)] and category (d)(v) shall also be executed in this manner to the extent Rule 29 mentioned above is applicable to such items.

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SPECIAL CONDITIONS (CONTD)

28.5 Prior to commencement of electrical work/electrical component of works and other works as mentioned in 24.4 above, copy of valid Electrical License in the name of the contractor or copy of agreement with agency having valid Electrical License along with agency's Electrical License shall be submitted by the contractor to the Accepting Officer through GE/Project Manager/AGE(I) with copy to CWE, as applicable. In case contractor does not possess valid Electrical License and he intends to get such work executed through agency having valid Electrical License and with whom he has agreement, prior approval of such agency in all contracts shall be got done from competent authority, who shall be concerned CWE (concerned CE Zone/CCE in case there is no CWE). Copy of License shall be kept on record by GE/AGE(I)/PM as well as CWE/CE Zone/CCE for future reference.

28.6 GE/PM/AGE(I) and concerned AGE/Engineer-in-Charge shall ensure that electrical work/ electrical component of works and other works as mentioned in Para 24.4 above required to be executed in accordance with Rule 29 mentioned above are executed by contractor/agency having valid Electrical License, as applicable. In addition, Supervisor for execution of electrical works/electrical component of works employed by the contractor shall possess Supervisor Certificate of Competency issued by concerned State Government/Union Territory and the worker/tradesmen for execution of electrical work/electrical component of work shall hold necessary Permit issued by concerned State Government/Union Territory.

28.7 Reference of Electrical License and details of Supervisors' Certificate of Competency and Permit of tradesmen employed for execution of electrical work/electrical component of works shall be duly incorporated in the Works Diary and relevant site documents respectively for the whole period during which such work is executed.

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ANNEXURE-I

MATERIALS AND THEIR TESTS SITE LAB

SN	Material	Test	Method of testing	Frequency of tests			Rate (in Rs)	Remarks
1	2	3	4	5			6	7
1	Bricks	(i) Compressive strength	IS-3495 (Part-I)	As per IS 5454 as given under			330	Checks for visual and dimensional characteristics
		(ii) Water absorption	IS-3495 (Part-II)	Lot size	Sample size	Permissible % ageof defective bricks	330	Shall also carried out per IS5454
		(iii) Efflorescence	IS-3495 (Part-III)	2001 10000	to	6	330	
				10001 35000	to	10	330	
				35001 50000	to	15	330	
2	Coarse aggregate	(i) Sieve Analysis	IS-2386 (Part-I)	One test for every 100 Cum of aggregate or part thereof brought to site			660	
		(ii)Flakiness Index	--DO--	--DO--			250	
		(iii)Estimation of deleterious materials	IS-2386 (Part-II)	One test for every 100 Cum of aggregate or part thereof			600	
		(iv) Moisture content	IS-2386 (Part-III)	Regularly as required			330	
3	Fine aggregate	(i)Sieve Analysis	IS-2386 (Part-I)	One test for every 100 Cum of FA or part when brought to site			660	
		(ii) Test for clay silt and impurity	IS-2386 (Part-II)	--DO--			500	
		(iii) Moisture content	IS-2386 (Part-III)	Regularly as required subject to 2 tests/day when being used			300	
4	Structural concrete (M-20 Grade and above) or quality concrete design for flexural concrete	(i) Slump test or compacting factor test or Vee-Bee time	IS-1199	The minimum frequency of sampling of concrete of each grade shall be as under			300	For number of cubes, samples etc., please refer Particular Specifications
		(ii) Compressive strength	IS-516	Qty of concrete in the work (Cum)	No sample		900	
				1-5 6.-15 16-30 31-50	1 2 3 4			
				51 and above 4+1 for each additional 50 Cum or part thereof				

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MATERIALS AND THEIR TESTS SITE LAB (CONTD…)

SN	Material	Test	Method of testing	Frequency of tests	Rate (in Rs)	Remarks
1	2	3	4	5	6	7
5	PCC block for walling (Hollow block)	Compressive strength	IS 2185-1983 (Appx B)	3 Block out of 20	900	Sampling 20 blocks from consignment of every 5000 block or part thereof
	PCC solid block walling	Compressive strength	IS2185	8 Blocks out of 20	900	Sampling 20 blocks from consignment of every 5000 blocks or part thereof.
6	Burnt clay roofing tiles (hand made) as per IS 2690 (Part-II) length 150-250mm width 100-200mm	Compressive strength	IS3495 (Part-II)	6 tiles out of 12	180	Samples 12 tiles from each source of supply selected at random
7	Welding of steel work	Visual inspection test	IS 8280-1970 clause 7.1	100% by visual inspection	360	Specialised test, their method and frequency to be decided or consideration or thereof
8	Timber	Moisture content	IS-1708 1960	Maximum three samples from a lot of 4 Cum or 250 pieces of seasoned timber	120	
9	Timber panelled and glazed door wooden shutters (including factory made shutters)	(a)Dimensions sizes, workmanship and finish	IS 1003-1977 (Part-I)	Frequency of sampling from each lot shall be as under Lot size / Sample Size 20-50 / 5 51-100 / 8 101-150 / 13 151-300 / 20 301-500 / 32 501-1000 / 50 1001 and above / 80	180	
10	Wood particle board (Medium density)	(a) Density	IS 2380 1977 (Part-III)	Three test specimens from each sample (size 150x75 mm)	60	Sample shall be as per IS 3087- 1983 with moisture meter
		b) Moisture content	-DO-	-DO-	60	
		c) Water absorption	DO- Part-16	-DO- (Size 300x300 mm)	60	
		(d) Swelling due to surface absorption	DO- Part-17	-DO- (Size 125x100 mm)	60	
		(e) Swelling in water	-DO-	DO- (Size 200x100 mm)	60	

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ANNEXURE-II

MATERIALS AND THEIR TESTS ZONAL LAB

Ser No	Material	Test	Method of testing	Frequency of tests	Rate (in Rs)	Remarks
1	2	3	4	5	6	7
1	Coarse aggregate	Specific gravity	IS- 2386 (Part-II)	One test for each source of supply	330	
		Organic impurities			275	
2	Fine aggregate	Specific gravity	IS- 2386 (Part-III)	One test for each source of supply	330	
		Organic impurities			275	
3	Cement	(a) Setting time	IS 4031 – 63 Reaffirms 1988	One for each consignment or as and when required	500	
		(b) Compressive strength	--DO--	--DO--	550	
		(c) Soundness	IS 4031-63 Reaffirms 1988	One for each consignment as and when required	550	
		(d) Fineness	--DO--	--DO--	275	
		(c) Soundness	IS 4031-63 Reaffirms 1988	One for each consignment as and when required	550	
		(d) Fineness	--DO--	--DO--	275	
4	(i) PCC block for walling (Hollow)	(a) Water absorption	IS 2186-1983 (Appx B)	3 block out of 20	330	Sample 20 blocks from consignment of every 5000 blocks or part thereof. These blocks to be checked for dimensions & weight
		(b) Density	IS 2185-1983	3 block out of 20	330	
	(ii) PCC solid block for wall	(a) Density	IS 2185-1983	3 block out of 20	330	
		(b) Water absorption	IS 2185-1983	3 block out of 20	330	
5	Cement flooring tiles/terrazzo tiles	(a) Water absorption	IS 1237 1980 (Appx E)	6 tiles out of 18	330	Sample 18 tiles from each source of supply select at random
		(b) Wet transverse strength	IS1237-1980 (Appx E)	6 tiles out of 18	660	
6	Brunt clay roofing (Hand made) as per IS 2690 (Part-II) break line length 150 to 250 mm width 100 to 200 mm thickness 35 to 50 mm	Water absorption	IS 3495 (Part-II)	6 tiles out of 12	216	Sample 12 tiles from each source of supply selected at random

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MATERIALS AND THEIR TESTS ZONAL LAB (CONTD)

Ser No	Material	Test	Method of testing	Frequency of tests	Rate (in Rs)	Remarks
1	2	3	4	5	6	7
7	Mangalore roofing tiles pattern	(a) Water absorption	IS 654 (Appx A)	6 tiles out of 32	180	Samples 32 tiles from each consignment of 3000 tiles or part thereof. These tiles shall be checked for dimension and weight.
		(b) Breaking load	IS 654 (Appx A)	6 tiles out of 32	120	
8	Timber	Specific gravity and weight	IS 1960 1708-	Maximum three sample from a lot of 4 Cum or 250 pieces of seasoned timber	120	
9	Water for construction purpose	(a) Test for acidity	IS 3025 & 456	Once at stage of approval of source of water	500	Also refer clause 43 of IS-456 and its subsequent sub clause regarding Suitability of water
		(b) Test for alkalinity	IS 456 & 3015	Once at the stage of approval of source of Water	500	
		(c) Test for TDS content			500	
10	Wood particle board (Medium density) IS 3097-1085	(a) Modulus of rupture	IS 2380 of 1977 (Part-4)	Three test specimens as per IS-2380- 1977	90	Sample shall be as per IS 3087-83 class with moisture meter
		(b) Moisture content	--DO-- (Part-III)	Three test specimen from each sample (size150x75mm)	60	---- DO---
11	Reinforcement steel	(a) Physical test upto 16 mm dia (Normal mass, tensile longation, bend & rebend)			2500	
		(b) More than 16 mm dia			2750	

ANNEXURE-III

MATERIALS AND THEIR TESTS NATIONAL TEST HOUSE/SEMT WING/ENGG COLLEGE

Ser No	Material	Test	Method of testing	Frequency of tests	Rate (in Rs)	Remarks
1	2	3	4	5	6	7
1	Coarse aggregate	Organic impurities	IS- 2386 (Part-II)	One test for each source of supply	275	
2	Fine aggregate	Test organic impurities for	IS- 2386 (Part-II)	One test for each source of supply	275	
3	Cement flooring tiles/terrazzo tiles	Resistance to wear	IS 1237-1980 (Appx F)	6 tiles out of 18	1000	Sample 18 tiles from each source of material selected at random
4	Water construction purpose for	Test for TDS content	IS 456 3025 &	Once at the stage of approval of source of water	500	Also refer clause 43 of IS-456 and sub Clause regarding suitability of water
5	Plywood (IS 303-1989)	Moisture content	IS 1734-1983 (Part-6)	Six test pieces cut from each of the boards selected as per 1shall be subject to tests	240	Sampling shall be as per IS 7533 (1975) tables
6	Wood particle board (medium density) IS 3097-1985	Screw withdrawal strength	IS 2309 (Part-14)	Three specimens IS 2380 as test per	120	
7	Timber panelled and glazed door wooden shutters (including factory made shutters)	Strength test (i) Slamming (ii) Impact indentation (iii) Shock resistance (iv) Edge loading	IS 1303-1990	From each lot 5% of the factory made shutters shall be tested for strength tests	180	

Legend

A : Site Lab.
B : MES Lab/ZonalLab/Command Test Lab.
C : NABL Accredited Lab.

Signature of Contractor

Accepting Officer
AGE (I) Udaipur

PARTICULAR SPECIFICATIONS

1. GENERAL

1.1. Work under this contract shall be carried out in accordance with schedule 'A' particular specifications, general specifications and other provisions in MES standard schedule of Rate Part I (2009) and Part II (2020) including amendments/errata as applicable.

1.2. Term General Specifications referred to herein before and as well as referred to IAFW-2249 (General Conditions of Contracts) shall mean the specifications contained in the MES Standard Schedule of Rates.

1.3. General Rules, specifications, special conditions and all preambles in the MES Schedule shall deemed to be ap to the work under this contract unless stated otherwise in these documents in which case the provisions in these documents shall take precedence over the aforesaid provision in the MES Schedule.

1.4. The rates quoted by the tenderer shall be deemed to include for any minor details of construction which are obviously and fairly intended, which may not have been included in these documents but which are essential for the execution and entire completion of work. The 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.

1.5. Particular specification given hereinafter are brief and are only to particularizes amend and emphasize the specification of MES standard Schedule of Rates which are not repeated. In case no specification exists, specification given in MES standard Schedule of Rates is adopted.

2. SCOPE OF WORK

2.1. The tender (contract when accepted) caters for all the work described in schedule 'A' as specified hereinafter and in General Specifications of MES Standard Schedule of Rates and all as directed by Engineer-in-Charge

2.2. The exact location of item of schedule 'A' shall be shown by the Engineer-in-Charge at site before commencement of work.

3. SAMPLES AND MATERIAL

3.1. In case specification of any material needed for incorporation in work is not contained in any of the contract documents, the specification of such material proposed to be incorporated in work shall be got approved in writing from the GE before their incorporation in the work.

3.2. The contractor at his own discretion if intends to provide material items conforming to IS specifications and bearing IS certification mark from any other manufacturers other than those listed in the tender, if any, such material shall be allowed to be incorporated with prior approval of GE and without any price adjustment, However, this option shall be applicable only when none of the manufacturer listed in the tender emboss IS certification mark on materials/articles

3.3. The contractor and the executives will ensure that the materials incorporated in work are identical with the approved samples.

3.4. Local materials such as aggregate, sand, etc. shall be as specified hereinafter. The samples of such materials shall be got approved in writing from GE before the materials are brought at site in bulk.

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PARTICULAR SPECIFICATIONS (CONTD)

3.5. The contractor and the executives will ensure that the materials incorporated in work are identical with the approved samples.

3.6. Local materials such as aggregate, sand, etc. shall be as specified hereinafter. The samples of such materials shall be got approved in writing from GE before the materials are brought at site in bulk.

3.7. Letters conveying approval of samples/materials by GE will interlia mention source of supply/ name of manufacturer/trade name/containing specifications of particular materials

4. EXCAVATION AND EARTH WORK

4.1. EXCAVATION

Excavation work shall be done as mentioned in Schedule 'A' or SSR Part-I

4.2 REMOVAL OF MATERIAL

4.2.1 All the unserviceable materials obtained from demolition/dismantling/taking down shall be removed to low lying area and or as directed by Engineer-in-Charge. The serviceable materials obtained from dismantling/ demolition/taking down shall be removed to the MES store and rates quoted by contractor shall be deemed to include for such removals and nothing extra shall be payable.

5. CONCRETE WORK

5.1 COARSE AND FINE AGGREGATE

(a) Aggregate shall conform to IS-383 and shall be from the source(s) mentioned in Appendix 'A' to this particular specification. Aggregate shall be non porous, hard strong, durable clean and free from various impurities and adherent coating and shall not contain any deleterious materials exceeding the limits specified in the above referred IS. When required by the Engineer-in-Charge the contractor shall at his own expense carry out all tests laid down in IS-383 to verify that the aggregate comply with the requirements of IS. The tests shall be carried out in any laboratory approved by GE.

(b) Coarse aggregate shall consist of crushed or broken stone aggregate. The nominal sizes of the aggregate shall be as specified in clause 4.4.7 of MES Schedule Part-I.

(c) Fine aggregate shall consist of naturally occurring coarse sand. Fine aggregate shall conform to zone II or zone III of table IV of IS-383 and shall be from the source(s) mentioned in Appendix 'A' to particular specifications.

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

5.2 GRADING OF AGGREGATE

The grading of coarse and fine aggregate shall be as per MES Schedule. Grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for a given job shall be determined by Engineer-in-Charge to ensure that the specified grading is maintained.

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PARTICULAR SPECIFICATIONS (CONTD)

5.3 **AGGREGATE**

Coarse aggregate for all cement concrete work unless otherwise specified shall be crushed or broken and graded hard stone coarse aggregate and fine aggregate (sand) shall be from the sources mentioned in Appendix 'A' and approved by the GE and shall conform to IS-383 and to the samples kept in GE's office.

6. **CEMENT CONCRETE**

Type of concrete required for work in various situations all as specified in respective item of Schedule A'.

7. **CEMENT**

Refer Clause 8 herein after

7.1. **MIXING AND CONSOLIDATION OF CEMENT CONCRETE**

(a) All cement concrete shall be mixed in an approved machine mixer where however small quantity of cement concrete are involved hand mixing may be adopted with the approval of the Engineer-in-Charge. Mixing shall be continued until there is a uniform in colour and consistency.

(b) Mix of concrete shall be as specified in respective item of Sch 'A'

(c) Cement concrete in flooring shall be consolidated by tamping and punning.

