

M/s HLL Infra Tech Services Ltd. (HITES)

(Subsidiary of HLL Lifecare Ltd., A Government of India Enterprise)

TENDER

for

CIVIL FINISHES WORKS AFTER FPS WORKS IN GROUND AND FIRST FLOOR OF SOPD BLOCK IN JIPMER, PUDUCHERRY

Volume- III

Technical Specification

Tender No: HITES/CHN/18-19/004

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CHAPTER A
TECHNICAL SPECIFICATIONS AND CONDITIONS- CIVIL WORKS

1. CEMENT PLASTER: - The use of PP Cement shall be preferred.

2. WOOD WORK:

- a. Timber required for manufacture of chowkhats and shutters for doors, windows, ventilators, partitions etc shall be Forest Stewardship council (FSC) certified wood and it shall be seasoned and preservative treated.
- b. The moisture contents of the wood used in the work shall not be more than that stipulated in the relevant clause of Latest CPWD Specifications for works. The rate quoted for various items shall be inclusive of kiln seasoning and preservative treatment of wood. In all other respects the wood used in the work shall conform to the provision in latest CPWD specification for works.
- c. The sample of species to be used shall be deposited by the contractor with the Engineer-in – charge before commencement of the work. The contractor shall produce cash voucher and certificate from standard kiln seasoning plant operator about the timber section to be used on the work having been kiln seasoned by them failing which it would not be so accepted as kiln seasoned.

d. Glass :-

- i. Transparent sheet glass (Float glass) conforming to IS 1761 – 1970 shall be used.
- ii. Minimum thickness shall be governed as under, unless otherwise specified in the item.

AREA of Glazing	Max. Unsupported length	Thickness
For glazing area up to 0.5 sqm	120 cm	4 mm
For glazing area more than 0.5 sqm	120 cm	5.5 mm

- iii. Glazing for toilet and in fixed ventilators shall be of frosted type.

e. Shutters:-

- i. Factory made shutters, as specified shall be obtained from factories to be approved by the Engineer – in – charge and shall conform to IS 2202 (Part –I) 1977. The contractor shall inform well in advance to the Engineer – in – charge the name address of the factory from where the contractor intends to get the shutters manufactured.
- ii. The contractor will place order for manufacture of shutters only after written approval of Engineer – in – charge in this regard is obtained. The contractor is bound to abide by the decision of the Engineer – in-charge. In case the factory already proposed by the contractor is not found competent to manufacture quality shutters, the Engineer – in – charge will recommend the name of another factory from the approved list.
- iii. The contractor will also arrange stage wise inspection of the shutters at factory with the Engineer in charge or his subordinate authorized representatives. Contractor will have no claim, if the shutters brought at site are rejected by the Engineer in charge in part or in full lot due to bad workmanship / quality or damages caused during their shifting

from factory to site. Such shutters will not be measured and paid and the contractor shall remove the same from the site of work within 7 days after the written instruction in this regards are issued by the Engineer in charge or his authorized representatives.

3. FLOORING:

- a. The flooring in the building shall be as per the approved floor finish drawings and laid in such a way that limits in floor levels would not exceed the limits provided in the latest CPWD specifications or manufactures specifications.
- b. Wherever Vitrified Tile flooring is done, it shall be with multy grade/range 1st Quality tiles.
- c. Slope in floors shall be provided as per architectural drawings, else the levels at any place when checked over a distance of one meters in any direction should not show variation in floor level more than 3 mm.
- d. Rate for the items of flooring is inclusive of provision of sunken flooring and finishing edges of the same in bath kitchen, toilets, cutting holes for traps/ pipes etc., and nothing extra shall be paid on this account unless otherwise specified.
- e. Protective layer to be provided of any type of flooring and nothing extra shall be paid on this account.

4. FALSE CEILING: -

- a. False ceiling items in general are carried out as per the description of the item in the Bill of quantities and also as per the manufacturer's specifications / as directed by the Engineer – in – Charge.
- b. Location of particular type of false ceiling shall be as per relevant drawing, in its absence written approval of the Engineer – in - charge shall be obtained.
- c. The false ceiling tiles from manufacturers using recycled materials shall be preferred.

