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REGISTERED A/D

Chief Engineer (Air Force)
Military Engineer Services
Lekawada Patia, Chiloda,
P.O. CRPF Campus,
Gandhinagar – 382 042

84173/ 35 /E8

21 Jun 2017

M/s

PROVISION OF CERTAIN SPORTS FACILITIES AT AF STN MADH ISLAND

Dear Sir,

1. Reference tender documents for the above work issued vide letter No. 84173/11/E8 dated 25Mar 2017 and uploaded on 25Mar 2017 and subsequently amended vide letter No 84173/15/E8 dated 10 Apr 2017, 84173/17/E8 dated 06 May 2017, 84173/19/E8 dated 16 May 2017, 84173/21/E8 dated 23 May 2017, 84173/25/E8 dated 30 May 2017 84173/28/E8 dated 06 Jun 2017 and 84173/33/E8 dated 19 Jun 2017 in the portal www.eprocuremes.gov.in.

2. Please carry out the following amendments in the tender documents forwarded vide letters mentioned at Para-1 above: -

Srl No.	Srl Page No.	Location	Particulars of amendments
1	2	3	4

CONTENTS

1 Existing Srl Page No 1 is hereby cancelled and replaced with revised Srl Page No 01(R) which is enclosed.

SCHEDULE 'A' NOTES

2 17 Note No 4(f) Between : "plinth protection and etc" Add " Dwarf wall below plinth beams at external perimeter of building"

SCHEDULE 'A' PART II

3 20 Existing Srl Page No 20 is hereby cancelled and replaced with revised Srl Page No 20 (R) which is enclosed.

SCHEDULE 'A' PART III

4 21 Existing Srl Page No 21 is hereby cancelled and replaced with revised Srl Page No 21 (R) which is enclosed.

SCHEDULE 'A' PART IV

5 22 Item No 1, Col 2, line 1 For : "with 1.5"
Read : "with two runs 1.5"

SCHEDULE 'A' PART IX

6 30 Item No 1, Col 2, line 1 For : "SI item Nos 11.00 to 26.00"
Read : "SI item Nos 11.00 to 32.00"

SPECIAL CONDITION

7 93 Clause No 17.1, line 2 After : "opening of tender" add "financial bids"

PARTICULAR SPECIFICATION

8 107 PS Clause No 4.1.2, line 1 For : "Grade 43"
Read : "Grade 43/53"

9 114 Additional Serial Page Nos 114 (A), 114 (B), 114(C) & 114 (D) are uploaded herewith for insertion after serial page No 114.

AMENDMENT (CONTD/-----)

1	2	3	4
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PARTICULAR SPECIFICATION

- 10 126 PS Clause 18.9, line 3 & 4 For : "Aluminium rod _____ powder coated"
Read : "decorative stain less steel grade - 304, 25 mm dia with"

LIST OF DRAWING

- 11 176 Sl No 5, Col 4 & 6 For : "Sht 4/9"
Read : "Sht 4/9 (R)"
Insert "13.06.17"
- 12 178 Existing Srl Page No 178 is hereby cancelled and replaced with revised Srl Page No 178 (R) which are enclosed.

APPENDIX 'A'

- 13 188 Ser No 9 (A), Bathroom fittings Add following make at the end :-
Vardaman Enterprises Brand name
"JAINKO"
- 14 190 Ser No 9 (N), Bibcock/Stop cock (Brass)/PVC Add following make at the end :-
Vardaman Enterprises Brand name
"JAINKO"
- 15 197 Existing Srl Page No 197 is hereby cancelled and replaced with revised Srl Page No 197 (R) which is enclosed.

BOQ

- 16 BOQ Existing BOQ shall stand cancelled and replaced with revised BOQ as uploaded.

