GENERAL TECHNICAL SPECIFICATIONS

GENERAL:

1. In the specifications, "as directed" / "Approved" shall he taken to mean "as directed" / "approved" by the Engineer in charge.

2. Wherever a reference to any Indian Standard appears in the specifications, it shall be taker to mean as a reference to the latest edition of the same in force on the date of agreement.

3. In "Mode of Measurement" in the specifications wherever a dispute arises in the absence of specific mention of a particular point or aspect, the provisions on these particular points or aspects in the relevant Indian Standards shall be referred to.

4. All measurements and computations, unless otherwise specified, shall be carried out nearest to the following limits:

(i) Length, width and depth (height) ..... 0.01 Metre

(ii) Areas ..... 0.01 Sqm

(iii) Cubic Contents ..... 0.01 Cum

In recording dimensions of work, the sequence of length, width and height (depth) or thickness shall be followed.

5. The distance which constitutes lead shall be determined along the shortest practical route and not necessarily the route actually taken. The decision of the Engineer in charge in this regard shall be taken as final.

6. Where no lead is specified; it shall mean "all leads".

7. Lift shall be measured from plinth level.

8. Up to "floor two level" means actual height of floor (Maxi. 4 M.) up to 3 Mt. above plinth level.

9. Definite particulars covered in the items of work, though not mentioned or elucidated in it, specifications shall be deemed to be included therein.

10. Reference to specifications of materials as made in the detailed specification of the items of work is in the form of a designation containing the number of the specification of the material and prefix 'M' e.g. 'M-5'.

11. Approval to the samples of various materials given by the Engineer in charge shall not absolve the contractor from the responsibility of replacing defective material brought on site or materials used in the work found defective at a later date. The contractor shall have no claim to

12. The contract rate of the item of work shall be for the work completed in all respects.

13. No collection of materials shall be made before it is got approved from the Engineer in charge.

14. Collection of approved materials shall be done at site of work in a systematic manner. Materials shall be stored in such a manner as to prevent damage, deterioration or intrusion of foreign matter and to ensure the preservation of their quality and fitness for the work.

15. Materials, if and when rejected by the Engineer-in-charge, shall be immediately removed from the site of work.

16. No materials shall be stored prior to, during and after execution of a structure in such a way as to cause or lead to damage or overloading of the various components of the structure.

17. All works shall be carried out in a workmanlike manner as per the best techniques for the particular item.

18. All tools, templates, machinery and equipment for correct execution of the work as well as for checking lines, levels, alignment of the works during execution shall be kept in sufficient numbers and in good working condition on the site of the work.

19. The mode, procedure and manner of execution shall be such that it does not cause damage or over loading of the various components of the structure during execution or after completion of the structure.

20. Special modes of construction not adopted in general Engineering practice, if proposed to be adopted by the Contractor, shall be considered only if the contractor provides satisfactory evidence that such special mode of construction is safe, sound and helps in speedy construction and completion of work to the required strength and quality. Acceptance of the same by the Engineer in charge shall not, however, absolve the contractor of the responsibility of any adverse effects and consequences of adopting the same in the course of execution of completion of the work.

21. All installations pertaining to water supply and fixtures thereof as well as drainage lines and sanitary fittings shall be deemed to be completed only after giving satisfactory tests by the Contractor.

22. The contractor shall be responsible for observing the rules and regulations imposed under "Minor Minerals Act", and such other laws and rules prescribed by Government from time to time.

23. All necessary safety measures and precaution (including those laid down in the various relevant Indian Standards) shall be taken to ensure the safety of men, materials and machinery on the works as also of the work itself.

24. The testing charges of all materials shall be borne by the Contractor unless recovery at one percent towards testing charges is separately made.

25. Approval to any of the executed items for the work does not in any way relieve the contractor of his responsibility for the correctness, soundness and strength of the structure as per the drawings and specification.