5. MINERAL FIBRE CEILING TILE

a. 16 mm Mineral Fibre ceiling Tile

i. Material

Ceiling tiles shall be of made of mineral fibre of dimension 595x595mm with 16 mm thickness humidity resistance 99% Thermal conductivity K = 0.052-0.057 w/mK colour white, fire performance UK Class 0/Class 1 (BS 476 pt -6&7) suitable for green building application (GRIHA Criteria 17 & 29 SWAGRIHA 12) with recycled content not less than 30 % and light reflectance not less than 85%. NRC of 0.55 to 0.6. The tile and grid should carry a limited warranty of one year against sag.

ii. Frame

The frame work shall consist of G.I. ' T ' Sections for Main runners 15x38x3000mm length, Cross runners of 15x32x1200mm & 15x32x600mm size, 0.33 mm thickness as specified in the item with galvanization of 120 gsm (minimum) and perimeter wall angle of 0.40mm (minimum) thick gauge having equal flanges of size 24x24mm made from precoated G.I. Coil length of 3.0m fixed to the wall with the help of plastic rawl plugs at 450mm centre to centre with 50mm long dry wall SS screws. The frame work

shall be executed in a manner so as to form a grid of 600x600mm as specified in the item.

iii. Fixing of Ceiling Tiles

The frame work shall be suspended from ceiling by L shape level adjuster hangers made of G.I. Of size 85x25x25x2mm having die cut slit for sliding into main T section, also having precut hole so that 6mm fully threaded MS rod length upto 1000mm goes through it and pierces into M6 dash fasteners (Galvanising of 80 gsm minimum) of 6 mm dia 50mm long, fixed to the slab and then tightened with check nuts, subsequently the bottom of 6 mm rod will be tightened with check nuts for adjusting the line & level. The tile shall be laid on 15x32mm wide T section flanges colour white having rotary stitching on all T sections i.e. the main runner, 1200 mm & 600 mm cross Tees with a web height of 32 mm and load carrying capacity of 7.57Kgs/m².

iv. Measurements

Length and breadth of superficial area of the finished work shall be measured correct to a centimetre. Area shall be calculated in square meter correct to two places of decimal. No deduction will be made to openings of areas upto 40 square decimeter nor shall extra payment be made either for any extra material or labour involved in forming such openings. For openings exceeding 40 square decimetre in area, deduction in measurements shall be made but extra payment will be made for any extra material or labour involved in making such openings.

v. **Rate**

The rate shall include the cost of all the materials and labor involved in all the operation described above including scaffolding etc, if any required.