3. Please note that BOQ has been revised and amended and it is mandatory for all bidders, who have already uploaded the quoted bids on the old BOQ, to upload fresh (revised) quoted bids on the amended BOQ. Any bids not revised and received quoted in old BOQ will be considered non-bonafide and will be summarily rejected at the financial bid opening stage.
4. The unit rate quoted by the tenderer shall be deemed to have considered the above amendments.
5. Revised Serial Page Nos. 1(R), 21(R), 22(R), 178 (R) & 197(R) are uploaded herewith for insertion in tender documents, which shall form part of tender documents.
6. Additional Serial Page Nos 114 (A), 114 (B), 114(C) & 114 (D) are uploaded herewith for insertion in tender documents, which shall form part of tender documents.
7. Please note that Bid submission start date and all relevant dates are amended as under :-

- (a) Bid Submission Start date : "24 Jun 2017 at 1100 Hrs"
(b) Bid Submission end date : "01 Jul 2017 at 1800 Hrs"
(c) Bid Opening date : "03 Jul 2017 at 1100 hrs"

8. This letter alongwith its enclosures shall form part of the tender documents.

Encls: Revised Pages : 05 Nos
Additional Pages : 04 NoS
Revised Drg : 01 sheet
Amdt Drg : 02 Sheet
Revised BOQ

Yours faithfully,


(Anil Kumar)
Lt Col (SSW)
For Accepting Officer

(Signature of Contractor)

PROVISION OF CERTAIN SPORTS FACILITIES AT AF STN MADH ISLANDCONTENTS

SL. NO.	DESCRIPTION	SERIAL PAGE NO.	
		FROM	TO
1	2	3	4
1.	CONTENTS		01 (R)

- | | | | |
|-----|---|--|-----|
| 2. | NOTICE OF TENDER IAFW-2162 (REVISED) INCLUDING APPENDIX 'A' TO NOTICE OF TENDER. | 02 | 8 |
| 3. | FORWARDING LETTER AND INSTRUCTIONS FOR COMPLETION OF TENDER DOCUMENTS TO BE COMPLIED WITH BY THE BIDDERS. | 09 | 14 |
| 4. | LUMPSUM TENDER AND CONTRACT FOR WORK REQUIRED, IAFW-2159 (REVISED-1947)
Except BOQ | 15 to 20, 21 (R),
22 (R), 23 to 33 | |
| 5. | GENERAL CONDITIONS OF CONTRACT IAFW - 2249 (1989 PRINT) INCLUDING ERRATA AND AMENDMENTS AND SCH OF MINIMUM FAIR WAGES | 34 | 84 |
| 6. | SPECIAL CONDITIONS | 85 | 104 |
| 7. | PARTICULAR SPECIFICATIONS PART-I, LIST OF DRAWINGS, APPENDIX-'A', 'B', 'C' AND 'D'. | 105 to 114, 114 (A),
114 (B), 114(C) & 114
(D) 115 to 177, 178
(R), 179 to 196,
197(R), 198 to 207 | |
| 8. | SCHEDULE (EXCEL SHEET IN BOQ) | | |
| 9. | ERRATA/AMENDMENTS TO TENDER DOCUMENTS | | |
| 10. | RELEVANT CORRESPONDENCE | | |
| 11. | ACCEPTANCE LETTER | | |

TOTAL PAGES: _____ NOS

DRAWINGS _____ SHEETS

Signature of contractor

AAD (Contracts)
For Accepting Officer

SCHEDULE 'A' (Contd....)

PART-II: EXCAVATION/EARTH WORK/SITE CLEARANCE AND DEVELOPMENT

SI No	Description of building or works	DRAWING NO	Unit / Rate	NO OF UNIT REQUIRED	Amount Ps	Period for completion of individual items after date of	Remarks
1	2	3	4	5	6	7	8

1 Surface excavation n. exc 30cm deep and averaging 15cm deep and getting out in soft/loose soil.complete all as directed.

15.90
SQUARE
METRE

200

3180.00

2 Surface excavation n. exc 30cm deep and averaging 15cm deep and getting out in Hard/Dense soil.complete all as directed.

39.00
SQUARE
METRE

200

7800.00

3 Excavation in trenches n.exc 1.5m wide n.exc 1.5m deep and getting out in soft/ loose soil complete all as specified and as directed.

