

MINISTRY OF EXTERNAL AFFAIRS
GOVT. OF INDIA, NEW DELHI

Tender

For

Package-I : Supply & Installation of Modular Type office Furniture for
Setting up 150 bed hospital at Dickoya, near Hatton in Central Sri Lanka

Vol.-II - Specifications

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Furniture for Setting up 150 bed hospital at Dickoya, near Hatton in Central Sri Lanka

❖ **Following Basic Material to be used in Office Furniture with prior approval of Client/HSCC:**

Material Requirements For All Revolving And Tubular Chairs :

1. Cushion chairs are made out of flexible polyurethane foam molded to have consistent hardness of 20-24 kg .
2. The polyurethane foam should be molded with density 45 +/- 2 kg/meter cube and hardness 20 +/- 2 kg on hardness machine at 25% compression.
3. Armrest of chairs should be made out of integral skin polyurethane foam of shore hardness 'a' 50-70 and reinforced with ms steel insert except unless otherwise specified.
4. Gas lift mechanism for height adjustments tested for 100000 cycles of operation.
5. Chair base of the pedestal consists of 5 prongs made of 5 mm thick ms plates.
6. Plastic cladding is provided to make the pedestal look good aesthetically. The ms pedestal should be tested for load bearing.
7. Twin wheel castors are made of nylon and should be tested to carry a load upto 82 kgs on the chair.
8. All steel components should be powder coated conforming to :-
 - ❖ Dry film thickness more than 45 microns.
 - ❖ Salt spray test to withstand corrosion.
 - ❖ Adhesion as per din 53152 standards.
 - ❖ Scratch hardness as per bs 3900/e2
 - ❖ Impact test.
 - ❖ Pencil scratch test

Mandatory Tests To be Done By Manufacturer on Chairs :

- Seating Impact test.
- Arms Strength Test
- Back Durability Test.
- Castor/ Chair durability test.
- Base Test.
- Castor retention test.
- Castor Pull Out test.
- Castor Breakability Test.

Powder Coating Tests :

All MS components shall be epoxy polyester powder coated using the seven chamber pretreatment process with the powder thickness greater than 40 microns Dry Film Thickness.

Tests to Be Carried Out on Powder Coating :-

- Cross Cut Test- To check Adhesion
- Impact Resistance Test – To 150 kgs/cm as per BS 3900/E3.
- Scratch Hardness- Upto 4 kgs as per BS 3900/E2.
- Salt Spray Test.

Anti Rust Treatment To Be Followed For All Metal Components :

The manufacturer should have anti rust treatment facilities for treating all the metal components. The anti rust treatment shall consist of Removal of oil by treating metal Components with sodium carbonate and alkaline phosphate at 60 degrees centigrade followed by Rinsing with water at normal temperature. The rinsed components are to be dipped in phosphoric acid solution at 45 degrees centigrade for 10 minutes minimum for de-rusting followed by Rinsing. Components shall undergo phosphating by dipping in phosphating tank containing iron hydrogen phosphate dissolved in phosphoric acid at normal temperature for minimum 5 minutes followed by rinsing and finally Dipping components in chromic phosphatic acid reducing agent chemical at temperature of 80 degree centigrade(+/- 10%) for minimum period of 60 seconds.

Specifications For Materials And Processes To Be Used On Furniture**Specifications For Steel Used In Chairs and Other Items :**

- Cold rolled steel for MS sheet shall have thickness ranging from 0.63mm to 1.2mm as per IS:513-1994.

- Hot rolled steel for MS sheet shall have thickness ranging from 2.5mm to 3.15mm as per IS:10748 Group I.
- MS ERW tubes used for tubular components should satisfy IS-7138.

Specification For Fabric To Be Used For Upholstery :

<u>Material Type</u>	<u>Description/ Selection Criterion</u>
100% Polyester, fiber dyed	For a Span of 1.2 Meters shall have weight 330-grams/ meters.
100% poly Propylene	For a Span of 1.2 Meters shall have weight 230-grams/ meters.

Material Specifications :

1) Plain Particle Board (Medium Density) :

Particle boards conforming to IS 2380(1977) with physical characteristics as under

Density	:	600 –900 kg per meter cube.
Moisture content	:	5.10%
Water absorption	:	2 hour test – max 15%
		24 hour test – max 40%
Swelling in water	:	2 hour – max. 5% thickness
Swelling due to water absorption	:	max 6%
Tensile strength perpendicular to surface thickness)	:	min 0.3 Newton per millimeter square.(for all
Tensile strength after cyclic test	:	min 0.3 N/mm square
Screw withdrawal strength on face	:	min 1250 N
Screw withdrawal strength on edge	:	min 850 N

2) Medium Density Fiber Boards :

Medium Density Fiber Board conforming to IS: 2380-1977 with following physical characteristics

Specific Gravity	:	0.5 to 0.9
Density	:	600 –900 kg per meter cube.
Moisture content	:	5 to 10%
Water absorption	:	2 hour test – max 7% 24 hour test – max 15%
modules of rupture upto 20mm thick	:	min 30 N/mm square.
Modules of rupture above 20 mm thick:	:	min 25 N/mm square.
Linear expansion in thickness due to surface absorption	:	max 5%
Swelling due to general absorption after 24 hour soaking in		
Thickness	:	max 4%
Length	:	max 0.4%
Width	:	0.4 % min.
Tensile strength perpendicular to surface	:	0.7 N/mm square.(for all thickness)
Screw withdrawal strength on face	:	min 1500 N
Screw withdrawal strength on edge	:	min 1250 N

3) Pre Laminated And Twin Particle Boards :

Prelaminated and twin particle boards as per IS:2380-1977.