b. **20mm Mineral Fibre Ceiling Tile**

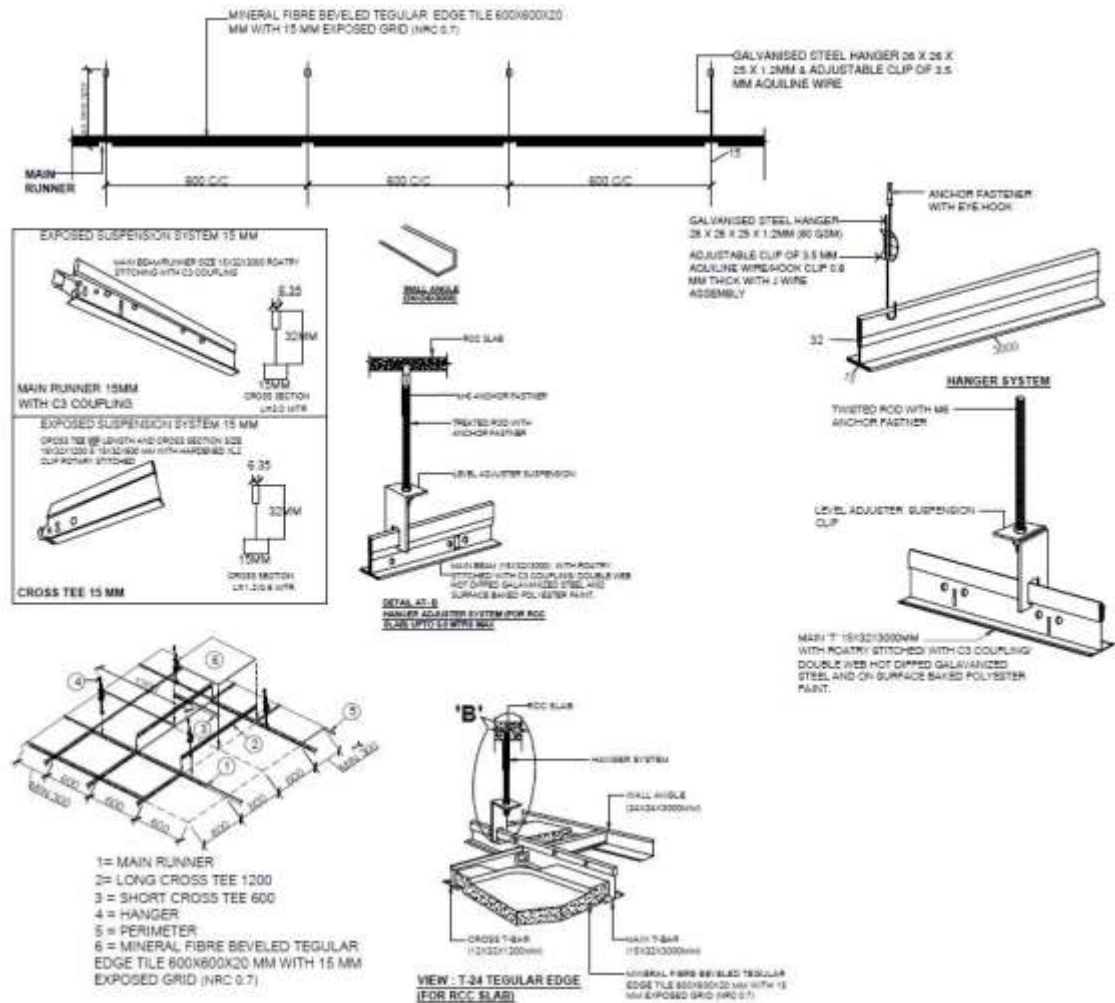
General specification for providing and fixing mineral fibre false ceiling tiles item to be same as **mentioned** in para i. to v. of para a. above except the thickness of mineral fibre tile will be 20 mm and NRC value 0.7.

c. **16mm Antimicrobial Ceiling Tile**

General specification for providing and fixing 16 mm thick beveled tegular mineral fibre false ceiling tiles item to be same as **mentioned** in para i. to v. of para a. above except the tile will be Anti-microbial false ceiling tiles.