115.20
CUBIC
METRE

96

11059.20

4 Excavation in trenches, not exceeding 1.5m wide and n.exc 10 sqm on plan and n.exc 1.5m depth and getting out in hard/dense soil complete all as specified and as directed.

202.50
CUBIC
METRE

10.0

3037.50

5 All as per item No 4 above but depth exc 1.5 but n exc 3.00 mtrs

250.20
CUBIC
METRE

5.0

3037.50

6 Removing excavated soil to a distance n. exc 50 m and depositing where directed at a level n exc 1.5 metre above the starting point complete all as specified and as directed.

96.10
CUBIC
METRE

44

4228.40

7 Returning filling in including spreading levelling, watering & well ramming in layers not exceeding 25 cm in soil.complete all as specified and as directed.

41.70
CUBIC
METRE

67.0

2793.90

8 Removal of excavated materials exceeding 1.5 km and not exceeding 5 km and depositing any where outside of MD land complete all as specified and as directed.

208.30
CUBIC
METRE

60

12498.00

9 Grubbing up tree trunk exc.100cm and n exc. 150cm including cutting of trunk portion protruding over ground, digging out roots, filling holes and levelling off ground, stacking of serviceable material and removing of unserviceable material to a distance n exc. 50 m and clearing site complete all as specified and as directed.

889.90
EACH

1

889.90

10 Material & labour for moorum/red bajri filling in floors or pavings,laid in layers n exc 15cm thick spread levelled and rammed including watering.complete all as specified and as directed.

542.60
CUBIC
METRE

60

32556.00

Total amount c/o to Sch 'A' Part-II General Summary of BOQ

81080.40

Signature of contractor

AAD(Contracts)
For Accepting Officer

SCHEDULE 'A' (Contd....)
PART-III: INTERNAL WATER SUPPLY

Sl No	Description of building or works	DRAWING NO	Unit / Rate	NO OF UNIT REQUIRED	Amount Ps	Period for completion of individual items after date	Remarks
1	2	3	4	5	6	7	8

Note Applicable to all items:- All excavation and earth work unless otherwise specifically mentioned in the description of item shall be measured and paid under relevant items of Schedule 'A' Part II.

- 1 Supply, laid, fix and testing galvanized steel water tubing, ISI marked, medium grade galvanized with and including all tube fittings ISI marked and fixtures such as tees, elbows, diminishing pieces etc. complete fixed to wall and ceiling or laid in floors of sizes:-

(a) 15 mm bore.

108.60 45 4887.00

RUNNING
METRE

(b) 20 mm bore.

142.9 20 2858.00

RUNNING
METRE

- 2 Supply & fix Stop valve, fancy type, cast copper alloy (ISI marked) screwed down high pressure with crutch or butterfly handle, screwed both ends (externally threaded) for iron pipe or for unions, Long shank cip concealed type of 15mm bore size fixed complete all as specified and as directed.

271.00 11 2981.00

Each

- 3 Supply and fix Bib taps (ISI marked) chromium plated cast copper alloy with, crutch or butterfly handle screwed down for iron pipe or for brass ferrule and fixed of size 15mm bore minimum finished mass 0.575 kg each complete all as specified and as directed.

103.00 4 412.00

Each

- 4 Supply and fix pillar tab cast copper alloy with capstan head chromium plate with or without lettered HOT or COLD with long screwed for iron pipe and fixed to 15 mm pipe complete all as specified and as directed.

214.40 4 857.60

Each

- 5 Supply and fix Swivel shower size 125 mm dia chromium plated brass fixing with 15mm bore complete all as specified and as directed.

234.40 2 468.80

Each

- 6 Supply and fix 20mm bore size Gun metal globe or gate valves with iron wheel head, screwed both ends for iron wheel head screwed both ends for iron pipe and fixed complete all as specified and as directed.