7.2. **WATER**

Quality of water to be used for mixing and curing of concrete work shall conform to the requirement of clause No. 4.3 of IS-456-1978.

8. **CEMENT**

8.1 **GENERAL**

The cement supplied by the contractor shall be procured from main producers of cement and shall be either OPC grade 43 conforming to IS 8112 (1989) or PPC conforming to IS 1489 (1991). The quantity of fly ash in PPC cement shall be in accordance to IS 1489 (2002) Part-I. However, in case the total quantity of cement required in the work is less than 1200 bags then the same can be procured from authorized dealer/distributor of the main producers at the discretion of the contractor.

Type of Cement: The details of various types and grades of cement are enumerated below which shall be used in work:-

(i) Ordinary Portland cement Grade 43 (IS: 8112-1989).
(ii) Ordinary Portland cement Grade 53 (IS: 12269-1987).
(iii) Rapid Hardening Portland Cement (IS: 8041-1990).
(iv) PortlandPozzolana Cement (IS: 1489-1991 Part I).
(v) High Alumina Cement (IS: 6452-1989).
(vi) Sulphate Resisting Portland cement (IS: 12230-1988).

The type of cement to be selected will invariably depend upon the specific usage in the works(s). OPC 33 grade will not be used in work.

The following checks and procedure shall be followed before the cement supplied by the contractor is accepted and is approved for incorporation in the work:-

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PARTICULAR SPECIFICATIONS (CONTD)

8.2 **PROCUREMENT**

The Cement supplied by the Contractor will be procured from main producers of cement. However where estimated requirements of cement is less than 1200 bags and in all term contracts, the contractor can procure cement from the authorised distributors/dealers of the approved firms but the contractor will have to submit test certificates of the batch issued by the main producers. The particulars of the manufacturer of cement along with the date of manufacture shall be obtained from the contractor for every lot of cement separately. The documents in support of the purchases of cement shall be verified by the site staff and GE and kept as a record in the office of GE.

8.3 **MANUFACTURERS**

The main producers of OPC & PPC shall be as approved by Design Dte of E-in-C Branch from time to time. List of approved manufacturers are listed at Appendix 'F' to particular specifications.

8.4 **USE OF PPC**

Use of PPC (Portland Pozzolana Cement) of required strength with fly ash content as per IS 1489-1999 Part-I is also permitted. While using PPC, the following conditions will generally be met :-

(i) Strength criteria for PPC will be as per IS-8112-1989.
(ii) Stripping time shall be 14 days.
(iii) Both OPC and PPC shall not be permitted for use in the same building expect for plaster and mortar.
(iv) Mandatory certificates of testing and quality assurance will continue to be submitted as hither-to-fore with fly ash content as per IS-1489-1999 Part-I.
(v) Specifications for use of PPC would be compiled and incorporated suitably by Accepting Officer for inclusion in tender documents.
(vi) The Accepting Officers are required to ensure that PPC meets the strength criteria of 43 Grade OPC as laid down in IS-8112-1989.

8.5 **TESTING OF CEMENT**

The manufacturer is to carry out inspections and testing of cement in accordance with relevant BIS provisions. The contractor shall submit the Manufacturer's Test Certificate in original along with the Test Sheet giving the result of each physical test as applicable and chemical composition of the cement or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in- Charge shall record these details in the Cement Acceptance Register, as given after due verification. The GE shall also organise independent physical tests of random samples of cement drawn from various lots from NABL, National Test House, SEMT CME, IITs, MES Zonal Laboratories, Command Test Laboratories (CTL), as per IS3535 (Method of sampling Hydraulic Cement), IS-4031 (Methods of Physical Test for Hydraulic Cement) and IS 4032 (Method of Chemical Analysis of Hydraulic Cement). In order to undertake departmental testing, requisite facilities shall be organised by the contractor.

8.6 **MEASUREMENTS AND PAYMENT OF CEMENT**

(a) Entire quantity of cement shall also be suitably recorded in the measurement book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

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

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PARTICULAR SPECIFICATIONS (CONTD)

8.7 STORAGE

Cement shall be stored over dry platforms at least 20 cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign atters. In case of store rooms, the stack should be at least 20 cm away from floors and walls. The stacking of cement shall not be more than 10 bags high. It shall be ensured that tested and untested cement are segregated and stored separately with distinct identification.

8.8 DOCUMENTATION

Contractor shall submit original voucher from the manufacturer for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignments received at the work site shall be inspected by the GE along with relevant documents before acceptance. The original vouchers and the Test Certificates shall be defaced by the Engineer-in –Charge and kept on record in the Office of GE duly authenticated and with cross reference to the Control Number recorded in the Cement Acceptance Register. This register will be signed by JE, Engineer-in-Charge, GE and the Contractor. The Accepting Officer may order a Board of Officers for random check of cement and verification of connected documents. The entire quantity of cement shall also be suitably recorded in the Measurement Book for record purpose “not to be abstracted” before incorporation in the work and shall be signed by the Engineer-in-Charge and Contractor.

8.9 DESIGN MIX CONCRETE

(a) Only the grade of concrete required for each location are given in the tender, while providing all other basic data required for design mix like exposure conditions all as per IS-456-2000. Contractor shall be required to quote his offer keeping in view the given parameters and other relevant provisions of design mix concrete. Accepting Officers shall however specify minimum cement contents for each grade of design mix concrete for various stations on the basis of trial mix design to be carried out in reputed Labs/Zonal Lab to arrive at optimum cement contents to be specified in tender documents along with exposure conditions.

(b) There shall be no provision for price adjustment on account of variation in cement contents of design mix approved and minimum cement indicated in tender. However it shall be made clear that even if cement contents as per actual mix design are working out lower than minimum cement contents indicated in tender, the contractor shall provide minimum cement contents indicated in tender and nothing extra shall be payable on this account.

9. WATER PROOFING COMPOUND

Integral water proofing compound shall conform to IS-2645 and ISI marked and the brand thereto shall be got approved by the GE before they are brought to site. Proportion of mix and method of mixing shall be as per manufacturer’s instructions.

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PARTICULAR SPECIFICATIONS (CONTD)

10. **STEEL AND IRON WORK**

10.1 Quality of steel to be incorporated in the work shall be as follows:-

(a)	High strength deformed steel bars produced by Thermo Mechanical treatment process (In short called as TMT bars) for reinforcement.	Of Grade Fe 500/Fe 500D/Fe 550/Fe 550D and meeting all requirement of IS 1786. (In case structural drawings specifies some particular grade of steel same shall only be incorporated in work)
(b)	Mild steel for miscellaneous works	Shall conform to IS-432(Part-I)1982 Reaffirmed-1989. Grade wherever not shown/ indicated otherwise shall be of Grade I.
(c)	Structural steel	Steel for general Structural purpose shall be Grade Fe-410 WA ISI marked (IS-2062-1999) for all type of steel Structures including those subject to dynamic loading. Structural steel ordinary quality shall confirm to IS-1977
(d)	Galvanised steel sheets (Plain & corrugated)	Conforming to IS-277. Galvanised steel sheet shall be of Grade O (120 gm/Sqm zinc coating). The corrugation of CGI sheet shall be Grade 'B'.
(e)	Fabric reinforcement for concrete	Conforming to IS-1566

(a) For pricing deviations involving TMT bars the rates given in SSR (subject to contractor's percentage) shall be applied irrespective of the grade of TMT bars.

(b) For pricing deviations involving steel for general structural purpose Gde Fe-410WA, the rate shall be applicable as per Gde Fe-410-W given in SSR Part II adjusted by applicable percentage for respective parts of Schedule 'A'.

10.2 **REINFORCEMENT GENERAL**

(a) All laps and crossings shall be tied with mild steel wire (annealed) of size not less than 0.9 mm dia.

(b) The provision of MES SSR Part-I clause 10.18 that ends of deformed bars are not bent to form hooks is not applicable to this contract. Standard hooks and bends shall be provided to all reinforcement bars all as per RCC notes on drawing No. 2001/TD/01 Sheet 1/13 to 13/13.

(c) For making adjustment arising out of deviation involving reinforcement bars, the length of each bar for the purpose of calculation of laps shall be taken as 10 metres.

(d) Adequate numbers of chairs as given in drawing No. 2001/TD/01 Sheet 1/13 to 13/13 shall be provided in all reinforced sections to prevent top layer of reinforcement from sagging and the cost of the same shall be deemed to be included in the quoted lump sum

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PARTICULAR SPECIFICATIONS (CONTD)

10.3. REINFORCEMENT STEEL & STRUCTURAL/NON-STRUCTURAL STEEL

10.3.1 **TYPE OF STEEL**

(a) REINFORCEMENT STEEL

High strength deformed steel bars produced by Thermo Mechanical Treatment process (TMT steel bars of grade Fe 500/Fe 500 D/Fe 550/Fe 500 D) meeting all other requirements of IS: 1786

(b) **STRUCTURAL STEEL :**

(i) Standard Quality-Conforming to IS: 2062.

(ii) Ordinary Quality-Conforming to IS: 1977

(Confirming to IS: 2062 – 2006 as amended till date (in SSR Part-II only IS: 2062 with grades Fe 410-W(Gde-E-250) Quality-A, Fe 290(Gde-E-165), Fe 410-W(Gde-E- 250) Quality-B)

(c) Galvanised Steel Sheet :(Plain& Corrugated) Conforming to IS: 277.

(d) Fabric Reinforcement for Concrete: Conforming to IS: 1566.

10.4 MATERIALS (refer Appendix 'G' to particular specifications)

(a) REINFORCEMENT STEEL

TMT Steel bars manufactured by SAIL/RINL/TISCO/other primary producers approved by E-in-C's Branch from time to time. If any primary producer is approved by E -in -C's Branch after conclusion of the contract, that make shall also be eligible for inclusion the tender at the request of contractor through amendment to contract. Steel shall be procured directly from manufacturers and not through their agents.

(b) STRUCTURAL STEEL

Structural Steel shall also be procured from primary producers as approved by E-in-C's Branch. In case of non-availability with primary producers, the structural steel can be procured from approved secondary producers with a reduction of 5% (five percent) of the accepted rate of structural steel. In case the desired section of structural steel is not rolled/manufactured by primary producers, there shall be no price adjustment in use of structural steel procured from approved secondary producers. Secondary producers for structural steel are approved by E-in-C's Branch from time to time.

(c) GALVANISED STEEL SHEET & FABRIC REINFORCEMENT FOR CONCRETE

These shall be procured directly from main producers as approved by E-in-C's Branch and shall be ISI marked.

(d) Steel sections for railing, gates, fencing, guards bars, grills, steel chowkhat, holdfasts etc, which do not constitute structural members, can be procured from main producers/secondary producers/BIS marked manufacturers or their authorised dealers at the option of Contractor without any minus price adjustment. Tests will not be insisted upon for such steel sections. However steel sections for large size gates of ammunition sheds shall be treated as structural members and conditions (b) above shall be applicable.

10.5 PROCUREMENT

(a) The GE for every lot of steel shall obtain the particulars of the manufacturer /supplier of steel from the contractor separately. The form given will be used for this purpose.

(b) The site staff and GE shall verify the original documents in support of the purchase of steel and will retain a certified true copy of the results in GE's office.

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PARTICULAR SPECIFICATIONS (CONTD)

(c) The GE will ensure that contractors place their demand/requisition of steel with adequate lead-time. The steel will be procured from the storage depots of the main producers/approved secondary producers (as applicable) and not from their authorized agents/dealers as the authorised agents deal with the steel manufactured by more than one manufacturer.

(d) Reinforcement steel, Structural steel and Galvanised Steel sheets and Fabric reinforcement for concrete may be permitted from authorised dealers of main producers in case of small contracts of value not exceeding Rs 7.5 Lakhs.

10.6 TESTING OF STEEL

The manufacturer is to carry out inspections and testing of steel in accordance with relevant BIS provisions. The contractor shall submit the manufacturer's test Certificate in original along with the Test Sheet giving the results of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof, duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in Steel Acceptance Register, as given after due verification and send certified true copy of test sheet to GE for his records. GE/CWE shall also organise independent test of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, IITs, NABL approved labs, as per the recommended minimum frequency shown in Table**.** Sample from each lot should be tested for quality and elongation. The elongation shall not be less than 18%. Cost of samples, transportation and testing shall be borne by the contractor. The records of such checks shall be maintained in the steel test register.

10.7 DOCUMENTATION

The Contractor shall submit original purchase voucher from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. The GE shall inspect all consignments received at the work site along with relevant documents before acceptance. The original vouchers and the Test Certificates shall be defaced by the Engineer-in-Charge and kept on record in the office of the GE duly authenticated and with cross reference to the control number recorded in the Steel Acceptance Register. The Steel Acceptance Register will be signed by JE,Engineer-in-Charge, GE and Contractor. The entire quantity of all steel items shall be suitably recorded in the Measurement Book as not to be abstracted, before incorporation in the work and shall be signed by the Engineer-in-Charge and the Contractor.

10.8 INDEPENDENT TESTING

The GE/CWE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME Pune, Regional Research Laboratories, NABL approved labs etc as per the recommended minimum frequency herein below. In addition samples from each lot shall be tested for quality and elongation as per the parameters given in STEEL SUPPLY AND ACCEPTANCE FORM. The elongation shall not be less than 18%.

NOTE:- Independent testing of steel shall be optional at the discretion of the GE and testing charges shall be borne in accordance with Condition 10 A of IAFW-2249 i.e. testing charges shall be borne by the Deptt if the test results are found in order, otherwise these shall be borne by the Contractor. However the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests, samples, conveyance etc shall also be borne by the contractor

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PARTICULAR SPECIFICATIONS (CONTD)

FREQUENCY FOR NORMAL MASS, TENSILE , BEND AND REBEND TEST OF STEEL

Sl No	Nominal Size	Quantity
	Steel for concrete	
1	Bars size less than 10mm	1 Sample (3 specimens) for each test for every 25 tonnes or part thereof.
2	Bars size 10mm to 16mm	1 Sample (3 specimens) for each test for every 35 tonnes or part thereof.
3	Bars size over 16mm	1 Sample (3 specimens) for each test for every 45 tonnes or part thereof.
	Structural steel	
4	Tensile Test	1 test for every 25 tonnes of steel or part thereof
5	Bend Test	1 test for every 25 tonnes of steel or part thereof

NOTE: For various tests, acceptance criteria, tolerance etc. refer to Appendix 9.1 and relevant BIS codes.

10.9 STORAGE ACCOUNTING, PRESERVATION AND MAINTENANCE OF STEEL

The storage, accounting, preservation and maintenance of steel 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 GE shall inspect at regular interval to verify that steel lying at site is stored, accounted, preserved and maintained as per the norms. The steel shall be stored so as to differentiate each consignment separately. If the GE is not satisfied with the storage / preservation of any size of bar/section of steel, he may order for any test(s) of steel as applicable for that size of bar/section of steel and as specified in tender documents /relevant IS code to recheck the acceptability criteria for the same. The contractor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.

Movement of steel shall be recorded in In/Out steel register as per following proforma. Each entry in the register shall be signed by the contractor and Engineer-in-Charge

IN/OUT STEEL REGISTER

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

***Note**:

(i) The following reasons may be mentioned for taking out steel from storage:-
- (a) For testing purpose.
- (b) For use in work.
- (c) Rejected steel taken out of site.

(ii) All the transaction in the register shall be signed by Contractor / his representative and Engineer-in-Charge/JE.

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PARTICULAR SPECIFICATIONS (CONTD)

10.10 **SCHEDULING AND SUPPLY**

Schedule of supply of steel will be finalised by GE in consultation with contractor and the same will be incorporated in CPM chart so that supply of steel is monitored in a way to avoid any delay in completion of the work. The schedule of supply of steel will be vetted by Accepting Officer or Officer nominated by the Accepting Officer from time to time.

10.11 **MEASUREMENTS AND PAYMENT OF STEEL**

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

The nominal mass conversion factors for various steel Sections/ size of finished bars as given in relevant IS codes shall be considered standard for measurement.

The contractor shall plan to procure steel considering the time required for approval and testing of steel well in advance. No extension of time on grounds of delay in procurement of steel or testing/retesting of steel shall be admissible

The payment of steel shall only be allowed after production of original purchase vouchers, test certificates by the contractor for each consignment of steel.