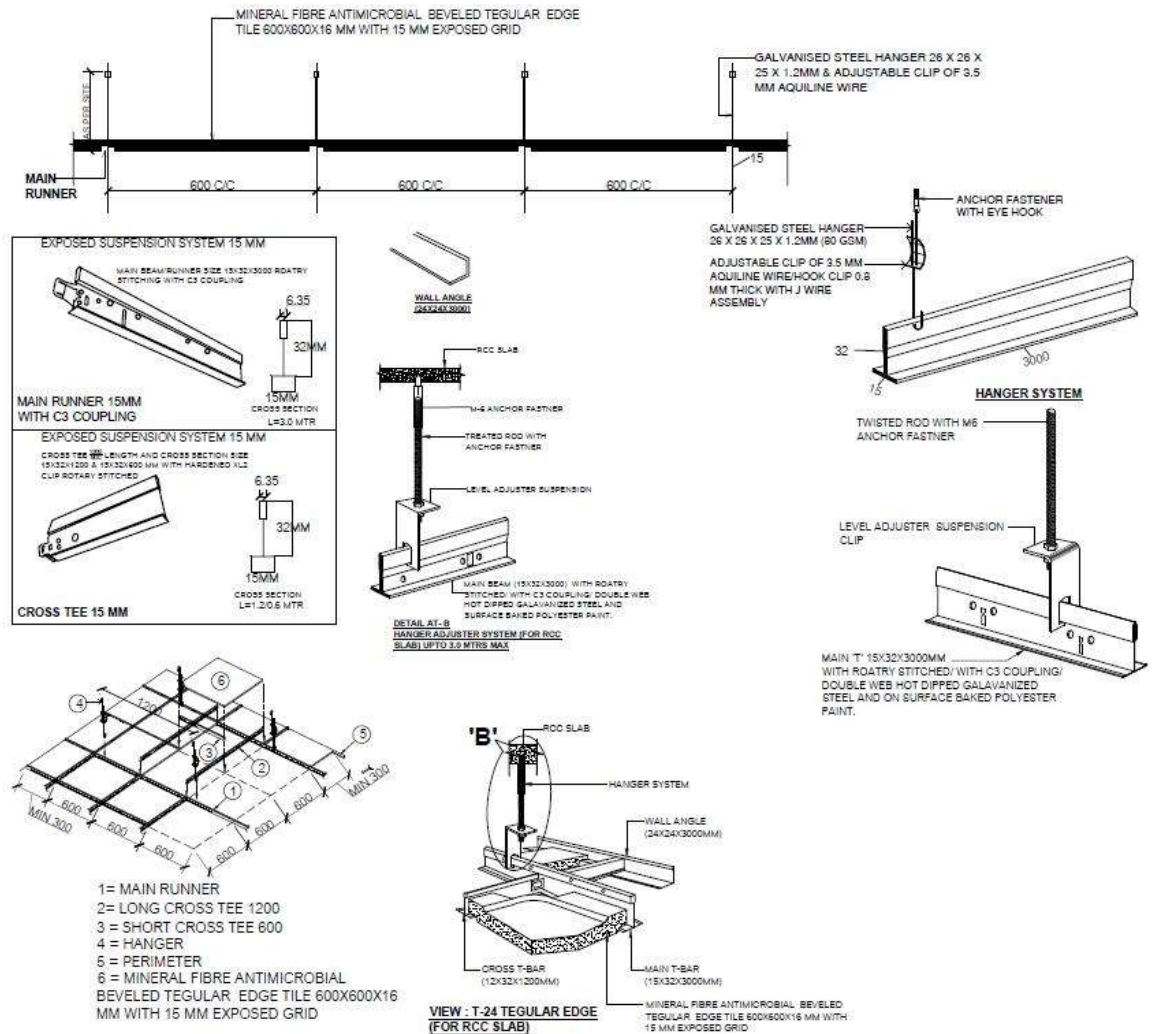
d. 20mm Mineral Fibre Ceiling Tile

General specification for providing and fixing mineral fibre false ceiling tiles item to be same as **mentioned** in para i. to v. of para a. above except the thickness of mineral fibre tile will be 20 mm and NRC value 0.7.



e. 16mm Antimicrobial Ceiling Tile

General specification for providing and fixing 16 mm thick beveled tegular mineral fibre false ceiling tiles item to be same as **mentioned** in para i. to v. of para a. above except the tile will be Anti-microbial false ceiling tiles.



6. LIGHT WEIGHT CALCIUM SILICATE FALSE CEILING TILES

a. 15mm Tegular edged light weight calcium silicate false ceiling tiles

i. Material

15 mm thick tegular edged light weight calcium silicate false ceiling tiles with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS: 476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity $<0.043 \text{ W/mK}$ as per ASTM 518:1991. The tests shall have average density of 370 kg/m^3 (minimum) as per ECBC code 2007. The tile shall be primer coated on both sides and the fair surface shall be having a factory finish in two coats of white dispersion type solvent free paint.

ii. Frame

The frame work shall consist of G.I. ' T ' Sections for Main runners 24x38x3000mm length, Cross runners of 24x32x1200mm & 24x32x600mm size, 0.33 mm thickness as specified in the item with galvanisation of 120 gsm (minimum) and perimeter wall angle of 0.40mm (minimum) thick gauge having equal flanges of size 24x24mm made from precoated G.I. Coil length of 3.0m fixed to the wall with the help of plastic rawl plugs at 450mm centre to centre with 40mm long dry wall SS screws. The frame work shall be executed in a manner so as to form a grid of 600x600mm as specified in the item.