252.20 2 504.40

Each

- 7 Supply and fix Angle cock (ISI marked) chromium plated cast copper alloy screwed down high pressure with crutch screwed down both ends for iron pipe of size 15mm bore Long shank cip, complete all as specified and as directed.

550.00 4 2200.00

Each

- 8 Cutting chases pinning in, brick masonry making good to facings where required and pointing in cement mortar 1:3 ends ir edges of landing, steps cills, sunshades, shelves, lintels, etc and cutting chases for concealed water tubing or concealed conduit wiring etc and making good cutting exceeding 20cm girth

485.30 30 2200.00

Square
Metre

Total amount c/o to Sch 'A' Part-III General Summary of BOQ

17368.80

Signature of contractor

AAD(Contracts)
For Accepting Officer

LIST OF DRAWING (CONTD/---)

1	2	3	4	5	6
42	TYPICAL DETAIL OF MS SWITCH/ METER BOX	CEAA/TD/124	1/1	19.03.02	
43	ALUMINIUM GLAZED DOOR	CEAA/TD/131	1/1	13.12.02	
44	TYPICAL DETAIL OF DWARF WALL, CHAJJ WITH OR WITHOUT DROP, SCHEDULE OF RCC LINTEL WITH OR WITHOUT CHAJJA	CEAA/TD/135	1/1	04.02.03	
45	CHAIN LINK FENCING (RCC DETAILS)	CEAA/TD/137	1/2	25.03.03	
46	TYPICAL DETAILS OF FIRE POINTS WITH ANGLE IRON POST	CEAA/TD/148	1/1	01.12.04	-
47	DETAILS OF ALUMINIUM WINDOWS AND VENTS	CEAA/STD/01/2010	1/1	25.02.10	15.11.14
48	ALUMINIUM GRILL	CEAA/TD/144	1/1	24.03.04	
49	AMENDMENT SHEET	CEAG/THANE/AMD/09/2017	1/1	09.05.17	
50	AMENDMENT SHEET	CEAG/THANE/AMD/10/2017	1/1	17.05.17	

Note: These drawings (Sri No.11 to 48) are covered in booklet and hence are not enclosed with the tender documents, however, copy of these drawings can be collected from or seen at the office of the CE (AF) Gandhinagar Zone/Concerned GE (AF) office on any working day during working hours.

Signature of contractor

AAD (Contracts)
For Accepting Officer



PARTICULAR SPECIFICATION (CONTD/--)**9A READY MIX CONCRETE (RMC).**

9A.1 Contractor may also use Ready mix concrete (RMC) of grade M-30 (Design mix) as specified herein before for the buildings/structures under Schedule 'A' Part-I, without any extra cost to Govt. The rates quoted by contractor shall be deemed to include the same including pumping required for concreting.

9A.1.1 Rate: SSR rate for M-30 (design mix) concrete shall be applicable for the purpose of pricing deviation involving RMC of grade M25 subject to applicable deviation percentage.

9A.1.2 RMC of grade M-30 (Design mix) shall conform to the requirement as per IS 4926-2003 and IS 456-2000.

9A.1.3 RMC shall be procured by the contractor from any one of the following RMC

suppliers :-

- (a) ACC Ltd.
- (a) Ultra Tech.
- (a) RMC Ready Mix (Prism cement Ltd)
- (b) Birla shakti ready mix concrete from Vasavdatta
- (c) Grasim Industries Ltd

9A.1.4 Before actual incorporation of RMC at site, the contractor has to get the name of firm (out of four name given in above para approved by GE. Before approving the name of the firm, the GE shall visit the manufacturer's site for inspection of the following:-

- (i) Infrastructure in terms of storage of aggregates, sand and cement.
- (ii) Sources of supply for aggregates, sand and water.
- (iii) Adequacy of testing facilities for water, materials, cement, concrete, alkali aggregate reaction, etc at manufacturing yard.
- (iv) Batching and weighing arrangements including arrangements for adding calculated quantity of water.
- (v) Mixing mechanism.
- (vi) Quality of engineer supervision and skills of workers.
- (vii) Record, test registers, etc being maintained.
- (viii) Capacity of the installed plant and adherence to time schedules.
- (xi) Data showing periodic calibration of all equipment.
- (x) Use of admixture.
- (xi) Details of batching showing quantity of input items in production of concrete.