10.12 **FABRICATION OF STEEL STRUCTURES**

The structural steel work shall be carried out all as specified in MES Schedule Part-10 and in drawings

11. **HOLD FAST/LUGS**

(a) Flat iron holdfast/lug shall be provided by welding as and where shown on drawings except those to be provided to wooden chowkhat, which shall be fixed with screws.
(b) Flat iron holdfast shall be embedded in PCC (1:3:6) type C-1 block of size 15 cm (height of block) x30 cm (length of block) x width of masonry wall.
(c) Wherever doorframe and windows frame side is coming in contact with RCC column, dash fasteners shall be provided in lieu of holdfast.

12. **STEEL WINDOW**

(a) The steel windows shall be as per clause 10.25 of MES Schedule Part I 2009 and as per sample kept in the GE's Office.
(b) Steel windows (glazed) shall be provided with horizontal glazing bars sash bars should be tenoned and revetted to frame of steel windows.
(c) The term 'Steel windows' used in the particular specification shall mean 'Steel windows/ventilators'
(d) Steel windows frame shall be painted in mastic (one part of bitumen and three parts of sand) or ready made mastic supplied by the manufacturer.
(e) Hinges for side hung shutters (glazed) shall be friction hinges projecting type and hinges for gauzed shutter shall be box type with peg stay.
(f) Steel windows shall be fixed to concrete/stone masonry with lugs. Lugs shall be provided for fixing to lintels and cill.
(g) Peg stays and handles for steel windows shall be steel corrosion resistant with wrinkle finish.
(h) Centre hung windows shall be mounted on antifriction brass pivots.
(i) Factory made steel windows shall be procured from the manufacturers listed in appendix 'H'

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PARTICULAR SPECIFICATIONS (CONTD)

(j) Steel windows shall be factory made confirming to IS-1038 and shall be obtained from the approved manufacturers. The finished product shall conform to the above specifications in all respect. The contractor shall submit one-sample of specifications in all respect. The contractor shall submit one sample of each type of steel window with all fittings for approval of the GE. GE shall certify that steel window and fittings conform to the contract specifications in all respects. The Engineer-in-Charge shall ensure the all windows provided and fixed are strictly in conformity with approved sample.

13. ALUMINIUM WORK

(a) Aluminium work shall be anodised and section incorporation in the work shall conform to designation 63400 given in IS-737 1986 and comply to the description as specified in Sch `A' and as directed.
(b) Aluminium section for shall be procured from any one of the approved manufacturer.

13.1 MEASUREMENT OF ALUMINIUM WORK

Weight of each section of aluminium shall be decided by board of officers which was nominated by Accepting Officer.

13.2 ALUMINIUM PARTITION AND WINDOWS

(a) Aluminium doors, windows, vents & fixed glazing shall be provided all as specified in MES SSR Part-I clause 10.37 and as specified.
(b) Make of aluminium section for doors/windows/ventilators shall be as per Appendix ‘H’.
(c) Openable aluminium windows shall be provided with aluminium grill (Type-A), aluminium wire mesh and glass panes.
(d) Thickness of glass panes for doors and windows shall as specified thick respectively. Glass shall be sheet glass selected quality.
(e) Glass panes shall be provided with standard glazing clip as per manufacturers instructions.
(f) Aluminium grill shall be provided to windows wherever indicated in the drawings/referred in notes of the relevant drawings.
(g) Aluminium grill shall be powder coated and shall be fitted to windows all as per manufacturer’s instructions and as per standard Engineering practice.

14. WELDING

(a) Welding of steel and iron work shall be done in an approved manner with electric arc welding.
(b) Electric welding shall be metal arc welding as specified i Para 10.15 of MES Schedule Part-I.
(c) Welding electrodes shall be of quality suitable for welding of structural steel and shall comply with requirement of IS-814 for covered electrodes for metal arc welding of mild steel.
(d) Unless otherwise specified/shown on drawings, the fillets welds shall be of 6mm size.
(e) All but welds shall be full penetration welds.

15. PCC SOLID BLOCK MASONRY

15.1 MATERIALS

Cement, Sand, Coarse aggregate and water shall be all as specified in PS clause 5 here-in-before.

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PARTICULAR SPECIFICATIONS (Contd...)

15.2 **MANUFACTURING OF CONCRETE BLOCKS**

(a) The mix of concrete shall be Grade C-5 having minimum compressive strength of 05 N/mm² for load bearing walls in building & boundary walls and Grade C-4 having minimum compressive strength of 04 N/mm2 for non load bearing walls in building and Density not less than 1800 Kg/Cum. The PCC blocks shall be manufactured at site or shall be procured from the manufacturers as approved by GE/AGE(I).

(b) The mixing shall be done in mechanical mixer only.

(c) The block manufacturing shall be carried out in block making machine with vibrating arrangements so as to give dense block. The concrete mix shall be sufficiently consistent to enable demolding immediately after casting

(d) The placing, compacting and curing shall be carried out as per requirement IS:2185.

15.3 **DRYING AFTER CURING**

The block shall be adequately cured and stored for a period of 6 weeks before incorporating in the block masonry works in both load bearing walls and panel/ partition wall and the same shall be ensured by both Engineer-in-Charge and contractor/representative of contractor and periodically checked by GE/AGE(I).

15.4 **PHYSICAL REQUIREMENT**

The nominal dimensions of concrete blocks shall be as follows:-

(a) Length : 400/300mm
(b) Height : 200mm
(c) Width : 200 or 100mm

Actual dimensions of length and height shall be 10 mm less than the nominal dimensions. Actual dimensions of width shall be 200 mm or 100 mm. The tolerance shall be as specified in clause 4.23.3 of MES Schedule Part I. The web/face dimensions shall be as per IS-2185.

15.5 **COMPRESSIVE STRENGTH**

The strength requirement for the solid block shall be as under:-

Type of work	Minimum compressive strength.
Solid block in Load bearing walls in building/Compound wall/Security wall/Boundary wall	5 N/sq.mm
Solid block in Non load bearing walls in building	4 N/sq.mm

15.6 **TESTING**

(a) Testing and sampling of blocks shall be as per requirements of IS-2185 (Part-I).

(b) All the following tests shall be carried out in accordance with IS-2185 (Part I):-

(a) Compressive test
(b) Block density
(c) Water absorption
(d) Dry Shrinkage
(e) Moisture movement

(c) All the above tests shall be carried out as described in Appendices of IS-2185 Part I. The test shall be carried out by the contractor through laboratories as mentioned in Annexures to Special condition. The cost of testing shall be borne by contractor.

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PARTICULAR SPECIFICATIONS (Contd...)

(d) For tests mentioned in (d) and (e) in clause No 3.30.6.2 above, sufficient number of blocks, over and above the sample blocks as mentioned in Appx 'A' to the special condition are also required to be tested as per the provisions contained in relevant IS. The tests shall be carried out under contractor's own arrangement from recognized laboratory and expenses towards the same shall borne by the contractor.

(e) A record of 'Concrete pour' for blocks and number of blocks cast/incorporated in testing shall be jointly maintained to assess the quality of cement utilized. The contractor shall bear cost of bocks, preparation of blocks and their curing, transportation and handling complete.

16 **TIMBER**

16.1 **GENERAL**

(a) Timber required for all the items of the works under this contract except factory made shutters shall be second class hard wood well seasoned Sal/Haldu as approved by GE and conforming to the sample kept in the GE Office and approved by GE for factory made shutters, species of second class hard wood shall be as per the species mentioned in MES Part I 2009 and as approved by GE

(b) Timber for all joinery and woodwork shall conform to specifications given in clause 7.3 of the MES schedule part I and shall be within the permissible limits of defects defined in clause 7.4 and 7.5 of the MES schedule part I for classified of zones for the moisture content, this contract shall be deemed to fall under climate zone II.

(c) Timber shall be well seasoned, whether air or kiln dried, at the discretion of the contractor but without any price adjustments. The moisture content of timber shall not exceed the limits laid down vide clause 7.7 of MES Schedule Part-I.

16.2 **PRESERVATION OF TIMBER**

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

16.3 **TOLERANCE**

Tolerance for wrought faces of carpenter's work and joinery shall be allowed as given in the MES Schedule Part-I except that no tolerance shall be allowed where the size of timber is 12mm or less.

16.4 **JOINERY**

Dimension of various parts of joinery as shown on drgs shall supersede those stipulated in MES Schedule. However, rates for joinery as given in MES Schedule shall apply to the joinery as shown in drawings in the event of deviation.

16.5 **MOISTURE CONTENT**

Timber shall be well seasoned (Whether air or kiln dried at the discretion of the contractor without any price adjustment). Maximum permissible moisture content in timber for various purpose shall be an stipulated in clause 7.7 of SSR Part-I 2009for classification of zones for the moisture content the site work lies under zone-II. Adequate number of test shall be carried out by the EIC to determine the moisture content in the timber used in the work and cost for testing shall be borne by the contractor without any extra cost to Govt.

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PARTICULAR SPECIFICATIONS (CONTD)

16.6 **TEAK WOOD EDGING**

(a) All sides of the particleboard shall be provided with the teak wood edging.
(b) Edging shall be fixed by using the synthetic resin adhesive and with appropriate size of screws @ 300 mm c/c dipped in synthetic resin adhesive.
(c) Thickness of glass panes for doors and windows shall be as specified in Schedule 'A'.
(d) Glass panes shall be provided all as specified in schedule 'A'.

17. **DOOR FRAME AND SHUTTERS**

17.1 **FACTORY MADE PANELLED DOORS**

(a) Factory made panelled door shutter shall be made of kiln seasoned as per IS-1141-1973 and chemically treated as per IS 401-1982 2nd Class hard wood for styles and rails. Panels of 12 mm thick particle board veneered commercial (both faces) BWP grade bonded with liquid phenol formaldehyde synthetic resin adhesive conforming to IS-3097 of 1980 or 9 mm thick BWP marine grade plywood bonded with high quality liquid phenol formaldehyde conforming to IS-710-1976 as specified in Schedule 'A'.
(b) The over all door shutter shall conform to IS-1003 of 1989.
(c) Factory made shutter shall be obtained from one of the manufacturer listed in Appendix 'H'.

17.2 **FACTORY MADE GLAZED & SKELTON SHUTTER**

Factory made glazed & skeleton doors and windows shall be made of kiln seasoned chemically treated second class hard wood. These shall be procured from a firm specified as listed in Appendix 'H' to Particular specifications.

17.3 **PRELAMINATED MDF BOARD**

Prelaminated MDF Board shall be as per IS 14587 Gde-I (Exterior).

17.4 **FLUSH DOOR SHUTTER**

Flush door shutters shall be as per Para 8.21 of MES Schedule Part-I (2009). Flush door shutters shall be solid core type with block board core conforming to IS-2202 Part-I. Battens for core shall be of 2nd Class hard wood kiln seasoned glued each other and bonded with Phenol formaldehyde synthetic resin BWP grade. Thickness of Flush door shutters shall be all as specified in Schedule 'A.'

18. **FACTORY MADE SOLID PVC DOOR SHUTTERS AND FRAMES (FOR WC/TOILETS/BATH)**

18.1 **GENERAL**

(a) Workmanship of Door Frame & Shutters shall be as per manufacturers instructions.
(b) The solid PVC frame & shutter laminate shall be self-pigment in colour as approved by GE.
(c) The contractor shall produce the manufacturers test certificate and original purchase vouchers along with the supply of shutters to Engineer-in-Charge.
(d) Size of shutter and iron mongery shall be as mentioned in the description of item under Schedule 'A'

NOTE:

(i) All door shutters and frames shall be factory made and shall be procured from factory.
(ii) Plugs to wall shall be done with wooden plugs as per clause 7.29 of MES Schedule Part-I (2009).

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PARTICULAR SPECIFICATIONS (CONTD)

19. **BUILDERS HARDWARE**

(a) Unless otherwise specified, butt hinges shall be cold rolled mild steel or medium weight conforming to IS-1341 and all as specified in clause 9.7.2 of SSR Part I.

(b) All items of builder's hard ware (iron mongery) other than hinges shall be as specified in Schedule 'A'.

(c) All builders hard ware fitting shall be fixed with screws/bolts to match the fittings.

(d) Hasp and staples required for the work shall be safety type all as per specified in clause 9.10 of SSR Part I.

(e) All builders hard ware shall conform to relevant IS and shall be as per sample kept in the GE's Office.

(f) Wire cloth shall be provided as per Schedule 'A' and as per sample kept in the GE's Office.

20. **WATER PROOFING TREATMENT (APP) ON EXISTING ROOF SLAB**

20.1 Water proofing treatment to existing RCC roof slab shall be carried out as per Schedule 'A' & following:-

(a) Water tightness to be tested by ponding of water after completion of water proofing treatment work for dampness/leakage/seepage.

(b) As regarding preparation of surfaces, water proofing treatment along the parapet, flushing etc the provisions contained in the relevant clause of MES Schedule Part-I (2009) shall be read in conjunction with the specification herein before.

20.2 The work as specified above shall be executed through authorised applicators of manufacturer. The contractor shall furnish Quality conformation from the manufacturer of the product along with quantity supplied. The contractor shall furnish the following:-

(i) Manufacturer's test certificate.

(ii) Test certificates from any approved laboratory as directed by GE. The testing charges shall be borne by the contractor.

(iii) Authority letter in respect of applicators from manufacturer.

(iv) Adequate precautions to be taken to ensure that the membrane does not get punctured during execution.

(v) Certificate from authorised applicator of having completed the work as per specifications.

20.3 Technical characteristics of the APP membrane shall be as under**:-**

S No	CHARACTERISTIC	SPECIFICATIONS
1	Thickness	Minimum 3mm
	Weight	Min 3.00 Kg per Sqm of membrane
	Softening point	Min 150^{o} C
	Cold flexibility	(-) 5^{o} C
	Reinforcement	Non-woven polyester Mat 160 gm/m^2
	Tensile strength:- Lengthwise Crosswise	 >750N/5cm >400N/5cm
	Tensile strength:- Lengthwise Crosswise	 Min 40% Min 50%
	Heat Resistance	Does not Drip at 125^{o} C
	Tear Strength:- Lengthwise, N Crosswise, N	 >300 >250
	Water Absorption, %	<0.15

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PARTICULAR SPECIFICATIONS (CONTD)

20.4 TREATMENT AROUND RAIN/DRAIN PIPES

The work will be executed in the following steps:-

(a) Cut a strip of membrane 25 cm in width and length equal to the perimeter of the drain, adding 10 cm for overlapping. Flame bond the part of strip to be inserted into the drain i.e. approx 15 cm.

(b) Cut the protruding end of the drain strip vertically upwards, with the aid of a heated trowel, into as many slits as are necessary to then be able to press it downwards and flame bond it to the surrounding roof deck. Then, with the help of the trowel and torch, go over the exterior of the drain to obtain an even spread of the asphalt and fill in all the pores.

(c) Cut a square piece of membrane about 10cm larger than the diameter of the drain. Flame bond this square over the drain opening, as centered as possible.

(d) Then, using the heated trowel cut the part that covers the opening of the drain into the shape of a star with 8 peaks. Fold the peaks outwards and heat them one by one with the pressing them down with your fingers to ensure perfect adherence

(e) The last step is to go over the inside of the drain, leveling of the surface. The drain shall be at least 15 mm lower than the substrate, so that the extra thickness caused by the various layers of the polymeric membrane do not cause unnecessary ponding of water.

20.5 LAYING TECHNIQUE OF MEMBRANE

(a) The membrane shall normally be laid in length at right angles to direction of the run-off gradient, commencing at the lowest level and working upto the crest. The membrane shall be first cut to required lengths, brushed clean of dusting material and laid out flat on the roof. Each length of membrane prepared for laying shall be laid in position and rolled up for a distance of half of its length.

(b) The minimum overlaps as specified shall be allowed at the ends and sides of strips polymeric membrane. All overlaps shall be firmly bonded by heating and fusing the layer of asphalt and melting the protective plastic film, but taking care not to overheat this, as too much heat can harm central polythene core which is essential for water proofing function.