Density	:	600 –900 kg per meter cube.
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Moisture content	:	5 to 10%
Water absorption	:	2 hour test – max 15%
		24 hour test – max 30%
Swelling in water	:	2 hour – max. 8% in thickness
Modules of rupture	:	min. 15 N/mm square.
Tensile strength perpendicular to surface thickness)	:	min 0.5 N/mm square.(for all thickness)
Screw withdrawal strength on face	:	min 1550 N
Screw withdrawal strength on edge	:	min 850 N

The following characteristics are according to annexure of IS:128323-1990.

Resistance to steam- No sign of blister, delaminating or change in surface finish.

Resistance to crack – No sign of crack and delamination.

Resistance to cigarette burn.

Resistance to stain.

Abrasion Resistance (min) in no of revolutions.

4) Post formed Laminate Sheets :

The pos formed (high pressure decorative laminate) one side bearing 0.6 or 0.8 mm thick decorative conform to NEMA specification- ANSI/NEMA/LD-3-1991.

The physical characteristics and test requirements are as per NEME-LD-3-1991.

Impact strength - Ball Impact resistance min 20”

Wear resistance - Min 400 cycles.

Gross dimensional change in machine direction - Max. 1.1%

Gross dimensional change in cross machine direction - 1.4% max.

High temperature resistance - slight effect is accepted on specimen at the final examination.

Stain resistance-No effect is acceptable on the specimen.

Formability - Min radius 12.5mm.

Blister Resistance - Min 40 Sec.

Boiling water immersion test (2 hour test) as per IS:2046-1969.

Increase in weight - Max. 30%.

Increase in thickness - Max 30%.

5) Decorative Laminated Sheets :

Decorative thermosetting synthetic resin bonded laminated sheets are used in 1.0mm thickness and are of type 1 with having one side bearing the decorative surface. The finish, shade, color and pattern shall be mutually decided by the purchaser and supplier. Physical characteristics and test requirements are as per appendix of IS:1046-1969. Resistance to dry heat – no blistering or appreciable surface deterioration or loss of gloss. Dimensional stability in low humidity test at 70+/- 2deg C for 24 hours.- less than 0.5% in length and width dimensions.

Resistance to immersion in boiling water.

Increase in weight - max 5%

Increase in thickness - max 5%

Resistance to staining for 24 hours with standing against agents specified in IS 2046-1969. specimen should not show blistering at the final examination. Cross breaking strength for 0.6mm thick—2000 kg per CM Square.

Cross breaking strength for 1.0 mm and 1.5mm thick – min 4000 kg per CM square.

Impact strength - min 0.035 kg fm

Machinery test - no Slitting or cracking.

6) Epoxy Powder Coating.

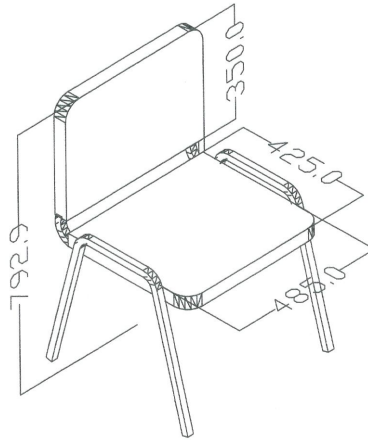
Epoxy powder used for coating shall be of a standard shade or as specified at the time of tender. The specific gravity of powder 1.6(+/-0.2) gives a DFT of 50-60 microns. Pencil Hardness of 2H; Cross hatch Adhesion(DIN 553151) or GT – ‘O’ gloss @ 60 DIN 67530 of 80 +/- 5% for all standard except black for which it shall be 45 +/-5 for black. The coating should be able to withstand min 500 hour of salt spray test. Impact resistance of 150kgcm.

Doctor's Chairs – 41nos.

Chair shall have same look without Revolving Mechanism as shown above with Overall height 920mm, overall width 630mm, overall depth 650mm, seat size 550-535mm (W) x 530(D) and back size 520-530 (W) x 540 (H), seat and back are made up of 12mm thick hot pressed, single piece ply wood upholstered with leatherette and molded with polyurethane foam, visitor chair, the back plywood shall be designed with contoured lumbar support for extra comfort. The one piece arm rest should be made up of black integral skin polypropylene with 50-70 Shore “A” hardness reinforced with MS insert, the armrest are scratch and whether resistant. The arm rests are fitted to the seat and back with 6mm dia. and 57mm long screw made of HR steel. The understructure shall be out of tubular frame of cantilever type and of dia. 3cm x 14 BG M.S. ERW tube and black powder coated.