iii. Fixing of Ceiling Tiles

The frame work shall be suspended from ceiling by L shape level adjuster hangers made of G.I. Of size 85x25x25x2mm having die cut slit for sliding into main T section, also having precut hole so that 6mm fully threaded MS rod length upto 1000mm goes through it and pierces into M6 dash fasteners (Galvanising of 80 gsm minimum) of 6 mm dia 50mm long, fixed to the slab and then tightened with check nuts, subsequently the bottom of 6 mm rod will be tightened with check nuts for adjusting the line & level. The tile shall be laid on 24x32mm wide T section flanges colour white having rotary stitching on all T sections i.e. the main runner, 1200 mm & 600 mm cross Tees with a web height of 32 mm and load carrying capacity of 7.57 Kgs/m^2 .

iv. Measurements

Length and breadth of superficial area of the finished work shall be measured correct to a centimetre. Area shall be calculated in square meter correct to two places of decimal. No deduction will be made to openings of areas upto 40 square decimeter nor shall extra payment be made either for any extra material or labour involved in forming such openings. For openings exceeding 40 square decimeter in area, deduction in measurements shall be made but extra payment will be made for any extra material or labour involved in making such openings.

v. Rates

The rate shall include the cost of all the materials and labor involved in all the operation described above including scaffolding etc, if any required.

b. 15mm thick integral densified micro edged light weight calcium silicate false ceiling tiles

i. Material

15mm thick integral densified micro edged light weight calcium silicate false ceiling tiles with integral densified calcium silicate reinforced with fibre and natural filler false ceiling tiles of Size 595x595 mm of approved texture, design and patterns having NRC (Noise Reduction coefficient) of 0.50 (minimum) as per IS 8225:1987, Light reflectance of 85% (minimum). Non combustible as per BS: 476 (part-4), fire performance as per BS:476 (part 6 &7), humidity resistance of 100%, thermal conductivity <0.043 W/mK as per ASTM 518:1991. The tests shall have average density of 370 kg/m³ (minimum) as per ECBC code 2007. The tile shall be primer coated on both sides and the fair surface shall be having a factory finish in two coats of white dispersion type solvent free paint.

ii. Frame

The frame work shall consist of G.I. ' T ' Sections of 25 micron hot dipped galvanised iron section of 0.40mm thick on Silhouette profile, rotary stitched double webbed white with 6mm reveal profile (white/black) comprising of Main runners 15x42x3000mm length, Cross runners of 15x42x1200mm & 15x42x600mm size to form grid module of size 600x600mm. Galvanised iron perimeter wall angle of size 22x19x0.4mm of length 3000mm to be fixed on periphery wall/partition with the help of plastic rawl plugs at 450mm C/C and 40mm long dry wall SS screws. The work shall be carried out as per specifications, drawing and as per direction of Engineer-in-Charge.

iii. Fixing of Ceiling Tiles

The frame work shall be suspended from ceiling by L shape level adjuster hangers made of G.I. Of size 85x25x25x2mm having die cut slit for sliding into main T section, also having precut hole so that 6mm fully threaded MS rod length upto 1000mm goes through it and pierces into M6 dash fasteners (Galvanising of 80 gsm minimum) of 6 mm dia 50mm long, fixed to the slab and then tightened with check nuts, subsequently the bottom of 6 mm rod will be tightened with check nuts for adjusting the line & level. The tile shall be laid on 15x42mm wide T section flanges colour white having rotary stitching on all T sections i.e. the main runner, 1200mm & 600mm cross Tees with a web height of 42 mm and load carrying capacity of 7.57Kgs/m².