(c) Keeping the overlap open with the help of trowel and then direct the flame uniformly inside and towards both membranes. Working the flame in opposite direction to the advance of the applicator.

(d) When the asphalt starts to flow, the applicator should press both membranes with his foot; on the opposite side to be hand bolding the torch until a thin string of fluid asphalt appears, indicating correct fusing and bonding. During this phase, the trowel should be worked with a back and forth, lengthwise motion, to homogenize the bonded area.

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

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

20.7 **SECURITY DEPOSIT TOWARDS WATER PROOFING TREATMENT AND GUARANTEE OF TREATMENT**

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

(b) The security deposit (guarantee money) on account of water proofing treatment @ 2.5% of the amount of water proofing treatment work as per contract rates shall be retained from the contractors final bill amount and the same shall be released after satisfactory completion of guarantee period as stated above. The contractor may alternatively submit fixed deposit receipt for the said sum from a scheduled Bank on account of guarantee money for water proofing treatment.

(c) The security deposit referred to in clause 11.4.2 herein before may be refunded to the contractor after expiry of the period of 10 years from the certified date of completion by the GE, provided always that the contractor shall first have been paid the final bill and have rendered 'No demand certificate' IAFW-451 condition 10.48 & 68 of General Conditions of Contracts (IAFW-2249) shall be deemed to be amended to the extent mentioned above.

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

20.8 **TESTING**

Testing shall be carried out for the cement, Water APP Membrane etc from reputed laboratory having NABL accreditation for carrying out the test. Engineering College as approved by the GE before incorporation in work. The cost of testing shall be borne by the contractor. Testing for any other material to be incorporated at work shall also be got carried out, as ordered by GE, by the contractor from recognized laboratory or Engineering College as approved by GE without any extra cost to the dept.

21. **FLOORING**

21.1 **GENERAL**

(a) Provisions contained in clause 13.25,13.26,13.27,13.28,13.32 &13.39 of MES Schedule are to be adopted for laying floors and pavements.

(b) Floors shall be laid to levels or to falls as directed by the Engineer-in-Charge. Floor finish shall be extended over dwarf walls, doors and other openings.

(c) In case of openings without door shutters, the finish of main room shall be extended for the full width of the opening.

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

(d) The dividing line between the floors of different types wherever they so meet between adjoining rooms, shall be determined on the basis of the finish visible when the doors are closed and the applicable finish shall accordingly be provided.

(e) Floor finish over PCC sub base shall be laid all as specified in MES Schedule. Floor topping of Cast-in-situ, P.C.C shall be finished even and smooth without using extra cement.

21.2 **TYPE AND COMPOSITION OFFLOORS.**
Floor finish shall be, as specified in Sch 'A' and shall be laid as specified in MES schedule and as hereinafter.

21.3 **GLAZED CERAMIC TILES FLOOR AND DADO**
The size of tiles shall be specified in Schedule 'A'. The tiles shall be laid as per clause 13.40 of SSR Part I and shall be obtained from sources mentioned in tender documents.

21.4 **NON SKID CERAMIC TILE FLOORING**
(a) Non-skid ceramic tiles shall be got approved from GE before incorporation in the work. Quality of tiles shall conform to Group B-I as per IS-13712-1993. Make of tile shall be as specified in Appendix `H'.

(b) Tiles shall be provided all as specified clause 13.40 of MES SSR Pt-I.

(c) Size and thickness of tile shall be all as specified in Schedule 'A'. Colour of coloured tiles shall be as approved by GE.

21.5 **MARBLE SLABS**
Marble slabs shall be plain white marble(Makrana or Abu white or Raj Nagar Marble); white veined marble (Makrana or Abu veined); plain black marble hainslana; black Zebra marble(Bhainslana, Kishanagarh, Abu black, Naurnol); green marble (Baroda, Abu or Bundi); Pink plain marble (Makrana, Bar); grey marble (Kumari and Bundi); and Brown marble(Bar and Narnaul), as indicated. Marble shall be hard, sound, dense and homogeneous in texture with crystalline and coarse grains. It shall be uniform in colour and free from stains, cracks, decay and weathering. Hardness on Mho's scale shall be minimum 3. The edges of the slab and tiles shall be true. Machine cut slabs and tiles with square edges may be supplied by the contractor without any price adjustment. The contractor shall get samples of marble slabs and tiles approved by the GE for their colour and matching or mis-matching of grains.

21.6 **POLISHED KOTA STONE TILE FLOORING**
(a) Kota stone slab/tile flooring shall be laid all as specified in clause 13.47 of MES SSR Part-I and as directed by the Engineer-in-Charge. Thickness of stone slab shall be 20 to 25mm if not specified any where in the tender documents.

(b) Cutting and polishing of Kota stone slab shall be done with the butties numbering 40,60,80,120,220,320, 400 & 600.

21.7 **PCC CHEQUERED TILES**
The size and thickness of tiles shall be as specified. Tiles shall set and jointed in neat cement slurry over cement mortar bedding and sub base as specified. Pattern and colour of tiles shall be as approved by GE.

21.8 **CEMENT CONCRETE INTER LOCKING PAVER BLOCK**

(a) All cement concrete interlocking paver blocks shall be factory made using machines
All moulds & machines shall be subjected to inspection by GE/Engr-in-Charge. The handmade paver blocks shall not be accepted.

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

(b) The pavers shall be manufactured as mono layer only.

(c) The concrete pavers shall have perpendicular ties. The pavers shall have uniform special chamfers to facilitate easy drainage of surface run off. The surface shall be anit-skid and anti-grade type. The pavers shall have uniform interlocking space of 2 to 3mm to ensure compacted sand filling.

(d) The paver blocks shall be tested one out of every 500 pieces and the test results kept on record. The testing charges shall be born by the contractor and deemed to be included in the rate of the item.

(e) The shape of the pavers shall be as approved by GE & the paver block as a whole shall conform to the sample kept in sample room of GE's office.

22. **PLASTERING**

22.1 **GENERAL**

(a) Prepare surface to be plastered and wet the surfaces thoroughly.

(b) Curing of plasterwork shall be properly done. The Contractor may use pressure pump or similar device without any price adjustment with due precaution against any damage to plaster due to impact.

(c) The contractor shall take every precaution right from the commencement of plasterwork to prevent any craziness that may appear on the surface of plaster and shall be responsible to make good any portion of plasterwork which in the opinion of the GE requires removal and redoing.

(d) The thickness of plaster specified is finished thickness exclusive of dubbing over protruded portion i.e. minimum thickness at any point on a surface.

(e) Unless otherwise specified external plastered surfaces shall be finished to a fair and even surface and internal plastered surfaces shall be finished even and smooth surface.

(f) Plastering at the junction of walls and floors and at all internal and external angles shall be rounded off to and imperceptible radius as directed by the Engineer-in-Charge. Plastering shall be returned in opening in walls.

(g) Internal plastering shall be carried out to the full width of jambs for the doors and windows and up to external edge of the walls.

(h) Sand for plastering shall conform to the samples kept in office of GE.

(i) Where plinth protection is not provided, the external plastering shall be carried out up to 150mm below ground levels.

(j) Thickness of plastering shall be as specified in schedules 'A' and shall be in one coat work.

23 **POINTING**

Pointing to external surfaces of stone masonry wall shall be keyed pointing as specified in Schedule 'A' and racking joints and other requirement shall be as per relevant clauses of SSR Part-I

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

24. PLUMBING AND SAINTARY FITTINGS

24.1 GI PIPE & FITTING

These shall confirm to IS1239 & fittings shall be suitable for the class/grade of pipe. Make shall be as per Appendix 'H'. Sample for pipes and fittings shall be provided by the contractor for approval of GE before placing order for supply.

24.3. FLUSHING CISTERN

Flushing Cistern for water closets and urinals shall be manually operated or automatic high level or low level as indicated. A high level cistern is intended to operate with a minimum height of 125 cm. and low level cistern with a maximum height of 30 cm, between the top of the pan and the underside of the cistern.

24.4. WASH HAND BASIN

Vitreous china wash hand basin shall have flat back and the size shall be as specified in Schedule 'A'

24.5 WATER STORAGE TANKS.

HDPE Storages Tank shall be provided all as specified in Sch – 'A' / BOQ and MES SSR Part-I. Water tank shall be single piece rotational moulded polyethylene cylindrical vertical closed top, single wall/triple layer construction of HDPE as specified. Water tank shall be of any of an approved make from the list given in Appendix `B' to particular specifications.

24.6 CI PIPES

Pipe shall be spun centrifugally cast conforming to IS-3989 (contractor may at his discretion provided ISI marked pipe without any price adjustment) and fittings/accessories shall be as per 3989 (ISI marked). Top of vent pipes shall be provided with CI cowl with cement joint and fittings shall conform to IS-3989 (ISI marked).

24.7 BIB TAPS/STOP COCK/PILLAR TAP/SHOWER ROSE

Bib tap, Stop cock and pillar tap shall be ISI marked shall conform to relevant IS and shall be procured from any of approved make.

25. GLAZING

Glazing to metal frames shall be with putty and steel clips as specified in clause 16.5 to 16.10 of SSR Part I. Glazing to wooden frames shall be with wooden beading of specified size supplied with the shutters.

26. WHITE WASHING/COLOUR WASHING/OIL EMULSION DISTEMPER

(a) White washing and colour washing shall be applied with proper brushes as specified in clause 15.12 of MES Schedule Part I.

(b) Oil bond distemper shall be applied with proper brushes as specified in clause 15.14 of MES Schedule Part I.

27. PAINTING

27.1 TARRING

Prepare surface and apply two coats of tare mixture to the timber surface in contact with or buried in earth/concrete brick work/stone masonry/PCC block walling/plaster.

27.2 PAINTING GENERAL

(a) Members specified to be painted shall first be passed by the Engineer-in-Charge and marked as such before commencement of painting work. Each coat of the paint shall be passed by the Engineer-in-Charge before a successive coat is applied.

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

(b) If the under coat of paint is not executed within 04 months after applying the priming coat of paint, the priming coat shall be redone by the contractor without any extra cost of the Govt.

(c) Surface in accessible for applying further coats shall be painted before fixing,

(d) The primer and paint shall be of same manufacturer.

(e) First quality brand paints shall only be used.

27.3 **PAINTING ON TIMBER SURFACE**

Prepare new surfaces and apply two coats of synthetic enamel paint Ist quality over one coat of pink wood primer all as specified in the clause 17.6 of MES Schedule Part-1. Priming coat shall be applied before fixing.

27.4 **PAINTING TO IRON AND STEEL WORK**

All exposed new steel works such as steel windows, window guard bars, grills angle iron door frames, other than steel specified in these particular specification steel items shall be painted with two coats of synthetic enamel paint First quality over a coat of zinc chromate/red oxide primer over the cleaned surface. Priming coat shall be applied before fixing in position. All galvanized iron articles and reinforcement bars shall not be painted.

28. **INTERNAL ELECTRIFICATION**

28.1 **GENERAL**

(a) The exact position of electrical fittings and fixtures shall be as directed by Engineer-in-Charge at the time of execution without any price adjustment of such changes in layouts.

(b) The run of wires and location of fittings shall be marked on walls and sofit of roofs/floor slabs for the wiring for the approval of Engineer-in-Charge. The contractor may have to re-align the wiring and or relocate the fittings, if required for final approval at no extra cost to Government.

(c) Single stranded conductor shall not be used in place of multi-stranded conductor cables of sizes already in production.

(d) The maximum continuity resistance from any point in the installation including the earth continuity conductor and earth pipe shall not exceed one ohm.

(e) The mounting height of various fittings shall be as directed by Engineer-in-Charge.

(f) All screws and fasteners shall be alloy aluminium or cadmium plate iron. Rawl plugs may be used instead of teak wood gutties in the ceiling.

(g) Line clips shall be aluminium conforming to IS-2412. The minimum thickness of clips shall be 0.32m and width not less than 8mm. All other dimensions shall be as specified in the IS.

(h) Distribution boards and MCBs shall be factory made. DBs and MCBs will be of same make.

(i) All work or internal electrification shall be executed by fully qualified licensed electricians. Certificates of qualification etc. shall be produced on demand by Engineer-in-Charge.

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

28.2 **CABLES**

(a) Cable for internal wiring for light, power and sub mains shall be with copper multi-stranded fire retardant conductor PVC insulated (Sheathed/ unsheathed).

(b) The run of wires and location of fittings shall be marked on walls and sofit of roofs/floor slabs for the wiring for the approval of Engineer-in-Charge. The contractor may have to re-align the wiring and or relocate the fittings, if required for final approval at no extra cost to Government.

(c) All materials for fittings/accessories of cable etc to be incorporated in the work shall strictly comply with latest Indian Standard or if Indian Standard or if Indian Standards have not been issued then with current British Standards.

28.3 **CASING CAPPING WIRING**

(a) Casing capping wiring shall be with non-metallic PVC casing capping of standard size 12/20 mm, 20/25 mm & 25/32 mm all as required to carry on wire more than required numbers of wire in the layout at site. Wiring shall run on walls ceiling etc all as specified for batten wiring. The weight of PVC casing capping 12/20m, 20/25 and 25/32mm shall be not less than 75 gm/RM, 150 gm/RM 180 gm/RM respectively. It shall be plain parallel and smooth fair finished flawless shall have proper press type self locking design all screws and fasteners shall be alloy aluminium or chromium plated. Iron porcelain tubing shall be provided for wiring to pass through wall etc as directed by the Engineer-in-Charge.

(b) PVC casing capping shall be either off white or ivory in colour as approved by GE/Engineer-in-Charge.

(c) Embedded gutties (where applicable) shall not be more than 75 cm apart with the big end in side and the other end flush with finished wall/ceiling surface.

(d) Fitting and accessories for casing capping wiring shall be of PVC and shall have thickness not less than that of casing capping itself or as approved by GE. That shall be so designed and constructed so that they match with the corresponding size of casing capping.

(e) All the fan boxes shall be covered with 3.00 mm thick plastic laminated sheet. The colour shall be match with the colour of casing capping.

28.4 **PVC RIGID NON-METALLIC CONDUIT FITTINGS**

(a) The maximum permissible number of 1100 volts grade single core copper cables that may be drawn into the rigid non metallic conduit shall be all as per SSR Part-I Clause 19.225, table (b).

(b) The fittings for rigid non metallic PVC and conduit shall confirm to relevant IS and ISI marked all as specified in Schedule `A' and approved by the Engineer-in-charge at site.

28.5 **LIGHT FITTINGS**

Light fittings such as wall fittings, ceiling fittings, bulk head fittings and the like shall be of high grade of make as catered in Appendix 'H'. In case no make for fittings have been indicated then the same shall be of reputed.

28.6 **SWITCHES/SOCKET OUTLETS 3 PIN 5 AMPS SP/6 PIN 15 AMPS**

Switch/socket outlets shall be provided as specified in Clause 19.114.1 & 19.114.5 of MES SSR Part-I. Switches & sockets outlets shall be ISI marked. Switches – IS-3854, socket outlet -1239-1988.

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

28.7 **MCBs & DBs**

MCBs shall be of 10 KA rupturing capacity, duly IS-8828 marked. DBs shall be manufacturer's factory made and shall be of the same make as the MCB.

28.8 **POINT WIRING**

Point wiring shall be done with 1.5Sqm/2.5Sqmm/4Sqmm/6SqmmPVC Insulated & unsheathed cable single core multistranded copper conductor as per item catered for in Sch `A'.

28.9 **CEILING ROSE**

These shall be all as specified in clause 19.32 of MES Schedule Part-I of 2009.

28.10 **EARTHING**

(a) Earthing shall be provided of the types as mentioned in Schedule 'A' and shall be executed as per IS-3043 and clause 19.137 to 19.146 of MES schedule Part-I. The overall earth resistance of the earthing system (electrode) shall not exceed one ohm. Earthing shall be done in a manner that the inner edge of earth pit is at least 2 metre from the building foundation (extreme outside end) and the minimum distance between two earth electrodes shall be regulated as per IS-3043. All pipes used shall be of medium grade. IS-1239 marked.

(b) It shall be ensured that as per NEC-85, the size of earth continuity conductor shall not be less than half the size of main current carrying conductor subject to a minimum of 1.5 sq mm for copper and 2.5Sq mm for aluminium.