9A.1.5 The type of cement to be used shall be OPC 43 grade. Mixing of fly ash is not permitted.

9A.1.6 Concrete mix design shall be carried out by RMC manufacturer complying with the relevant IS specifications for all the ingredients as listed below:-

Material	BIS Specification
(i) Coarse Aggregates	IS : 383-1970
(ii) Fine Aggregates	IS : 383-1970
(iii) Cement(OPC 43 grade)	IS : 269-1989 IS : 8112-1989 IS : 12269-1989 IS : 9103-99(Rev)
(iv) Admixtures	

9A.1.7 In case of rejection of supply of RMC supplied by the manufacturer at site, the contractor shall be responsible for making good the same without extra cost to the Govt. The GE/Engineer-in-Charge & other officers authorised by the Accepting Officer shall have access to check the quality of production in RMC suppliers manufacturing yard as and when they desire so. The contractor shall make all arrangements for such inspections. In case of payment of RAR/deviation pertaining to RCC work, M-25 grade concrete RMC shall be priced at relevant rates in MES Sch 2004 for Reinforced Cement Concrete M-25 (Design mix) concrete subject to contractor's quoted percentage for respective schedule. No advance payment will be made towards payment made by contractor to RMC manufacturer and no advance on account for cement, coarse aggregate and fine aggregate

2

PARTICULAR SPECIFICATION (CONTD/--)

stored in the yard of RMC manufacturer shall be payable. Type and quality of cement used in RMC shall be in accordance with the specifications as already specified for design mix in the contract agreement here-in-before. It will be the responsibility of the contractor to ensure that the RMC Manufacturer uses in manufacturing RMC the cement/aggregates of grade and quality as described here-in-before. He shall also be responsible to produce necessary paid vouchers and test certificate for the above materials as and when called for by GE for verification to ascertain the correctness of type and quality of materials used by the RMC manufacturer. Paid voucher of RMC shall also indicate details of make/brand of cement used besides batch No, consignment details and test certificate details of procurement of cement. Please note that if cement has been procured by contractor and given to RMC manufacturer, then original paid vouchers and test certificates of cement shall be given to GE alongwith paid vouchers of RMC for claiming payment. However in case of cement used in RMC has been procured directly by RMC manufacturer, in such case certified photo copy of paid vouchers and test certificate of cement purchased shall be also be enclosed alongwith paid vouchers of RMC. The contractor shall also ensure that the cement used in RMC shall be of approved make/brand as described here-in-before.

- (i) Initial setting of concrete due to transit delay.
- (ii) Segregation of aggregates
- (ii) The RMC supplied does not give required Slump In addition to above, he GE may further decide the rejection of RMC on any other ground which he decides necessary.

9A.1.8 A register shall be maintained at site duly signed by the competent representative of RMC manufacturer/supplier, contractor's authorised representative and Engineer-in-charge recording the following details:-

- (i) Date of delivery
- (ii) Time of mixing.
- (iii) Time of delivery at site.
- (iv) Quantity and grade of RMC.

9A.1.9 contractor to RMC manufacturer and no advance on account for cement, coarse aggregate and fine aggregate stored in the yard of RMC manufacturer shall be payable. Type and quality of cement used in RMC shall be in accordance with the specifications as already specified for design mix in the contract agreement here-in-before. It will be the responsibility of the contractor to ensure that the RMC Manufacturer uses in manufacturing RMC the cement/aggregates of grade and quality as described here-in-before. He shall also be responsible to produce necessary paid vouchers and test certificate for the above materials as and when called for by GE for verification to ascertain the correctness of type and quality of materials used by the RMC manufacturer. Paid voucher of RMC shall also indicate details of make/brand of cement used besides batch No, consignment details and test certificate details of procurement of cement. Please note that if cement has been procured by contractor and given to RMC manufacturer, then original paid vouchers and test certificates of cement shall be given to GE alongwith paid vouchers of RMC for claiming payment. However in case of cement used in RMC has been procured directly by RMC manufacturer, in such case certified photo copy of paid vouchers and test certificate of cement purchased shall be also be enclosed alongwith paid vouchers of RMC. The contractor shall also ensure that the cement used in RMC shall be of approved make/brand as described here-in-before.