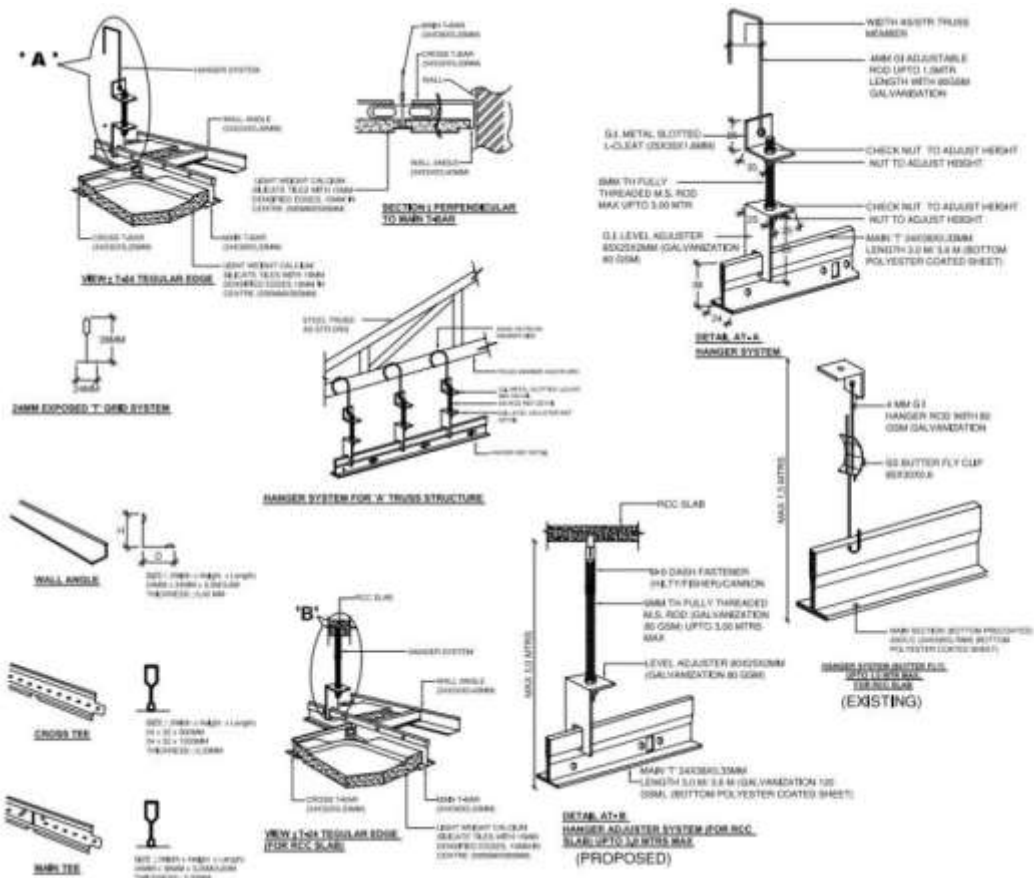
iv. Measurements

Length and breadth of superficial area of the finished work shall be measured correct to a centimetre. Area shall be calculated in square meter correct to two places of decimal. No deduction will be made to openings of areas upto 40 square decimeter nor shall extra payment be made either for any extra material or labour involved in forming such openings. For openings exceeding 40 square decimetre in area, deduction in measurements shall be made but extra payment will be made for any extra material or labour involved in making such openings.

v. Rates

The rate shall include the cost of all the materials and labor involved in all the operation described above including scaffolding etc, if any required.

15mm Tegular/integral densified micro edged Light weight calcium silicate false ceiling tiles



7. SAMPLES OF MATERIALS:

- a. Sample of all materials/ fittings and fixture to be used in the work such as doors, windows, tiles, sanitary, water supply, drainage fittings and fixtures shall be submitted well in advance by the contractor for approval from the Engineer-in charge of work in writing before placing orders for the entire quantity required for completion of work. Samples approved by the EIC shall be kept in Sample Room under the charge of Engineer-in-Charge and shall retain till completion of work.
- b. Finished items in respect of typical portion of works of repetitive nature such as typical room, toilet, railing, door, window or any other work desired by the engineer-in- charge shall be prepared by the contractor to the satisfaction of Engineer-in – charge and got approved from him in writing before the commencement of these items for the entire work.
- c. The requirements for preparation of samples shall be observed and fulfilled by the contractor well in advance to avoid any detriment to the general progress of work. In other words, this will not be allowed to have any effects on the general progress of work or on any of the terms and conditions of the contract. No claims of any kind whatsoever including the claims of extension of time will be entertained due to the incorporation of this requirement.