(c) Concrete chamber shall be PCC (1:3:6) type C-1. All internal surfaces of the chamber shall be given 15 mm thick plaster in cement mortar (1:4). Funnel in chamber shall be made out of CI. It shall be leak proof and provided with wire gauge duly soldered.

(d) Charcoal dust and salt filling shall be done in layers as shown in layers as shown in electrical plate.

(e) RCC cover for earth pit shall be 40 mm thick mix of concrete for cover shall be (1:2:4) type B-1 using 20 mm graded crushed stone aggregate and reinforced with 8 mm dia high strength deformed TMT steel bars @ 100 mm c/c both ways. Handle shall be of 8 mm dia high strength deformed TMT steel bars and shall be fixed in such as way that the gap between cover and handle is at least 150 mm. Cover shall be placed on cast iron frame embedded in concrete.

(f) Surplus soil shall be disposed off and site shall be cleaned and tidy on completion.

(g) For checking the efficiency of earthing, the following test shall be carried out:-

(i) The earth resistance of each electrode is measured

(ii) The earth resistance of earthing grid is measured.

(iii) All electrodes are connected to the grid and the earth resistance of the entire earthing system is measured.

(iv) These tests shall preferably be done during the summer months.

28.11 **XLPE CABLE**

XLPE cable shall be insulated around and confirming to IS 7098 (Part-2/1985 and all as specified and clause No 19.19.1 of SSR Part-I (2009).

28.12 **SAND CUSHIONING**

Before laying of cable the trench shall be provided with a layer of 8 cm thick sand for the purpose of cushioning throughout the width and a layer of sand of 15 cm thick shall also be provided after laying of cable

Contd…/-

PARTICULAR SPECIFICATIONS (CONTD)

28.13 **CABLE PROTECTION COVERS**

LT cable protection shall be as specified in Schedule 'A'. Stone patti shall be provided as mentioned in Schedule 'A' and as specified in chapter 5 of SSR Part-I (2009)

29 **DEMOLITION**

Contractor shall ensure that demolition/dismantling shall be done carefully without damaging the stone patties/adjoining walls or to the building. The work shall be executed as per directions of Engineer-in-Charge.

30 **DISMANTLING AND MAKING GOOD**

(a) All dismantling work (except for which separate item is given in schedule 'A') required for execution of work mentioned in Schedule 'A' shall be deemed to be included in the rate quoted. The contractor shall make good all disturbed surfaces to match with the existing specification and to the entire satisfaction of Engineer-in-Charge.

(b) Rates quoted for dismantling taking down/fixed in repair shall included cost of making good, sorting of materials and their removal as directed by Engineer-in-Charge.

(c) The rates quoted for dismantling/taking down/fixed in repair shall deem to include for removal of all unserviceable materials from site to outside MD land. No extra payment for removal shall be made.

(d) The contractor shall take all safety measures for protection of existing floor, plastering, joinery etc during demolition of items of contracts, RCC etc. The contractor quoted rate shall deem to include for the same.

Signature of Contractor

Accepting Officer
AGE (I) Udaipur

Appendix "A"

SOURCES OF MATERIALS

FOR WORKS IN UDAIPUR/ MOUNT ABU:-

The sources of material as mentioned below are applicable if subject work is to be executed at Udaipur/ Mount Abu or nearby area/station:-

Sl No.	Name of Materials	Sources of materials for works at station **
1	2	3
1	Fine aggregate (Sand) for masonry	Banas River Abu Road
2	Coarse aggregate for all RCC and PCC work	Abu Road
3	Coarse sand, sand for all RCC and PCC works	Banas River Abu Road
4	Sand for mortar in stone masonry, PCC masonry, plastering and pointing, seal coat and sand cushion	Banas River Abu Road
5	Stone for stone masonry, Soling , Hard core and WBM	Abu Road
6	Lime	Kewari Kinal Nathdwara Koptra Sojat
7	Chipping for premixed carpet	Locally best available as approved by GE/AGE(I)
8	Stone for kerbs, road edging and stone slab for cable protection cover.	Locally best available as approved by GE/AGE(I)

**Sources indicated are for guidance purpose only

NOTES :-

1. Sources of materials shall be given in above tables or in the vicinity thereof. The tenderer shall ascertain the actual position/exact location of source before submitting his tender and no additional payment shall be made on account of misunderstanding or its distance from site of works. Contractor may bring material conforming to contract specifications from other sources wthout any price adjustment after obtaining written approval of GE.

2. The tenderer shall amongst other things also ascertain all information such as royalties, taxes, duties and other charges etc on the materials and no additional payment shall be made on account of the foregoing.

3. However, if due to any ban imposed by the state Govt authority on obtaining the materials from the sources specified above and or specified materials is not available at the sources mentioned above these materials conforming to specifications as given in particular specifications will be procured from any other place/source which is Locally best available as approved by GE/AGE(I)& after getting the same approved from GE/AGE(I) in writing and without any extra cost to Govt.

Appendix 'B'

CEMENT SUPPLY & ACCEPTANCE REGISTER

1. CA NO & Name of Work :
2. Control No * :
3. Name of Manufacturer/Brand Name and 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 letter No _____
   (Name of approved Lab/Engg College)
   (b) Chemical test report from _____Vide letter No _____
   (Name of approved Lab/Engg College)
7. Details of Physical & Chemical properties :

	Physical Requirement (As per IS 4031)										Chemical Requirement (As per IS 4032)							
	Specific surface (M^2/Kg)	Soundness by Le Chatellar	Soundness by Auto clave	Initial setting Time (Minutes)	Final Setting Time (Minutes)	Compressive Strengths (Mpa) 03 days	07 days	28 days	Temp during	Standard Consistency (%)	Lime Saturation Factor (Ratio)	Aclumina iron Ratio (Ratio)	Insoluble Residue (%)	Magnesium (%)	Sulphuric Anhydride (%)	Loss on ignition (%)	Alkalis (%)	Chlorides (%)
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/CWE *To be allotted serially by GE Consignment wise

Appendix "C"

IN /OUT CEMENT REGISTER

Srl No.	Date	Cement IN		Cement OUT			Qty Balance (In Bags)	Signature		Remarks
		Qty (In Bags)	Control No	Qty (In Bags)	Reason	Age of Cement		Contractor	AGE/ GE	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)	(l)

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

1. For testing purpose.
2. For use in work.
3. Rejected cement taken out of site.

Appendix "D"

STEEL SUPPLY & ACCEPTANCE REGISTER

1 CA NO & Name of work

2 Contract No

3 Name of manufacture's TC No :

4 Manufacturer :

5 Random test Details (a) Physical test report from _____ vide their letter No _____(Name of Approved Lab/Engg College)

(b) Chemical test report from _____ vide their letter No _____(Name of approved Lab/Engg College)

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

	Chemical Test							Mechanical Test						Remarks
	Carbon %	Sulphur %	Phosphorous %	Sulphur + Phosphorous %	Manganese %	Silicon %	Corrosion Resistant Element	Wt per Meter	Yield Stress (N/mm^2)	Tensile Strength (N/mm^2)	Percent Elongation (min 18%)	Bend Test	Rebend Test	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
As per relevant IS 1786-2008														
As per manufacture'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/CWE

Appendix 'E'

LIST OF BIS CERTIFIED PRODUCTS TO BE INCORPORATED IN WORKS

Sl No	MATERIALS	IS Ref
1	2	3
1	Concrete	
a	Integral Water Proofing Compound	IS : 2645
2	Joinery	
a	Panelled Door Shutters	IS: 1003
3	Builder's Hardware	
a	Steel Butt Hinges	IS : 1341
b	Ferrous Tower Bolts	IS : 204 Part - I
c	Non-Ferrous Tower Bolts	IS : 204 Part - II
d	Door Handles (Non – Ferrous)	IS : 208
e	Parliament Hinges , Ferrous	IS : 362
f	Continuous piano Hinges	IS : 3818
g	Non- Ferrous Metal Sliding Door Bolts	IS : 2681
h	Tee and Strap Hinges	IS : 206
i	Mild Steel Sliding Door Bolts	IS : 281
4	Steel and Iron Work	
a	Steel Doors , Windows and Ventilators	IS : 1038
5	Roof Covering	
a	Bitumen Felts for water proofing and damp proofing	
b	Un-reinforced corrugated or semi – corrugated asbestos cement	
6	Ceiling and Lining	
a	Plywood for general purposes	IS : 303
b	Block boards	IS : 1659
c	Veneered particle board	IS : 3097
d	Marine Plywood	IS : 710
e	Fibre Hardboard	IS : 1658
f	Medium Density Fibre Board	IS : 12406
7	Flooring	
a	White Portland cement	IS : 8042
b	Cement concrete flooring tiles	IS : 1237
8	Water supply , Plumbing , Drains and Sanitary Appliances	
a	Concrete Pipes with or without reinforcement	IS : 458
b	Salt Glazed Stoneware pipes and fittings	IS : 651
c	Centrifugally cast (spun) iron spigot and socket soil,waste and ventilating pipes , fittings and accessories	IS : 3989
d	UPVC , Soil , waste and Rain water Pipes	IS : 4985
e	Sand cast iron spigot and socket soil waste and ventilating pipes	IS : 1729
f	Galvanized Mild Steel tubes	IS : 1239
g	Galvanized mild steel tubes fittings	IS : 1239 Part-I
h	Vitreous china sanitary appliances	
(i)	Wash down water closets	IS : 2556 Part-II

Appendix 'E' (Contd../)

Sl No	MATERIALS	IS Ref
(ii)	Squatting Pans	IS : 2556 Part – III / Part - XIII
(iii)	Wash Basin	IS : 2556 Part - IV
(iv)	Foot Rests	IS : 2556 Part - X
j	Plastic WC seats and covers	IS : 2548
k	Flushing Cisterns for water closets and urinals other than plastic	IS : 774
l	Ball Valves (Horizontal plunger type) including floats for water supply.	IS : 1703
m	Cast copper alloy screw down bib taps and stop valves.	IS : 781
n	Pillar Taps	IS : 1795
o	Cast Iron manhole cover frames	IS : 1726 Part –I to VII
9	Electrical Works	
a	Ceiling Rose	IS : 371
b	Tumbler Switches	IS : 2120 Part – 15A / IS : 1087 Part – 5A
c	Socket outlet – 3 Pin plug and socket	IS : 1293
d	Switches fuses (main & switch)	IS : 4064
e	Rigid Non-Metallic Conduit	IS : 2509
f	Rigid Steel Conduit	IS : 1653 / 9537 Part – II
g	Single Core Cable Polyethylene insulated and PVC sheathed Cable	IS : 1596
h	Starter for Tube light	IS : 2215
i	Fluorescent Lamps	IS : 2418
j	Aluminium stranded Conductor	IS : 398
k	MCB	IS : 8828

Appendix "F"

1. APPROVED MANUFACTURER OF CEMENT/BRAND NAME/TYPE OF CEMENT:-

a) Ultra Tech Cement Ltd **BRAND "ULTRATECH"** (All grade)
a) Orient Cement **BRAND "ORIENT"** (All grade)
b) Dalmia Cement (Bharat) Ltd **BRAND "DALMIA INFRA PRO"** (All grade)
c) M/s Chettinad Cement Corporation Ltd **BRAND "CHETTINAD"** (OPC 43 Grade & PPC)
d) M/s My Home Industries Ltd **BRAND "MAHA CEMENT"** (PSC)
e) M/s Parasakti Cements Ltd **BRAND "PRASAKTI"** (OPC 43 Grade & PPC)
f) Nuvoco Vistas Corporation Ltd (Formerly Lafarge Cement) **Brand "NUVOCO" (All grade)**
g) M/s Wonder Cement Ltd **BRAND "WONDER CEMENT"**‖ (OPC 43, OPC 53 grade & PPC)
h) M/s JSW Cement Ltd A.P BRAND "JSW PSC (Portland Slag Cement)" Brand "JSW OPC 53" Brand "JSW OPC 43" (OPC 43, OPC 53 grade and PSC)
i) M/s Shree Guru Kripa Cement (Pvt) Ltd BRAND "SARTAJ" (OPC 43 Grade & PPC)
j) M/S Ramco Cements Ltd
k) BRAND "RAMCO" (All Grade)
l) Saurashtra Cement BRAND "SAURASHTRA" (All Grade)
m) The Associated Cement Companies Ltd BRAND "ACC" (All grade)
n) The India Cement (All Grade)
o) Century Cements BRAND "CENTURY" (All Grade)
p) Mangalam Cement Ltd BRAND "MANGALAM" (All Grade)
q) Birla Corporation Ltd BRAND "BIRLA" (All Grade)
r) Shree cement BRAND "SHREE" (All Grade)
s) J K Cement BRAND "J K"(All grade)
t) J K Lakshmi Cement Ltd BRAND "J K LAKSHMI" (All Grade)
u) Jaypee Rewa Cement BRAND "JAYPEE" (All Grade)
v) Ambuja Cement Ltd BRAND "AMBUJA" (All Grade)
w) Or any other make approved by E-in-C‟s Branch even after bid submission end date subject to compliance of contract provisions.

Note:-
1. It will be ensured by the GE that validity of approval of the any make is not expired before procurement by contractor. If validity of approval of any make is expired, the same shall automatically be deemed to be deleted from the list.

2. Validity of Product approval letter issued by EinC br/HQCESC shall be checked and verified by GE before the sample approval of products to be incorporated in work.

Appendix "G"

APPROVED STEEL(TMT/REINFORCEMENT\STRUCTURAL)MANUFECTURER

TYPE OF STEEL		NAME OF COMPANY/BRAND
a) TMT / Reinforcement Steel	(a)	Steel Authority of India Limited (SAIL) **Brand "SAIL"**
	(b)	Tata Iron & Steel Company (TISCO or Tata steel) **Brand"TATA"**
	(c)	Rashtriya Ispat Nigam Limited (RINL) **Brand "RINL"**
	(d)	M/S Shyam Steel Industries Ltd, Kolkata, **Brand "SHYAM"**
	(e)	M/S Shyam Metalics & Energy Ltd **Brand "SEL"**
	(f)	M/S Jai Balaji Industries Ltd, Kolkata, **Brand "Balaji Shakti"**
	(g)	M/S Steel Exchang India Ltd, Hyderabad, **Brand "SIMHADRI TMT"**
	(h)	M/S Jindal Steel & Power Ltd, Hissar, **Brand "JINDAL PANTHER"**
	(j)	M/S SRMB Srijan Pvt Ltd Kolkata, **Brand "SRMB"**
	(K)	M/s Kamachi Industries Ltd. **Brand "KAMACHI"**
	(l)	M/S Adhunik metaliks Ltd, Kolkata, **Brand "ADHUNIK Fe 500 SD"**
	(m)	M/S Shri Bajrang Power & Ispat Ltd , Raipur Chhattishgarh, **Brand "GOEL TMT"**
	(n)	M/S JSW Steel Ltd, Mumbai, **Brand "NEOSTEEL"**
	(o)	M/S Electrotherm (India) Ltd, Ahmedabad, **Brand "ET TMT"**
	(p)	M/S Super Smelters Ltd, Kolkata, **Brand "Super Shakti"**
	(q)	M/S Real Ispat & Power Ltd, Raipur, **Brand "G K TMT"**
	(r)	M/S Gallantt Metal Ltd, Gandhidham Kutch, **Brand "GALLANTT TMX"**
	(s)	M/S Rashmi Metaliks Ltd,Kolkata, **Brand "RASHMI TMT"**
	(t)	M/S Shyam Steel and Power Ltd, Kolkata, **Brand "SEL"**
	(u)	M/S SPS Steel Rolling Mills Ltd, Kolkata, **Brand "ELEGANT TMT"**
	(v)	M/S Shree Nakoda Ispat Ltd, Raipur, **Brand "NAKODA TMT"**
(b) **Main producers of Structural steel**	(a)	Steel Authority of India Limited (SAIL) **Brand "SAIL"**
	(b)	Tata Iron & Steel Company (TISCO or Tata steel) **Brand"TATA"**
	(c)	Rashtriya Ispat Nigam Limited (RINL) **Brand "RINL"**
	(d)	M/S Jindal Steel & Power Ltd **Brand "JINDAL "**
(c) **Secondary Producers of Structural steel**	(a)	M/S K.L. Steel Pvt Ltd, Post Box No 61, Lal Kuan, Bulandshahar Road, Ghaziabad (UP) Tele: 0120-2867911,2867915, FAX: 0120-2867917
	(b)	M/S Shri Badrinarain Alloys & Steels Ltd, 95, Stephen House, 4 B B D Bag Kolkata-700 001 , Tele:033-2220- 5381/2248 1601, FAX: 033-2248 8664
	(c)	M/S Pushpak Steel Industries Pvt Ltd, Gate No 119, Alandi Markal Road, Dhanore, Tah Khed, Pune Tele-Fax: 020- 26444700/070
	(d)	M/S Amba Shakti Ispat Ltd, Plot NO. 6 ,Phase II Industrial Area, Kala Amb, Distt-Sirmour-173 030 (HP) Tele:01734-309983,309986, FAX:01702-238927
	(e)	M/S SRMB UDYOG Ltd., 46, BB Ganguli Street, Kolkata-700 012, Tele:2236 9999
	(f)	M/S Tata Steel Structura Tata Steel-Tube Division, Jeevan Tara Building, 1st Floor 5, Sansad Marg, New Delhi-110001 Tele: 991112334,264601734, 309983,

Appendix “G” (Contd…/-)

TYPE OF STEEL		NAME OF COMPANY/BRAND
(c) **Secondary Producers of Structural steel**	(h	M/S K L Concast Pvt Ltd, Z-18 Naraina, New Delhi
	(j)	M/S Karam Steel Corp, Nasrali Road, PO No 56, Mandi Gobind Garh -147 301
	(k)	M/s Shyam Steel Industries Ltd, 115 College street white towers, 1st Floor, Kolkata-700 012
	(l)	M/s Kashi Vishwanath Steel Ltd, Narain Nagar, Bazpur Road Kashipur, Distt-US Nagar, Uttaranchal-13
	(m)	M/s Shree Sharma Steel Rolling Mills, 127, Industrial area, Jhotwara, Jaipur – 302012, Tele : 0141- 2362936, Mob : 09829012753

Note:-

1. It will be ensured by the GE that validity of approval of the any make is not expired before procurement by contractor. If validity of approval of any make is expired, the same shall automatically be deemed to be deleted from the list.