9A.1.10 Requisite facilities for verification and check of the raw material shall be made available to GE by the RMC manufacturer. GE will have easy access to the RMC plant to check quality of concrete being produced at the plant at intervals as decided by GE. The GE shall independently carry out the following tests at random at site lab established by the contractor.

9A.1.11 Compaction factor test, and cube tests shall be carried out as per IS-4246-2000 at site from samples collected by the contractor during placing of the concrete. Cost of the collection of samples and testing shall be deemed to be included in the quoted rate. Acceptance criteria for the RMC shall be all as specified in the IS-456-2000. In Case RMC supplied by the approved firm fails to meet the strength requirement as per acceptance criteria laid down in IS-456-2000 and rejected by GE, the Contractor shall make necessary arrangement for removal of such rejected quantity of RMC and will redo the work at his own cost.

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PARTICULAR SPECIFICATION (CONTD/--)

- 9A.1.12 Conveying equipments for concrete shall be water tight, well maintained and thoroughly cleaned before commencement of concrete mixing. The contractor is free to adopt either centrally mixed concrete in case the plant is installed at site or truck mixed concrete. The temperature of concrete mass on delivery shall not exceed 40°C. RMC so brought at site either from plant at site or by Transit mixers shall be pumped to all the locations to be casted except in columns and at locations where not feasible, which may be done all as specified in MES Schedule.
- 9A.1.13 Concrete shall not be dropped from a height, thrown or otherwise treated so that segregation, undesirable finish, or defective structural quality results. The maximum drop shall be 2.1m unless otherwise approved by the Engineer-in-Charge.
- 9A.1.14 No extra water /admixture shall be added to the concrete after it has left the batching plant.
- 9A.1.15 All equipments, pump chamber, hoppers, lines and rubber hoses shall be kept clean at all times. Any build up in the lines of materials from previous operations shall be cleaned properly.
- 9A.1.16 The concrete shall be discarded if initial setting of the concrete has begun in the hopper or discharge lines. All lines shall be cleaned free of concrete prior to resumption of pumping. Concrete in the lines shall be pumped at approximately 8 minutes interval to ensure that concrete in the line is live. Whenever delivery of concrete to the pump is delayed the lines shall be cleaned. The pumping interval shall be reduced to 5 minutes during extra hot weather conditions. Delivery lines where exposed to hot sun shall be protected by covering with bags, wet hessian or other approved means.
- 9A.1.17 No concreting shall be commenced until the form work, reinforcement and all other preparation require for placement of concrete are inspected by the Engineer-in-Charge and approved.
- 9A.1.18 Contractor shall take every precautions to strengthen the shuttering as required to withstand the additional pressure that may be created due to pumping of concrete. Workability of concrete shall be as specified in IS-456-2000.
- 9A.1.19 ADMIXTURES: - If certain admixtures are required to be added to RMC either in plant or at place of delivery to improve the workability, the same shall be added as per manufacturer's instructions with prior approval of Garrison Engineer. Quantity of admixture at any stage should not exceed the maximum limit as specified by manufacturer. Cost of admixture shall be deemed to be included in the rates quoted by the contractor & no extra payment for the same shall be allowed. Admixture if any to be used should be compatible with cement. Contractor shall conduct the test for cement, admixture etc., in an independent testing lab approved by Garrison Engineer without extra cost to the Govt. Admixture such as super plasticizer shall conform to IS 9103.99 (Revised) and shall be of any one of the following manufactures.
- (i) Asian Laboratories (India)
88, DSIDC Shed Scheme-1,
New Okhla Industrial Complex,
Phase-II, New Delhi – 110 020
 - (ii) MC-Bauchemie (India) Pvt Ltd
201, Vardhaman Chambers, Sector-17,
Vashi, Navi Mumbai.
 - (iii) Fosroc Chemicals (India) Ltd
Hofeeza Chambers, 2nd floor,
111/7, KH Road, Bangalore – 560 027
 - (iv) Roffe Construction Chemicals Pvt Ltd
12-C, Vikas Centre, S V Road, Santa Cruz (W),
Mumbai – 400 054.
 - (v) STP Specialty Chemicals Ltd.
16, NGN Vaidya Marg,
Mumbai - 400 023
 - (vi) Fair mate Chemicals Pvt Ltd
8/1, Sai Sudha Armoday Society,
Alkapuri, Vadodara – 390 007
 - (vii) CICO Technologies Ltd
A-9, Chitranjan Park (LGF), Outer Ring Road, New Delhi.