8. VARIATION IN CONSUMPTION OF MATERIALS:

The variation in consumption of material shall be governed as per CPWD specification and clauses of the contract to the extent applicable.

9. MISCELLANEOUS:

Materials manufacture by reputed firms and approved by Engineer – in charge shall only be used. Only articles classified as “First Quality” by the manufactures shall be used unless otherwise specified. Preference shall be given to those articles which bear ISI certification marks. In case articles bearing ISI certification marks are not available the quality of sample brought by the contractor shall be judged by the standards laid down in the latest CPWD specifications. For items not covered by the latest CPWD specification, relevant ISI standards shall apply.

10. TESTS:

- a. Materials brought at site of work shall not be used in the work before getting satisfactory test results for Mandatory tests as per relevant provisions in Latest CPWD Specifications for works. Normally, part rate payment shall be allowed in the running account bills only if the materials are tested and test results are found to be satisfactory to by the Engineer-in-charge. These tests shall be got done from laboratories approved by Engineer-in - charge or the laboratory set up by the contractor at site as per directions of Engineer-in - charge.
- b. The Engineer-in - charge of work shall check the test results and satisfy himself before allowing any payment in the running /final bill.

CHAPTER B

List of Approved Makes of Materials

Note:-	
1.	The Contractor shall procure and submit to the Engineer-in-Charge, samples of various materials for all the works, for approval. Nothing extra shall be payable on this account.
2.	The contractor will use one of the approved makes as approved by the HITES / Engineer -in-charge.
3.	In case of different quality / pattern of same make, the pattern/ quality shall be approved by the HITES / Engineer – in – charge.
4.	All the items included in the list or otherwise to be used in the work should conform to CPWD and relevant BIS specifications / relevant codes, as applicable.
5.	If any item is missing in the below list, its make will be decided by the HITES./ Engineer – in-charge.
6.	If any major equipment is using a small component of make other than that given as a standard component with the equipment, the same shall be accepted.
7.	Similar Makes for the same items may be used for all the subheads.

1. LIST OF APPROVED MAKES / AGENCIES FOR CIVIL & PLUMBING MATERIALS

S. No	Materials	Manufacturers / Agencies
1	Ready mixed Concrete	RMC/RAMCO/ACC/Birla/Ultratech
2	Ordinary Portland Cement (Minimum 43 Grade)	ACC/UltraTech/India Cement/ Birla/Ramco
3	Reinforcement (Each LOT shall accompany manufacturer's Test Certificate)	SAIL/ TISCO(TATA)/ RINL/ VSP/ JINDAL
4	Stainless Steel	Salem Steel
5	Structural Steel	Conforming to BIS 2062 and approval of source by Engineer (TISCO/SAIL/VSP/JINDAL)
6	White Cement	JK Cement/ Birla White/Asian
7	Sand	Sand / M Sand (Crushed aggregate) to comply with CPWD spec / relevent IS code spec.
8	Bricks, Stones slabs, Lime,	Material / Sample to be got approved before use