2. Validity of Product approval letter issued by EinC br/HQCESC shall be checked and verified by GE before the sample approval of products to be incorporated in work.

3. The contractor shall procure structural steel sections directly from SAIL/RINL/TISCO/JINDAL. In case of nonavailability of structural steel with SAIL/RINL/TISCO/JINDAL, the structural steel can be procured from approved secondary producers given in above table 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 primary producers (SAIL/RINL/TISCO/JINDAL), there shall be no price adjustment in case of structural steel procured from approved secondary producers as listed above in table.

4. Manufactrurer of steel as listed above or any of other make which is approved by E-in-C"s Branch even after bid submission end date subject to compliance of contract provisions.

Signature of Contractor

Accepting Officer
AGE (I) Udaipur

Appendix "H"

LIST OF APPROVED MANUFACTURER/MAKE/BRAND

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
CONCRETE		
1	Ready Mix Concrete (RMC)	Lafarge / Ultra Tech / ACC / RMC Ready Mix /REMCO
2	AAC Block	Siporex / HIL Ltd / Greenway Building Materials India Pvt Ltd / DLITE Blocks Ltd
3	Admixtures	SIKA / FOSROC / CHOKSEY / STP / MAPEI / THERMAX / MARUTI BITUMEN / IWL / HINDCON
4	Curing Compound	SIKA / FOSROC / CHOKSEY / STP / MAPEI / THERMAX / MARUTI BITUMEN / IWL / BOSTIK
JOINERY		
5	Factory Made Wooden Shutter	Goel Brothers Raipur / Pioneer Timber CHD / Goyal Industries, New Delhi / Jain Doors Pvt Ltd, HR/ India Wood and Wood Products, M' Lore / MP Wood Products, Indore / A-1 Teak Product, Indore / Door King Industries, Kolkata / Prince Timber / Indian Timber Product, Hydrabad.
6	Factory Made PVC FRP Shutters and Frames	Rajashri Plastiwood, Indore/ Sintex Industries Ltd / Dura Plast Extrusion / Madhu Industries / Navratan Co Speciality Chemicals (GIZA) / Accura Polytech / Engco Industries, Jodhpur / Selected Products (SPC) / Janik Developers / Kumar Arch Tech Pvt Ltd
7	UPVC Doors, Windows and Ventilators	Poly Windows, Pune / Aparna Profiles Pvt Ltd / Rajshri Plastiwood / Madhu Industries / Accura Polytech Pvt Ltd
8	Steel Windows, Ventilators, Door Frames, Shutters	Madhu Industries / Jagnid Engg, Jaipur / Deccan Structural Pvt Ltd, B' lore / Chandni Industries / Ashwani & Sons / Anoop Industries / Trisul Industries / Ashish Industries.
9	WPC Boards	Rajshri Plastiwood / Kumar Arch Tech Pvt Ltd (Echon) / Navratan Speciality Chemicals (GIZA)
10	Aluminum Section of Shutters /Frames For Door, Window, Ventilators	Hindalco Ind Ltd / Indian A1 Company / Jindal / Associated Profile & Alum Ltd / Sterlite / Bhoruka Alum Ltd / Architecture Incorporation, Chennai / Deco Grill
11	Rolled Formed GI Section Pre Painted / Pre Coated Windows	NCL ALLTEK / SECCOLOR Elixir Met / Ashwani & Sons
12	Steel Rolling Shutters Grills & Collapsible Gates	Shree Laxmi Engg Works, Bengaluru / Prakash & Co, New Delhi / Senthil Rolling Shutters & Engg Co Chennai / Swastik Rolling Shutters, Mumbai / Jayraj Industries, Chennai / Darshan Rolling Shutters, Nashik / Shalimar Rolling Shutters & Co / Ganesh Rolling Shutters, Hydrabad / Shapana Dock & Steel
REPAIR/REHABILATION OF RCC STRUCTURES		
13	Construction Chemicals	SIKA India / FOSROC / CHOKSEY / BOSTIK INDIA
14	Concrete Surface Improvement	SIKA / FOSROC / HINDCON
15	Repair & Rehabilitation / Bonding Agents / Grouts	SIKA / FOSROC / CHOKSEY / STP / BOSTIK / Thermax / Hindcon / Maruti Bitumen
16	Joint Sealant	SIKA / FOSROC / CHOKSEY / STP / Bostik India / Thermax / Hindcon Chemicals / Maruti Bitumen
17	Reinforcement / Concrete protective coating /Systems	SIKA india /FOSROC / Thermax / Hindcon chemicals / Maruti Bitumen / Bostik India

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
18	Epoxy /Polyurethane Industrial Flooring	SIKA / FOSROC / CHOKSEY / STP / BOSTIK / Thermax
19	Floor Hardener	SIKA / Thermax / Hindcon / Maruti Bitumen / Bostik India
20	Membrane & Liquid membrane Coatings	SIKA / FOSROC / CHOKSEY / STP / BOSTIK / Maruti Bitumen / Asian Paint
BUILDER'S HARDWARE		
21	Hydraulic Door Closer	Everlite / Universal / Prabhat Door King / Perfect Hydraulic / Dyna / Hardwin / Ranjan / Kelin / Amar Engg & Co, New Delhi
22	Stainless Steel Plate Rack	Prayag / Nirali / Bluster Sanitary Industries Pvt Ltd (SILVER SHINE) / Selected Products Co. (SPC)
23	Aluminium Tower Bolt / Aldrops / Door Handle	Argent Industries / Aluminium Udyog / Prayag / Jindal
24	Towel Rails	Jaquar /Kich/ Swastik/ Crown/ Prayag/ ESS ESS
25	Mortice Locks	Harrison / Godrej & Boyce Co Ltd/ RP Lock & Co New Delhi / KICK
26	Drapery Rod	Vista Levolor / MAC-DECORE / Sophia
27	Venetian Blinds	Vista Levolor / MAC / Aeroluxe
STEEL, ALUMINIUM & IRON WORK		
28	Galvanized Steel Chain Link Fence Fabric Barbed Wire, (Galvanized Steel) Mechanically Woven Double Twisted Hexagonal Wire Mesh For Gabions, Revet Mattress And Rock Fall Netting(Galvanized)	A1 Fence Products Company Ltd / Indian wiremesh Group / Nitin wiremesh Group /Shankar weldmesh Pvt Ltd / Gurukrupa Brand
ROOF COVERING		
29	Mangalore Tiles	Charminar / Raja / Recho / Prajapati / Kerala Tiles Wks / Trisur / St Anthony's / Muvattupuzha / Mari Tiles Wks/ Haessika Decorative Tiles
30	Non Asbestos Fiber Reinforced (Poly Propylene) (6 mm Cement Corrugated Sheets)	Everest / Charminar Fortune (HIL Ltd)/ Ramco Indus Ltd
CORRUGATED SHEETS		
31	Pre Painted Galvalume /Galvanized Corrugated Steel Sheet	Tata/ JSW/ ESSAR / Metco Roof Pvt Ltd / MB Engg (PROFLEX SYSTEM)
32	Galvanised Plain / Corrugated Steel Sheet	TATA / JSW / ESSAR / Indian Steel Corpn Ltd / National Steel & Agro Indus Ltd
33	Pre Moulded Non Bituminous Joint Filter Board	Elcon / Duron Board Hd-100 / STP
34	Pre Moulded Bituminous Joint Filter Board	STP Ltd / Tikitar Industries Ltd/ Sikka
35	AC Sheet & Ridges	Charminar / Everest / UP Asbestos/ Ramcu / Swastik / Visakha Indus / Asbestos Cement Ltd
36	Water Proofing Chemicals / Materials	Pidilite Indus Ltd/ FOSROC / Dr Fixit/ EXCOT / IMERMO / SICO / Superaquacern (I) Ltd / SIKA / STP / Choksey / Thermax / IWL / Maruti Bituman / Bostik India

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
37	APP Membrane	STP Ltd / Texsa India Ltd / IWL Ltd / Tiki Tech / SIKA / FOSROC /Tiki Tar Danosa / Torchtar membrance & Bituman Products / Shivam Tar / Asian Paints
CEILING AND LININGS		
38	Board/Tiles For Insulation & Acoustic	Armstrong Wood Ind / Gyp Board / Bison Panel / Lagyp / Eternite / Aerolite / STP / SN Industries
39	PVC False Celling, Wall Lining & Solid PVC Partitions	Rajshri Plastiwood / Kumar Arch Tech Pvt Ltd (Echon) / Navratan Speciality Chemicals (GIZA) / Accura Polytech Pvt Ltd (Accucel)
40	Plywood	Kitply / Century Plywood / Archid Ply / Green Ply / Anchor/ Swastik / Bhutan Board / Indian Plywood / Jain Wood Indus (JAYNA)
41	Particle Board Gypsum	Mangalam Timber Products / Gypsum Board / Jolly BD Mumbai / Indian Gypsum Products / Armstrong Wood Industries / Anchor Bombay / Indian Plywood / Board Gypsum India /Arolite Costing System / Associate Deor Ltd
42	Laminated Sheets	Formica / Sungloss / Sunmica / Backlite Hylum / ECO Board / Nova Teak Super / Nova Pan / Kitlam / Green Lam
43	Adhesives	Pidilite / Fevicol / Vermicol / Armacell India Pvt Ltd
44	Pre Laminated Particle Board	Nava Pan / Eco Board / Indus Pune / Kitply / Green Ply / Anchor Lam / Century Plywood / Bhutan Board / Archid Ply / Archid Board / Associate Décor Ltd / Green Ply Indus Ltd
45	Non Asbestos Fiber Reinforced Cement	RAMCO Indus Ltd / Visaka Industries Ltd / V-BOARD
46	Block Boards And Veneered Particle Board	Bajaj Board / NU Wood / A1 Boards / Bhutan Boards / Charminar / Lotus / Swastik / Duraluff / Kitply / Jainwood Indus (Jayna) / Greenply Indus Ltd (Green panelmax)
FLOOR FINISHING & PAVINGS		
47	Glazed Ceramic Wall / Flooring Tiles	Johnson / Kajaria / Somany / Oasis / RAK Ceramics / Sunshine Tiles Co Pvt Ltd / Asian Granite Ind Ltd / Spartech / Regency / Murudeshwar Ceramics / Orients Bell / Qutone Ceramic Pvt Ltd / Varmora Granite Pvt Ltd / Aparna Enterprises (VITRO)
48	Non Skid Ceramic Tiles	Johnson / Kajaria / Somany / Asian / Spartak / Regency / Orients Bell / Ambani Vitrified Pvt Ltd Naveen Tiles
49	Vitrified Tiles	Johnson Marbonite / Kajaria / Somany / Oasis Vitrified Pvt Ltd / RAK Ceramics / Sunshine Tiles Co Pvt Ltd / Asian Granite (I) Ltd / Spartek / Regency / Murudeshwar Ceramics / Bell Granito / Naveen Tiles/ Orients Bell / Qutone Ceramic Pvt Ltd / Varmora Granito Pvt Ltd / Aparna Enterprise / Swastik Ceracon Ltd Co Pvt Ltd / Cengress Tiles Ltd / Ambani Vitrified Pvt
50	Mosaic / Cement Flooring Tiles	NITCO Mumbai / Ultra / Duracrete / Mehtab Tiles Indore / National Tiles / Bharat Tiles & Engg Co B;Lore / Modern Tiles And Marbles / Gwalior Granite

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
51	Acid Resistant Tiles	Johnson / Somany / Kajaria / Burn Standard Co, Jabalpur / Purshuram Pottery Wks, Marvi / Regency Ceramics / Duracrete / Coromandal Products / Iswar Industries Delhi
52	Cement Concrete Interlocking Paver Blocks/Tiles	Mehtab Tiles, Indore / NICTO / Ultra Tiles / Navya Tiles, Jodhpur / Patel Fur Mart / Sap Paver, Jodhpur / Sagar Tiles, Saharanpur / CEME / Sukhi Enterprise / Topaz Tiles / Swami Tiles / Supreme Tiles / Lucky Cement Block Works / Vaishnavi Developers
53	PVC Sheet and tile flooring	Krishna Vinyl Tiles / Armstrong / Marbles Tiles / Polyfin Tiles / Square Foot / Neelkamal / Wonder Floor / Premier Vinyl Flooring New Delhi / Rikvin Floors, New Delhi
WHITE WASHING, COLOURING, PAINTING & DISTEMPERING		
54	Distemper Oil-Emulsion (OBD)	Nerolac / Shalimar Paints / Johnson & Nicholson / Asian Paints / Berger Paints/ ICI India / Jotun / Garware Paints
55	Plastic Emulsion Paint and Exterior Emulsion Paint	Nerolac / Shalimar Paints / Johnson & Nicholson / Asian Paints / Berger Paints/ ICI India / Pidilite Whetherproof / Jotun
56	Cement Base Paint	Super Snocom / Duracom / Aquacem / Shalimar Paints /Berger Paints / Asian Paints / Accrocem / Nitco Mumbai / Jehnson & Nicolson
57	Cement Putty	Birla Cement / JK White Cement / Golden Mohar / Asaian Paint / Shalimar Paints / Jehnson & Nicholson
58	Synthetic Enamel Paint	Asian Paints / Nerolac Paints / Shalimar Paints / Dulux / ICI Paints / Johnson & Nicholson Paints / Jotun
GLAZING		
59	Sheet Glass Plain	Hindustan Pilkington Glass / Saint Gobin / Asahi Works / Modi Float /Modiguard / Atul Glass Indus / Gold Fish / Trupti
60	Sheet Glass Frosted	Hindustan Pilkington Glass / Saint Gobin / Asahi Works / Modi Float /Modiguard / Atul Glass Indus / Gold Fish / Trupti
61	Heat Absorbing Glass And Reflective Solar Control Film	Saint Gobin / Modi Float /Modiguard / Atul Glass Indus / Gold Fish / Trupti / Hindustan Pilkington Glass
62	Rough Cast Wired Glass	Saint Gobin / Modi Float /Modiguard / Gold Fish / Trupti /Hindustan Pilkington Glass
63	Oil Putty	Shalimar Hardware/ Jehnson & Nicholson / Asian Paints / Berger Paints / Anglo Dutch Colour & Varnish Wks Najafgarh Road / Golden Mohar / Atul Dyes & Chemicals / U K Paints Indus Gurgaon
64	Wall Putty	Dalmia Magic Premium Skin Coat Bharat Ltd / Walplast Product Pvt Ltd / Jehnson & Nicolson / Asian Paints
65	Mirror	Modi / Atul / Saint Gobin / Gold Fish / Hindustan Glass Calcatta / Asahi Works / Kohinoor / Swastik