b

PARTICULAR SPECIFICATION (CONTD/-)

- 9A.1.20 Revision of Design mix due to change in aggregate proportions due to change in size and relative density/bulk density of aggregate shall be immediately brought to the notice of the Garrison Engineer and in all cases provision contained in IS 456-2000 of mix consideration/acceptance criteria shall be complied with.
- 9A.1.21 The time between mixing of concrete at manufacturer's yard and transportation and delivery at site shall not be more than 1 ½ hours. In case longer time is unavoidable the same can be permitted by Garrison Engineer adopting use of admixtures permissible as per IS without any extra cost to the Govt.
- 9A.1.22 One set of 7 cubes of every 50 cum of concrete production or every 50 batches whichever is greater or as per the discretion of Engineer-in-Charge shall be casted for testing.
- 9A.1.23 Minimum quantity of cement shall be as per provision of IS: 456-2000 meeting the requirements from durability point of view and the details regarding proper training and works quality control shall be in accordance with IS:456-2000 and IS:4926-2003. However if extra quantity of cement is used for whatever reasons, the same shall be at no extra cost basis to Government.
- 9A.2 Rate: SSR rate for M-25 (design mix) concrete shall be applicable for the purpose of pricing deviation involving RMC of grade M25 subject to applicable deviation percentage.
- 9A.3 **ACCEPTANCE CRITERIA.**
- (a) The contractor shall be deemed to comply with the strength requirement as per clause 16 of IS-456.
- (b) Whenever there is any change in the type of grading of material, the mix should be rechecked and modified suitably to the desired compressive strength.
- (c) Actual standard deviation for each grade of concrete is to be calculated after collecting the test results of actual concrete work (compressive strength actually achieved at site for 1st 30 samples) as laid down in IS-456 (Table-II) to review the Design Mix.
- 9A.4 **HOT WEATHER CONCRETING**
- Para 14.1 of IS-459 specifies that during hot and cold weather, the concreting should be done as per the procedure set out in IS 7861 (Part-I) & IS 7861 (Part-II). Provision contained in IS 7861, reaffirmed 1990 shall be taken in to account and nothing extra on this account shall be paid by the Dept. The procedure/combination of procedures to be followed for bringing down the temperature of concrete shall be decided by the GE as per site requirement.
- 9A.5 **TESTING:** Sampling and testing shall be carried out as per requirement given in respective IS.
- 9A.6 **MIXING AND COMPACTION OF CEMENT CONCRETE**
- 9A.6.1 All cement concrete shall be mixed in an approved mechanical mixer. The mixer must also have a water container with a water meter for adding measured quantity of water in each batch. Mixing of concrete shall be all as per clause 4.11.5 of MES SSR Part I.
- 9A.6.2 All concrete shall be consolidated with approved mechanical vibrators except where not practicable in the opinion of the Engineer-in-Charge. RCC in slab shall be compacted with plate/surface vibrators & in beam/columns with, needle/pin vibrators.
- 9B. **RUBBER INTER LOCKING TILES**
- Irrespective whether shown on drawing or not and schedule of finishes, rubber interlocking tiles flooring shall be provided all as specified herein below.
- Interlocking rubber tiles shall be made out of recycled rubber, the tiles to be designed to loose lay and so no adhesive or double stick tape is required. The tiles should be tough enough to withstand years of abuse under harshest conditions. Once installed flooring to be seamless. Size shall be of 480mmx480mmx25mm.colour shall be of Red/M.Green/Gray/Blue/Green as approved and directed by GE. Make shall be of Sundek sports system or equivalent as approved by GE.