26. The work shall be carried out with the best practice followed in the industry. The contractor shall make sure that the item to be carried out in its perfect state as per the standards practice. Additionally, executed work shall not be damaged and shall be free from any dents or scratches. It is the duty of the contractor to make proper arrangements for protection of the items during execution till handover. The contractor shall get the items inspected and approved by Engineer in charge before execution / installation. Any claim, upon rejection of any item by the Engineer in charge will not be entertained. The contractor shall execute the item as directed by Engineer in charge at all floors / all heights and all levels.

27. The rate shall be consolidated for all items. The Rate shall also include all tools, plants, equipment, scaffoldings, labour, taxes, conveyance, and other incidentals for satisfactory completion of the work, including necessary wastage involved for the work. No extra payment will be given for any reason.

[1] Minimum Specification for Pre-laminated particle board:

Sr. No.	Property	ISI Specification conforming to IS 12823-1990 (Grade-2)
1	Density	500-900 Kg/m^3
2	Moisture content	5-15 %
3	Max Water Absorption	In Percent
	2 hours	15
	24 hours	30
	Thickness swelling (2 hours)	8
4	Minimum Modulus of Rupture	In N/mm^2
	Up to 20mm thick	11
	Up to 20mm thick	11
5	Tensile Strength Perpendicular to surface (min)	In N/mm^2
	Up to 20mm thick	0.3
	Up to 20mm thick	0.3
6	Screw withdrawal strength (min)	In N
	Face	1250
	Edge	750
7	Abrasion Resistance (min)	Number of revolutions
	Type 2	450

[2] Minimum Specification and for Powder Coating:

	Not lesser than 50 microns thick and standard colours
	Powder coating shall be with Epoxy powder of a standard shade or as required.
	The specific gravity of powder should be such that it gives DFT (Dry Film Thickness) of 50 – 60 micron.
	It should withstand salt spray test of not less than 1000 hrs
	Scratch Hardness Test as per DIN 53153 shall be conducted and results should be such that no scratch shall show bare metal with a load of 3 kgs.

	(10) Ten steps Phosphating process treatment shall be conducted before powder coating.
(i)	Hot water rinse
(ii)	Knock of Degreasing
(iii)	De-rusting
(iv)	Cold water rinse
(v)	Surface Activation
(vi)	2 stage Phosphating
(vii)	Water rinse
(viii)	Passivation
(ix)	Oven drying
(x)	Powder Coating

[3] List of Brand for various hardware materials:

Sr. No.	Description	Brand
1	BWR Plywood	Century Ply, Green Ply, Samrat Ply, Specewood or equivalent
	Commercial	Kitply, Anchor, Green Ply
	Marine	Kitply, Anchor, Green Ply
2	Pre-laminated Particle Board	Novapan, Merino, Associate
3	Laminate	Formica, Merino, Decolam , Greenlam, Kitply, Associate
4	Screws	GKW, nettlefold
5	Powder coating	Marpol, Nerocoat, Berger
6	Adhesive, Wooden Adhesive, Tile adhesive & grouting materials	Fevicol, Blue Coat
7	Structural Roller Steel Section-beam, channels, tee, flats, angles, bars (Round, Square hexagonal)	Tata, Sail
8	MS ERW (CRC) Pipes (Square, Rectangular & Tubular)	Tata, Asian, Jindal
9	Structural Tubular Section	Tata, Asian, Jindal
10	Marine Grade Plywood As per IS-710 (any thickness)	Archild Gold-MR, Century (VIN-MR)
11	4 mm thick Veneer	Archild, Century, Green
12	MDF (any thickness)	Nuwood, Duratuff (exterior grade only)