Appendix "H" (Contd…/-

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
WATER SUPPLY, PLUMBING, DRAINS & SANITARY APPLIANCE		
66	CI Pipe & Fittings	Electro-Steel Casting Ltd / Kejriwal / NECO / Kesoram / Kapilansh / Kalinga / Babul Al Bajaj Iron Foundry / True Form Engg./Raj Pattern Makers & Founders Pvt Ltd
67	GI Pipe & Fittings	Tata / Jindal / BST / Surya / KS Engg Works / Zenith / Swastik / Prakash
68	DI pipes & Fittings	Jindal Ltd, Gujrat / Electrosteel Castings Ltd, WB / Tata Metalices, Kolkata / Saw Pipes / Sri Kalahasthi Pipes Ltd / Electrothem (India) Ltd / Aarok Pipe Gram Udyog / Truform Techno Products Ltd / Truform Engineering / Jai Balaji Industries Ltd
69	Hubless Centrifugally	Jayswal NECO Indus Ltd / Singhal Iron Foundary Pvt Ltd / Raj Pattern Mattress & Founders Pvt Ltd
70	MS Pipe & Fitting	Tata / Jindal / Swastik / Prakash / Surya / BST / Zenith
71	HDPE Pipe & Fittings	Finolax / Prince Pipe / Supreme / Jain Irrigation System / Kisan / R C Plasto Indus / Triputi
72	CPVC Pipe & Fitting (Chlorinated Polydeny Chloride)	Prince Pipe / Finolax / Dutron / SFMC / Birla Aerocon / Vectus / Ajay Industrial / Ashirvad Pipe / Ajay Flowgaurd / Prayag Polymers HSIL / Fusion Industries /R C Plasto / Avon Plastic
73	PVC Soil Waste Mini Water (SWR & Drainage Pipes)	Supreme / Prince / Kisan / Finolax / Dinesh / Amogh Plast / Astron Plastic
74	PPR Pipes & Fitting	Prince Pipes / Finolex / Supreme / Savoir Fairo Mafg / Kanha Plastic / Vectus Industries / Fusion / SHK / Polymers / M/s Kanha Plastics Pvt Ltd (KPT)
75	PVC Pipes & Fitting	Prince Pipes / Finolex / Supreme / HIL Ltd / GM Modular / Avon Plast Ind Ltd
76	UPVC Pipes & Fittings	Prince Pipe / Finolax / KPT / LLP / AKG / Supreme / Birla Aerocon / Vectus / Ajay Industrial / Ashirvad / Greenline / CRI HSIL / Fusion Industries / R C Plasto / Avon Plastic
77	UPVC Pipes & Fittings for SWR	Prince Pipes & Fittings Ltd / Finolex / Birla Arocon /(Hil Ltd) / Ashirvad Pipes Pvt Ltd / HSIL Ltd / VECTUS Industries / Ajay Industrial Corpn Ltd / Avon Plastics Industries Ltd / AKG Extrusions Pvt Ltd / Kisan Moduling Ltd / Supreme
78	Polyethylene / Aluminum / Polyethylene Composite Pressure Pipe	Prince / Finolex / Supreme / Vectus
79	Plastic Pipe For Non Pressure Drainage & Sewage	Prince / Finolex / Supreme / Ashirvad / Foamfit
80	CI Soil, waste/ rainwater (SWR) & Drainage Pipe	NECO Nagpur /Singhal Iron Foundary Mathura / Bangal Iron Co / Dhatu Udyog / Kapilanash Nagpur / Anand Founder & Engineers / Raj Pattern Motors Founders
81	AC-Soil, Waste/ rainwater (SWR) & Drainage pipes	Everest Asbestos Hyderabad / Vishaka Ind Ltd / Hyderabad Asbestos / Ramco / Asbestos Cement Ltd / Swastik / Rajasthan Asbestos / Sarbmangla Mfd Co Kolkata / Rohtas Indus
82	Steel Pipes for Water & Sewage	APL APOLLO TUBE LTD / Laxmi Balaji Ceramics / TATA

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
83	RCC Pipes, Drains Pipes	Indian Hume Pipes / Everest / Himalaya / Thuluvananikal Pipes /Poona Concrete Products /Awathy Spun Pipes /Vardhman Concrete Pro Pune /Dhere Concrete Products Pune / Shivam Industries.
84	Air Release Valves	Leader / BIR / Kirloskar / Sant / L & T / Upadhay / Venus / Normex / AUDCO
85	Foot Valves	Leader / Kirloskar / Sant / L & T / Upadhay / Venus / Normex / AUDCO / Varun / AARCO Pipe Gram Udyog
86	Reflex Valves	Leader / Kirloskar / Sant / L & T / Upadhay / Venus / Normex / AUDCO / Varun / AARCO Pipe Gram Udyog / L & T
87	Sluice Valve	Leader / BIR / Kirloskar / L & T / Upadhay / Venus / AUDCO / AARKO Pipe Gram Udyog / L & T / Zoloto/ /Kalpna / Cair Euromatic Automation
88	Butterfly Valve / Disc Valves	Leader / BIR / Kirloskar / Sant / L & T /Upadhay / Venus / Normex / AUDCO / AARKO Pipe gram Udyog /L & T / Zoloto / Cair Euromatic Automation Cair /Castle / Valvo Int
89	Gate Valves	Leader / Zoloto / Sant / Hindustan Metal Industries/ Jaypee / Kingstan / Hansa / Valvco International
90	Water Meter	Capstan / Dasmesh / Kaycee / Capital / Anand Asahi / Kirloskar / GEC /Dhawan Sanitary Udyog / Meco
91	PVC Water Tank/ Polyethylene	Sintex Indus / Polycon Jaipur / Rotex / Plasto Nagpur/ Polywell / Carris Pipes Tubes Pvt Ltd / Okey Polymers Pvt Ltd /JS Polyplast / Engrn Plastic Indus Jodhpur / Vectus Industries Ltd / Ashish Plast / Piyush Plasto Cheme Pvt Ltd / Simplex Plast / Kaveri Plasto/ Rotametic Containers Pvt / Infra
92	CP Bibcock, Stopcock Pillar Cock And Accessories	Jaquar / Marc / Cera Sunirtoro / Kohlar / Soma / Dhawan Sanitary Udyog / Sieco Indus /GEM / Mohan Metal Industries /Shakti Enter / Prism Johnson Ltd / Parko
93	Copper/ Brass Alloy Bib Tap, Pillar Tap, Anglee Valve And Stop Valve Accessories	Soma / Leader/ Zoloto / Jaquar Vo Pvt Ltd / Shree Balaji Industries / Plastocraft Sanitary / Vardhman Enterprise /KS Engg /Aluminium Udyog / Shakti Enter /Dhawan Sanitary Udyog / Goel Sinks India Pvt Ltd /Prayag Polymers
94	Shower Rose	Jaquar / Kohler / ESS-ESS / Soma / Crabtree / CERA Sanitaryware / Kingstan / Marc / Meera / Prison Johnson Ltd
95	Gun-Metal Globe / Gate Valves / Angle Valves	Leader / BIR / Zoloto / Kirloskar / Balaji / Shakti Enterprise / Dashmesh / Chambal / Kartar / Valco International
95A	PVC Stop Cock and Bib Cock / Float Valves and accessories	Jaypee / GMP / Neta / Zolota / Prayag polymer / Symet / GEM / Hansa Kingston / Seiko / Ajanta Polymers / Shakti Enterprise / Procision Products

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
96	CI / Brass Ball Cocks (Float Valves)	Leader / Neta / Zoloto / Dhawan Sanitary Udyog / Aarko Pipe Gram Udyog / Prayag Polymers
97	Water Closet (Vitreous China) (European/Indian) Squatting Pan Orissa Pattern	CERA Sunitaryware / Parryware / Jaquar / Kajaria Sunitaryware / Hindware / Johnson / Somany / Prayag Polymers / Neyveli Ceramics (Neycer) / RAK Ceramics / Simpolo Vitrified Pvt Ltd /Glint Faucets Inc / Ambani Vitrified Pvt Ltd
98	Flushing Cistern-PVC Low Level including Flush Valves and Fittings for WC and Urinals	CERA / Parryware / Commander / Johnson Peddar / Prayag / RAK Ceramics / Neycer / Jaguar & Co Pvt Ltd /Speed Flo/ RS Industries / Ajanta Polymers / Shakti Enterprise / Procision Products / Goel Sinks India Pvt Ltd / Ambani Vitrified Pvt Ltd
99	Plastic Seat Covers for EWC	CERA / Parryware / Commander / Neycer / Prayag / RAK Ceramics / Duralite / Champion / Speed Flo / Ajanta Polymers
100	Urinal vitreous china	CERA / Parryware / Johnson / Prayag / Jaguar & Co Pvt Ltd / Speed Flo / Shakti Enterprise / Ambani Vitrified Pvt Ltd / Neyveli Ceramics / Hindware / Kajaria Sanitaryware/ Simpolo Vitrified Pvt Ltd / Somany Cremics
101	Wash Basin Vitreous	CERA Sunitaryware / Parryware / Jaquar / Kajaria Sunitaryware / Hindware / Johnson / Somany / Prayag Polymers / Neyveli Ceramics / RAK Ceramics / Simpolo Vitrified Pvt Ltd / Glint Faucets Inc / Ambani Vitrified Pvt Ltd
102	Stainless Steel Kitchen Sink	Jayna / Nirali / Neelkanth / Parryware / Diamond / Shakti / Prayag / Phonix / Plastocraft Sanitary / Goel Sinks India Ltd / Blue Star Sanitary Indus Pvt (Silver Shine)
103	Centrifugal / Mono Block Pumps	Kirloskar / Beacon / CRI Pumps / Crompton Greaves / KSB Pumps / Wilo Mather Platt / Jyoti / V Guard / Best / Calarna / BE / Shakti Pumps India Pvt Ltd
104	Submersible Pumps /Open Well Pumps	Kirloskar /CRI Pumps / KSB Pumps / Wilo Mather Platt / Jyoti /V Guard /Shakti Pumps India Pvt Ltd /Calama / Grindfus Pumps /Jasco Pumps
105	Vertical Turbine Pumps	Kirloskar / Wilo Mather Platt / Worthington / Johnson / WASP / KSB / Jyoti / Modi Atlame
106	Non Clog Sewage Submersible Pumps	Kirloskar / KSB Pumps / Wilo Mather Platt / Kishore Pumps / Grindfus Pumps
107	Pumps For Fire Fighting	Kirloskar / Wilo Mather Platt / Crompton Greaves / Bharat Bijlee
ELECTRICAL WORK		
108	Pole Prestressed Concrete	Shree ji Super Precast Pvt Ltd. Udaipur Cement Fabric India, Jodhpur / Hindustan Prestressed Concrete, Faridabad / India PCC Poles / Concrete Udyog Jhansi / Sankla Udyog, Jhansi / Shri Balaji Enterprises / Predo Chandigarh / Bator Concrete Products Aurangabad / Concrete Fabrics Haryana

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
109	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 / Sohan lal / Bharat Conduit and Steel Works, Kanpur / Quality Steel Products Ltd, Kanpur
110	Insulator HT/LT Disc/Pin/Shackle/Loop/ String Type	BHEL / Jayshree / WS Insulators / Southern Insulators / MEI / Modern Insulators / Jaipuria / Bangal Potteries /Pactil
111	RMU & PSS	Lucky Electric India Pvt Ltd / L & T / Megawin Switchgear / Voltech System & Switchgear Voltech / C & S Electric
112	Air Circuit Breaker (ACB) LT 1100 Volts	Havells India Pvt Ltd / L & T / Siemens / ABB / Schneider Electricals / Crompton & Greaves / GEC / English Electric / Novateur Electricals / BCH /Control & Switchgear
113	Vacuum Circuit Breaker (VCB) suitable for 36 KV, 22 KV and 12 KV system including accessories	Siemens / Crompton & Greeves / ABB / Alsthom / BHEL / Schneider Electricals / C & S Electric / L & T / Andrew Yule / Megawin Switchgear / Voltech System & Switchgear Voltech
114	Automatic Power Factor Correction (APFC) Panel	L&T / GEC / Siemens / ABB / EPCOS / Asian / Shakti / Shreem /BCH / Electrocontrol System India / Voltech Manufachturing Co Voltech / Liveline Electronics / Havells India / Shalabh (india) Industries
115	PCC/MCC Panels/LV Switch Board	Electrocontrol System India / Voltech Manufacturing Co Voltech / Techno System & Switchgear / Neptune System Pvt Ltd / C & S Electric Ltd
116	Power Factor Improvement Capacitor Banks	L&T / Siemens / EPCOS / GE / ABB / Shreem / Universal / Havells / Crompton & Greaves
117	HT Switch Gear 66/33/11 KVA, 3 Phase, GAS Circuit breaker, SF-6 Type	Crompton & Greeves / Schneider / ABB Ltd / Siemens Ltd
118	HT 11 KV, 3 Ph, Automatic Switch Fuse Unit	ABB / AREVA T & D India Ltd / Crompton & Greeves / Schneider / C & S Electric / MEI / Jyoti / Southern Switchgear Mumbai / Andrew Yule
119	Air Break Switch Gang (Isolators) operated (33KV/11KV)	Pacfit Mumbai/ Jaipuria Brothers / HEI / MEI / Southern Switchgear / BHEL / ELPRO/ ATLAS
120	Air Break Switch Gang (Isolators)	MEI / Southern Switch Gear / Andrew Yule / Crompton & Greeves Mumbai
121	Arresters Lightening LT/HT	Oblum / BHEL / GEC-ELPRO / Crompton & Greaves / AREVA T&D / Jaipuria / Atlas / Rastriya / Elpro
122	Chemical Earthing Electrode	U-protech Earthing / Shivangi Engineering Works / Earth SOL-3
123	Change Over Switch Starter / Contactor/ DOL / Star-Delta / Syncronising / Single phase preventer	Havells / Siemens / L & T / ABB / Crompton & Greaves / GE / V-Guard / HPL / Polycab India / C & S Electric / Hagger Electric Pvt Ltd / Voltech System & Switch Gear Voltech / Adhunik Switch Gear /Bentec India Ltd
124	Main Switch Iron Clad Switch fuse unit fuse Switch unit	Havells / Siemens / L & T / Crompton & Greaves / HPL / Standard / Novature Electricals / C & S / Anchor / Voltech System & Switchgear VOLTECH / V-Gard India Ltd