PARTICULAR SPECIFICATIONS (CONTD..)**APPENDIX 'B'****ITEM PREFERABLY BEARING BIS CERTIFICATION MARK AND TO BE PROCURED FROM ONE OF THE LISTED MANUFACTURER AS PER CHOICE OF CONTRACTOR**

Ser No.	Material	Name of manufacturers/Brand Name
1	2	3
14	AIR BREAK SWITCH GANG OPERATED (33KV/11 KV)	PACTIL, MUMBAI, MULL & CO SOUTHERN SWITCHGEAR, ATLAS JAIPURIA BROTHERS, BHEL MYSORE ELECTRICAL INDUSTRIES ELPRO, MEI
15	UG HT XLPE, PVC INSULATED ALUMINUM CONDUCTOR FOR 33/11 KV SYSTEM	CABLE CORPORATION OF INDIA-MUMBAI HAVELLS INDIA LTD, UNIVERSAL CABLES LTD, SATNA, ASIAN CABLES (RPG), GLOSTER, RPG CABLES RPG CABLES LTD-THANE, FINOLEX INDUSTRIAL CABLES-PUNJAB, PLAZA, POLYCAB, PARAGON, DIATRON HAVELLS INDIA LTD-DELHI, DIAMOND POWER INFRASTRUCTURE LTD(DIATRON), RAVIN CABLES LTD, EON ELECTRIC LTD PARAMOUNT.
16	UG LT XLPE, PVC INSULATED ALUMINUM CONDCTOR FOR 1100 VOLTS	CABLE CORPORATION OF INDIA-MUMBAI, ASIAN CABLE CO, CHATTISGARH FINOLEX CABLE LTD-PUNE, POLYCAB, KALINGA, DIATRON, GLOSTER, RPG CABLES UNIVERSAL- THANE, HAVELLS INDIA LTD-ALWAR, PLAZA CABLES, BENTEC, KEI INDUSTRIES LTD, NICCO, ICL, ANCHOR, PARAGON, RR CABLES LTD, DNEO CABLES PVT LTD, CCI, RICHA CABLES PVT LTD, HPL INDIA LTD, RAVIN CABLES LTD, EON ELECTRIC LTD, BONTON CABLES INDIA PVT LTD(BONTON), WIPRO, INDO AMERICAL ELECTRICALS, UNIVERSAL, CABLES CORPORATION OF INDIA
17	CABLE JOINTING KIT FOR 11 KV/22 KV	RAYCHEMS, DENSONS, M-SEAL, BIRLA -3M, CCI, Y-DENSON, YAMUNA GASES & CHEMICALS, MAHINDRA & MAHINDRA SIEMEN, RPG
18	HT Cable Joints Push –on type	BIRLA 3M, PIRRELI,RAYCHEM,SIEMENS HIND UPLETA,MEHTAB-INDORE
19	Precast Cable Covers(ISI-Marked)	HINDUPLETA,MEHTAB-INDORE.
20	INSULATORS HT/LT DISC/PIN/SHACKLE/LOOP/STRIN G TYPE	BHEL, BENGAL POTTERIES, JAYSHREE MODERN INSULATORS, WS INSULATORS JAIPURIA, SOUTHERN INSULATORS RASHTRIYA ELECTRICALS, PACTIL PACTIL, MYSORE-SOUTHERN INSULATORS, - JAIPURA BROTHERS