13	Laminate sheet 1 mm thick	Archild, Century, Green
14	Furniture Locks Multipurpose locks	Godrej, Ebco, Hettich, Europa
15	Drawer Channels	Godrej, Ebco, Hettich, Hafele
16	Auto closing hinges	Godrej, Ebco, Hettich, Hafele
17	But hinges	Kich, Ebco
18	Handles	Kich, Ebco
19	Back painted Glass / clear float glass	AIS, Asahi, Saint Gobain
20	Grid tiles for ceilings	Armstrong
21	Silicon Sealant / Silicon Paint Polysulphide sealant P.U. sealant.	Wacker, Dowcorning, GE, Soudal, Bostic pedilite, chawksey, sika, (Exterior grade – UV resistant)
22	Paint, Primer, putty	Asian, Berger, ICI, Birla Putty
23	Lacquer / Melamine	Asian, MRF, Berger
24	Oil & Water finish	Double boiled CAT brand linseed oil and MTO of reliance
25	Aluminium Sections (any type)	Jindal, Hindalco
26	Teak wood	Selected & sorted, seasoned Indian Teak Wood with uniform veins and with anti termite treatment.
27	Magnet Catchers	Magnum, EPPW
28	Castors	Rexeloo Castors / Bombay Star
29	Screw	GKW, Nettlefold
30	Powder Coating	Marpol, Newcoat, Berger

[4] Specifications for French / Melamine Polishing:

1.0. Materials:

1.1. The French polish required tint and shade shall be prepared with the below mentioned ingredients and other necessary materials: (i) Chandra (ii) Shellac (ic) Pigment. The French polish so prepared shall conform to I.S. 348-1968.

2.0. Workmanship:

2.1. Preparation of surface:

2.1.1. All unevenness shall be rubbed down to smoothness with sand paper and the surface shall be well dusted. The proper in the wood shall be filled up with a filler made of a paste of whiting in water or methylated spirit (with a suitable pigment like burnt sienna or umber if required): otherwise the French polish will get absorbed and a good gloss will be difficult to obtain.

2.2. Application:

2.2.1. A pad of wooden cloth covered by a fine cloth shall be used to apply the polish. The pad shall be moistened with polish and rubbed hard on the surface in a series of overleaping circles applying the polish sparingly but uniformly over the entire area to give an even surface. A trace of linseed oil on the face of the pad may be added which shall facilitate this operation. The surface shall be allowed to dry and the remaining coats applied in the same way. To finish off, the pad shall be covered with a fresh piece of clean fine cloth, slightly damped with methylated spirit and rubbed lightly and quickly with circular motions. The finished surface shall present a uniform texture and high loose.

[5] Oil Painting on Wood surfaces:

1.0. Materials:

1.1. The ready mixed paint, brushing, wood primer pink shall conform to I.S. 3536-1966

2.0. Workmanship:

2.1. Preparation of surface:

2.1.1. All wood work shall be dry and free from any foreign matter incidental to building operations. Nails shall be punched well below the surface to provide a film key for stopping. Mouldings shall be carefully smoothened with abrasive paper and projecting fibres shall be removed. Flat portions shall be smoothened off with abrasive paper used across the grain prior to painting prior to painting and with the grain prior to staining or if the wood is to be left in its natural colour, wood work which is to be stained may be smoothened by scraping instead of by glass papering if so required.

2.2.2. Any knots, resinous, streaks or bluefish sap wood that are not large enough to justify cutting out shall be treated with two coats of pure shellac knotting applied thinly and extended about 25 mm beyond the actual area requiring treatment.

3.1. Application of Primer:

3.1.1. After the preparation of the surface, the priming coat shall be applied immediately. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of the particular primer. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing alternately in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off wall constitute one coat.

3.1.2. During painting, every time, after the priming coat has been worked out of the brush bristles or after the brush has been unloaded, the bristles of the brush shall be opened up by striking the brush against portion of the unpainted surface with the end of the bristles, held at right angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container The prima/y coat shall be allowed to dry completely before painting is started.

3.1.3. No hair marks from the brush or clogging at pain puddles in the corner of panels angles of moulding etc. shall be left on the work.

3.1.4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

3.1.5. The container when not in use shall be kept close and free from air so that paint does not thickness and also shall be kept guarded from dust.

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