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Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
125	Transformers 66/11 KV, 33/11 KV, 33/0.433 KV, 22KV/11KV, 22/0.433 KV Copper Wound all rating	ABB / Siemens / Bharat Bijlee Ltd / Crompton & Greaves / Schneider / Alstorm (GEC) / Kirloskar Electric / EMCO / Voltamp Ltd / BHEL / Andrew Yule/ Voltech Manufacturing Co Ltd / ESSENAR Transformer (P) Ltd / Silverline Electricals Pvt Ltd / PACTIL / Indian Transformer / Voltamp Ltd Baroda
126	Transformer 11 KV/433 volts step down indoor/outdoor type up to 1000 KVA capacity dry resin type	Schneider / Crompton & Greaves / Kirloskar / ABB / ESSENAR Transformer (P) ltd
127	Transformer 33 KV & 11 KV Current & Potential	Automatic Electrical / Pragati Electricals / Jyoti Ltd / L & T / Siemens / Schneider / Crompton & Greeves / Kappa Electricals / Laxmi / Control System/
128	Isolation Transformer	Vintex Electronics (Volina) / Power One Micro System / India Techno Indus (Spectron)
129	Transformers 6.6 KV/ 433 V three phase upto and including 100 KVA	Indian Transformer Gurgaon / Voltech Manufacturing Co Ltd / ABB / Schneider
130	Transformers 11 KV or 6.6 KV copper wire 500 KVA and above	ECE / Crompton & Greaves / ABB / Bharat Bijlee Ltd / Schneider / Kirloskar Electric / EMCO / Andrew Yule/ Voltech Manufachturing Co Ltd / Silverline Electricals Pvt Ltd / Pactil / Indian Transformer Electricals / Volt Amp Ltd Baroda / Sankla Udyog Jaipur / Toshiba/ PME / Volt amp Ltd Baroda
131	Transformer 11 KV or 0.433 KV copper wound, below 500 KVA	Volt Amp Ltd Baroda / Indo Tech Transformer / Alstom /ABB / Sachinder / Bharat Bijlee Ltd / Silverline Electricals Pvt Ltd / Rajasthan Transformer and Switchgear / Paston Transformer Bharuch / Indian Transformer Electricals / PME /Jaybee Ind / Everest / Transtrom
132	Transformer 11/0.433 KV copper wound, below 100 KVA and below	PME / Rajasthan transformer / Everest / R K industrial / PACTIL / Koston / HI Tech industries / Jaybee Ind
133	Cable Jointing Kit for 11KV/22KV	Raychems / Densons / M-Seal / Birla- 3M / Yamuna Gases and Chemicals
134	UG HT XLPE, PVC Insulated Conductor for 3.3/33/22/11 KV System	Cable Corporation of India / Havells / Universal / Paramount Cable Ltd/ Satna / Asian Cables (RPG) / Gloster / RPG / Finolex / Paragon / Industrial Cable Punjab / R R Kabel / KEI Ind / Poly cab Pvt Ltd / Pymen Cables India Ltd / Asian Galaxy Pvt Ltd / SURAJ
135	UGLT/AB Cable, XLPE, PVC Insulated Aluminum conductor	Cable Corporation of India / Asian Cable Co / Finolex/ Sincab Cable/ Paramount Cable Ltd / Polycab / Gloster / Universal / KEI / R R Kabel / HPL / RPG Cables / Havells / Paragon / V-Guard / Plaza Cable / Grandlay Electrical india / Asian Galaxy Pvt Ltd / Pymen Cable India Ltd / Vishal Cables / Ultracab / Shalabh (India) Industries / SURAJ/avocab
136	Aluminum Conductor Steel Reinforced (ACSR)	All Ind / ICC / Bharat Conductors / NICCO / Indian Aluminum Co / VK Conductors / Ujala / Konark / Gupta Power Infra Ltd / Power Cable Ind

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
137	Steel Light Fitting (LED)	Bajaj / Philips / Wipro / Crompton /GE / Havells India Ltd / Lukar / Jaquar / Fiem India Ltd / Pyrotech Electronics / Bentech India Ltd / Eveready Indus India Ltd / Orient Electric / Poly Cab / Surya Roshni / Halonish Technologies / Shri Sant Kurpa /C & S / Asian / Gold Medal Electrical / Instra Power Ltd / HPL Electric & Power Ltd / Shakti Pvt Ltd Fixtures /Gupta Power Infra Ltd / Anchor Electrical Pvt Ltd / Green Surfer / Olive Export / Adhunik Switchgear /JILCO
138	Solar Street Light Fitting	Havells / Philips / BHEL / TATA / Bajaj / Crompton / Sun Technic / Surya / Goldwin / Kripa / Ptronix / Axxon
139	High Mass Light	Bajaj / Crompton / Philips / Metal Coats / Utkarsh Tubes & Pipes
140	Fluorescent Tube Light Fitting /LED/ Lamp Holder	Bajaj / Philips / Wipro / Crompton / Havells / Surya / Indo Asian
141	Flame Proof Light Fitting (LED/Fan/Well Glass/Bulk Head Including Accessories	Sudhir / Flexipro / Electrical Nasik /Shyam Switchgear Mumbai / Bajaj / Crompton / Batiga
142	Fluorescent lamp Lt lamp	Bajaj / Philips / Wipro / GE Lighting / Osram / Havells / Crompton / HPL Electrical Power Ltd / Indo Asian / Surya / Halonix Technogies Pvt
143	Light Fitting LED	Crompton / Phillips / Havells / Osram / Wipro / Bajaj /GE / Lukar / Jaquar / Fiem India Ltd / Pyrotech Electronics / Bentech India Ltd / Eveready Indus India Ltd / Orient Electric / Poly Cab / Surya Roshni / Halonish Technologies / Goldwin Ltd / Gupta Power Infra Ltd / Anchor Electrical Pvt Ltd / Holonix / Syska Shri Sant Kripa / Jain Ind Lighting Co/ Seimens / Gold Medal Electrical /Instapower Ltd /Shakti Pvt Ltd Fixtures /Gupta Power Infra Ltd / Anchor Electrical Pvt Ltd / Green Surfer / Olive Export / Adhunik Switchgear / C & S Electric Ltd
144	LED Tube lights & Bulbs	Phillips / Havells / Osram / Wipro / Bajaj / GE / Orient Electric / Polycab / C&S Electric / Surya / Luker / Shakti / Jaquar / Syska LED / Eveready / Fiem India Ltd / Pyrotech Electronics / Bentech India Ltd / Eveready Indus India Ltd / Halonish Technologies / Goldwin Ltd / Gupta Power Infra Ltd / /Hatonix Technologist / Syska / Seimens / Gold Medal Electrical HPL Electric / Instapower Ltd / R R Electricals / Shakti Factories Pvt Ltd /Gupta Power Infra Ltd / Anchor Electrical Pvt Ltd / Green Surfer / Olive Export / Adhunik Switchgear / C & S Electric Ltd / JILCO
145	Electronic /Photoelectric Switch For Auto Op Of Street Light	L & T / General Electric / Siemen India / Bajaj Electricals / Legrand / Novature Electricals (Indo Asian)

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
146	DBs/MCB (Miniature Circuit Breakers) & MCCB (Moulded Case Circuit Breakers).	L & T / Schneider / Legrand / ABB / Siemens / Havells / V-Guard / Poycab / C & S Electric / Standard / Novatour Electrical And Pipes / HPL Electric & Power / Honey Well Electrical Device / VK Industries / Panasonic Anchor / Cosmo Electric Ind Pvt Ltd / Bentec India Ltd / Electrocontrol System India / Voltech Mfg Co / Adhunik Switchgear / Haggar Electric / Shalabh (India) Industries
147	Microprocessor based MCCB/RCCB LT 415 Volts	L & T / Schneider / Legrand / ABB / Siemens / Novatour Electrical And Pipes / HPL / C & S / V-Guard / Polycab / Bentec / Standard / Datar / Havells/ Panasonic Anchor / Honeywell Electrical Device
148	Electrical Panel (LT)	L & T / Legrand / ACCURATE / VOLTECH / Osian Switchgears & Controls / M/s Shreeji Enterprises C & S / V-Guard / Polycab /Techno / Neptune / Standard / Adhunik / SEEPL / NEO POWER / Electrocontrol / Shalabh (India) Industries / Manish Electronics
149	Electric Accessories, Piano Suitable Ceiling Rose, Call Bells, Buzzers, Lamp Holders/Socket Outlet Etc Plug And Socket Boards	Crabtree / Leader / Legrand / Havells / C & S Electric / V Guard / Cona / SSK / Kinjal / HPL / Honey Well / Gold Medal /GM Modular/ V K Industries / Standred / Panasonic Anchor
150	Ammeter/Voltmeter/ Power Factor/ Frequency Meters	IMP / Automatic Electric / L & T / Havells / MECO / C & S Electric / Universal / HPL / Conserv / Digitron
151	Digital Meters With Built In Selector Switches for Voltmeter, Ammeter, Frequency meter, Energy, KWH, Power Analyser	L & T / Automatic Electric / Enercon / Secure Meter/ Havells / HPL / C & S / Legrand / Trinity / Neptune System
152	Modular Switches/ Sockets	Anchor / Legrand / Crabtree / Havells / Indo Asian / Gold medal / HPL / Polycab / L & T / Panasonic Life Solution /Elleys Industries / C & S / Honey Well / Finolex Cables / Bentec India / V K Industries / Cosmo Electric / Haggar Electric / Adhunik / Pressfit
153	Electric Energy Meter Tamper Proof	L & T / Jaipuria Meters / Havells / Secure Meters / Elemeasure / HPL / Bontec India (BENLO)
154	SCADA System	Schneider / Elemeasure / Forbes Marshal / Techlogs Aumn / RDS
155	Celling Fan	Bajaj / Crompton / Polar / Khaitan / Orient / Havells / V-Guard / Polycab / Panasonic / RR Fans
156	Exhaust Fan/Air Circulators	Bajaj / Crompton / Khaitan / Usha / Almonard / Havells / Polycab / Orient / Anchor / Orient / AIRTECH
157	Fan Regulator	Bajaj / Khaitan / Usha / Anchor / Havells / GEC / Legrand / Liveline Electronics
158	Electronic Type Fan Regulator	Bajaj / Legrand /Crompton / Havells / Orient / Gold medal / V-Guard / Polycab / Panasonic life solution / GM / RR Fans
159	Geyser	Havells / Bajaj / Racold / Usha / Venus / V-Guard/ Jaquar / Madhuban / Bharat / Pearl

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Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
160	PVC insulated Copper/Aluminum Cable 1100 Volts of all types	Plaza / Finolex / Anchor / Havells / Nicco / Polycab / RPG / HPL / KEI / Gloster / RK Kobal / Paragon Cable / Para Flex / GM Modular / Dneo Cables / Grandlay Electricals / V Guard / Asian Galaxy / Fortune Arts Wires & Cables / Kalinga /CRI Pumps / VK Industries / Cosmo Electric / Tamra Dhatu Udyog /Bonton Cable India / Shalabh (India) Industries/avocab/suraj/sci/eckosink/M/s Ecko Cales Pvt Ltd
161	PVC conduits (Rigid or Flexible)/FRLS Rigid PVC conduits/ Fittings	Anchor / Modi / Presfit / Precision / Astral / Panasonic Life Solution / Avon Plastic / Kalinga / Polycab/ AKG Condict Pipe / Plaza Cable / National Pipe Products /GM Modular / VIP Extrusion / Asian / Bajaj Plast
162	PVC Tape	GM Modular / Panasonic Life Solutions / Havells / KEI
163	MS Conduit	BEC / Kalinga /Jindal / Bharat / AKG / NIC / CTI / Asian / Viraj / RMG
164	Casing Capping & Accessories	Precision / Modi / Presto Plast / Supreme / Polycab/ Plaza / Pressfit / Prince / Asian / National
165	Indicating Lamps Neon/LED Type	Seimen / ABB / Schneider / L & T / EPCOS India / Jaipuria / C & S Electrics / Voltech Manufacturing
166	LT Relay Numerical/ Static/Protective/ Auxiliary	L & T / Siemens / ABB / Schnieder / EPCOS / Jaipuria / C&S Electric / VOLTECH
167	UPS	Tata-Liebert / APLAB / Luminous / Sukam / Microtech / Protect Service / Labotech Power Conservation Tech / Sinetrac / Liveline Electronic / Power One
168	Automatic Voltage Stabilizer (Servo Controlled)	Automatic Electric / Vinitec / Aplab / V Guard / Vintek Eleronics (Volina) / Micotech / Sinetrac / Microtech / Andrew Yule / Brent Ford / Power Ware Meerut / India Techno Indus / Power One Micro System
169	Solar Inverters	Polycab India Ltd / Power One micro system / BHEL
170	DG Set (Engine)	Kirloskar / Sterling Gen / Cummins / Greaves Cotton / Ashoka Leyland / Caterpillar / Ruston / Eicher/ Mahindra
171	DG Set (Alternators)	Kiloskar / Stamford / Jyoti / Crompton /Alstorn / AREVA / Bharat Bijli
172	DG Set Assembled with Sound Proof Canopy	Kirloskar / Jackson / Sudhir / Greaves Cotton /Cummins India / Meera & Co / Control & Swittchgear / Mahindra
173	Induction Motors	Crompton /Kirloskar / Bharat Bijli / Siemens / NGEF / ABB / Jyoti
174	Gang Operated Device	Pactil /Jaipuria / Atlas / ECE / AREVA / Univarsal / MEI / GEC / GR Power Switch
175	Precast Concrete Cable Cover	Shree ji Super Precast Pvt Ltd. Udaipur/ Mehtab Tiles / Patel Furniture Mart / Lucky Cement Block / Sukhi Enterprises
HEATING & VENTILATION		
176	Air Handling Unit	Bluestar / National / Zeco / Voltas / Univarsal / Cooltech & Aerotherm / Bhupati
177	Air Curtains	Almonard / Aircon / Crompton Greaves / Technocrat / National / Snehavardhan /Filtrose
178	Cooling Towers	Paharpur / Mihir / Delta / Advance / Polo
179	Centrifugal Chillers & Screw Chillers	Carrier / Voltas / Daikin / Hitachi / Kirloskar Chillers

Appendix "H" (Contd…/-)

SL NO	PRODUCT'S NAME	NAME OF APPROVED MANUFACTURER/MAKE/BRAND
180	Window type Air Conditioners	Carrier / Voltas /Daikin / Hitachi / Godrej / Samsung / Feeder lloyed / LG / Bluestar
181	Split Type Air Conditioners	Carrier / Voltas / Daikin / Hitachi / Godrej / Samsung / Feeder lloyed /LG / Bluestar
SOLAR WATER SYSTEM		
182	Solar water System	Tata BP Solar System / BHEL / Best & Crompton Novel / Jain Solar / Novel Energy / Solar Equipment Manufacturing / Solautomatic Electrical / Digific Controls (India) Pvt Ltd / Sollchrome Systems India Ltd / Surya-Jyoti Devices
FIRE FIGHTING EQUIPMENT		
183	Firefighting equipment like hose reel, nozzles, couplings, valves. Etc	Nitin / Safex / Flame Guard Indus / Casefire

Note :-

1. All Products/ items shall be ISI marked only. In case certain items in the scope of work / BOQ are not having corresponding makes in the above list of approved makes/products, Makes so selected for incorporation in work shall be ISI marked only and as approved by GE. In case if there is no BIS certification system / Indian standard for such materials/ products, these shall be certified by accredited (NABL) Laboratories to conform to other standards of repute, like British standard / EU standards/ American Standard. The above list of approved product will supersede, if makes of any product at other location of tender documents is mentioned. Makes shall be selected only from the above list irrespective of given at other locations, if any .

2. It will be ensured by the GE that validity of approval of the any make is not expired before procurement by contractor. If validity of approval of any make is expired, the same shall automatically be deemed to be deleted from the list. Validity of Product approval letter issued by EinC br/HQCESC shall be checked and verified by GE before the sample approval of products to be incorporated in work.

Signature of Contractor

Accepting Officer
AGE (I) Udaipur

APPENDIX 'J'

(GUARANTEE BOND TO BE USED BY APPROVED SCHEDULED BANK)

1. In consideration of the President of India (hereinafter called "the Government") having agreed to exempt ---------- (hereinafter called "the said contractor (s)" from the demand, under the terms and conditions of an Agreement dated ---------- made between ---------- and ---------- for ---------- (hereinafter called "the said Agreement") of performance security deposit for the due fulfilment by the said contractor(s) of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs----- (Rupees _____ only), we ___ Bank Ltd. (hereinafter referred to as "the Bank") do hereby undertake to pay to the Govt. An amount not exceeding Rs ---------- against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said contractor (s) of any of the terms or conditions contained in the said Agreement.

2. We ---------- Bank Ltd. Do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs._____.

3. We ---------- Bank Ltd. further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till---------- (Office/Department), Ministry of _____ certifies that the terms and conditions of the said agreement have been fully and properly carried out by the said contractor (s) and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made to us in writing on or before the ---------- we shall be discharge from all liability under this guarantee thereafter.

4. We---------- Bank Ltd. Further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor (s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be releived from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

5. We ---------- Bank Ltd. Lastly undertake not to revoke this guarantee during its currency except within previous consent of the Government in writing.

Signature of Contractor

Accepting Officer
AGE (I) Udaipur