	Neeru Stone aggregate	
9	Vitrified Tiles/Anti Skid Cermaic Tiles	Johnson, Nitco,Kajaria /RAK/Premium/I Quality
10	Flush doors	Samrat,Kanchan Prima, Swastik (Kitply), Century/Kutty/ Greenply/ Uniply/ Archid
11	FRP Doors	Fibrevent / Techno skills/Meena Fibre
12	Aluminium Fittings	Everite, Garnish,Crown Classic
13	Hydraulic floor Spring	Dorma/Everite/Hardwyn/Garnish
14	Aluminium Extruded Sections	Jindal/ NALCO/Hindalco/ Indalco
15	Aluminium Doors/Windows	As approved by E-IN-C
16	Paints/ Synthetic enamel Paint/Distempers/ Acrylic emulsion/Cement primer/Deluxe multi surface paint	Asian, Nerolac, Berger, I Quality
17	Glazing (high performance glass for DGU and SGU)	Saint Gobain / Asahi / Pilkington/Modi float
18	Glass	Saint Gobain / Asahi / Modiguard
19	French Spirit Polishing	Sheeniac/MRF/Touchwood
20	ACP	Alucobond/Alcopla/Eurobond
21	Precast Cement Concrete Tiles	Eurocon/ Ultra make/Approved by E- In- C
22	Paver Block	As approved by Engineer In Charge
23	Water proofing Works	FOSROC/ SIKA / Pidilite / CICO/Penetron / Polyplus
24	Hydraulic Door Closers	Hardwyn, Everite, Garnish
25	Water Proofing Cement Paint	Snowcem India/ ICI/ Nerolac/ Berger/ asian
26	Ceramic / Glazed Floor Tiles	Nitco, Johnson,Kajaria, Somany - Premium I Quality
27	Super plasticizer	CICO, Roff / Pidilite
28	False Ceiling (a) Fibre (b) Galvanized Steel (c) Calcium Silicate	Armstrong / AMF Armstrong/Hunter Douglass Aerolite / Promat/Saint Gobain Armstrong
29	Stainless Steel Works	As approved by Engineer-in-charge
30	Curtain/Wall/Structural Glazing	Specialist Agency to be employed with Prior Approval of E-In-C
31	Adhesive	Pidilite, Araldite
32	Plastic Laminates	Formica, Greenlam, Bakelite HYLAM
33	Powder Coatings	Berger/Nerocoat/Jenson & Nicholson
34	Tile Joint Filler	Bal Adhesives & Grouts,"ROFFE" Rainbow Tile Mate, Silicon Sealnet of GE Bayer Silicon/"Zentrival FM" of MC-Bauchemie (India) P Ltd
35	Resin Bonded Glass Wool	Crown Fibre Glass/Rock lloyd
36	MS Tubes	TATA / Lloyd/NSL/JINDAL
37	Roof Water Proofing	SIKA/Pidilite/Fosroc/ BASF

38	Silicon Sealant	Dow Corning
39	Anchor Fastener	Hilti, Bosch
40	Formwork Release Agent	Fosroc, MBT, MC Baucheme CICO, ADO Conmat
41	EPOXY	FOSROC, SIKA
42	Cast Iron Pipe and Fittings (Soil Pipes)	BIC, HEP, NECO, Ajmera
43	CPVC FITTINGS	ASTRAL / ASHIRWAD/SUPREME/PRINCE/ FINOLEX
44	CPVC PIPES	ASTRAL / ASHIRWAD SUPREME/PRINCE/ FINOLEX
45	Stoneware Pipes & Fittings	Dalmia, Parry
46	Cast Iron Pressure Pipes & Fittings	Tisco, BRM, KESORM
47	GI Pipes (ISI marked)	TATA, Zenith, Jindal, Gujarat Steel, ITC
48	GI Fittings (ISI marked)	'R' Brand KS/UNIK
49	PVC PIPES	SUPREME / PRINCE /ASTRAL/FINOLEX
50	PVC FITTINGS	SUPREME / PRINCE /ASTRAL/FINOLEX
51	PVC floor Trap	SUPREME / PRINCE
52	CP Brass Sanitary and water supply Fittings	Jaguar (Florentine)/ESSESS/HINDWARE/PRAYAG PARRY/METRO/PARKO
53	Sanitaryware	Parryware/Hindware/Cera
54	Polyethylene/Polypropylene CISTERN	EVERLAST/FLUSHFLO/ESYFLO/ CHALLENGER/CHAMPION/COMMANDER, MARVEL /PARRY/HINDWARE
55	CI Fixtures	Ashok Iron Works/Bombay Iron Works/A Husainji / Ismaelji
56	Plywood Products, Parcticle Boards & Veneers	Duroply (Green Marked, BWR Century Plywood, Green Plywood Kitply, Mysore Boards/SHARON
57	Water proofing System	SIKA/Pidilite/Fosroc/ BASF
58	CP Waste, Spreaders for Urinals	Jaguar / Orient / Parko
59	SFRC Manhole Covers	KK/SK & Precast Concrete
60	PVC Pipes/Fittings	SUPREME / PRINCE /ASTRAL / Finolex
61	SS Sink	Nirali, Hindware, Franke
62	Mirror	Modifloat/Saint Gobain

**END OF VOLUME -
III**