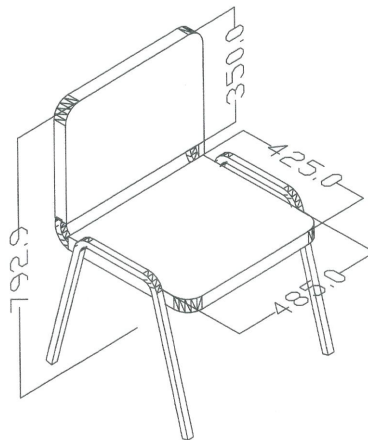
Visitor's Chairs – 68nos.

Overall height 800mm, overall width 535mm, overall depth 550mm, seat size 485mm (W) x 425(D) and back size 495 (W) x 350 (H) seat and back are made up of 12mm thick hot pressed, two piece ply wood upholstered in fabric back and front, molded with polyurethane foam visitor chair, the back plywood shall be designed with contoured lumbar support for extra comfort. The understructure shall be out of frame of M.S. and 14 BG M.S. ERW and black powder coated.



Staff Chairs – 147nos.

Overall height 800mm, overall width 535mm, overall depth 550mm, seat size 485mm (W) x 425(D) and back size 495 (W) x 350 (H) seat and back are made up of 12mm thick hot pressed, two piece ply wood upholstered in fabric back and front, molded with polyurethane foam visitor chair, the back plywood shall be designed with contoured lumbar support for extra comfort. The understructure shall be out of frame of M.S. and 14 BG M.S. ERW and black powder coated.



Waiting Chairs 1- seat : 306nos.

Overall height 780-790mm , overall width 670mm, overall depth 800mm, seat size 500mm (W) x 540(D) and back size 490 (W) x 740 (H), seat and back are made up of 12mm thick hot pressed, single piece ply wood upholstered fabric in front and back in leatherette, molded with polyurethane foam visitor sofa, the back plywood shall be designed with contoured lumbar

support for extra comfort. The understructure shall be out of frame of M.S. and 14 BG M.S. ERW and black powder coated.

Waiting Chairs 2-seater – 4nos.

Overall height 780-790mm, overall width 1090mm, overall depth 800mm, seat size 1020mm (W) x 540(D) and back size 490 (W) x 740 (H), seat and back are made up of 12mm thick hot pressed, single piece ply wood upholstered fabric in front and back in leatherette, molded with polyurethane foam visitor sofa, the back plywood shall be designed with contoured lumbar support for extra comfort. The understructure shall be out of frame of M.S. and 14 BG M.S. ERW and black powder coated.

Waiting Chairs 3-seater : 2nos.)

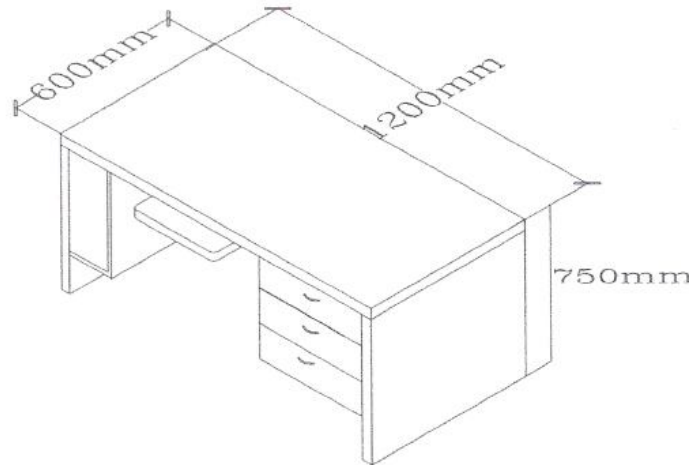
Overall height 780-790mm, overall width 670mm, overall depth 800mm, seat size 1740mm (W) x 540(D) and back size 490 (W) x 740 (H), seat and back are made up of 12mm thick hot pressed, single piece ply wood upholstered fabric in front and back in leatherette, molded with polyurethane foam visitor sofa, the back plywood shall be designed with contoured lumbar support for extra comfort. The understructure shall be out of frame of M.S. and 14 BG M.S. ERW and black powder coated.



Consultation Table: 15nos.

The main desk of size 1200mm (L) X 600mm (D) X 750mm (H) made out of 18mm thick MDF batons and 0.5mm paper veneer to achieve an overall thickness of worktop 40mm, veneered portion shall be finished in high gloss polyester. The under structure made out of 18mm thick MDF board, provision for wire management and side panel out of 18mm thick MDF coated with melamine.

The modesty panel shall be made out of 18mm thick MDF board and coated with melamine; the drawer unit shall be constructed out of 18mm thick MDF board shall have a combination of 3 drawers. The drawer fronts shall be in paper veneer coated with high gloss polyester or melamine.

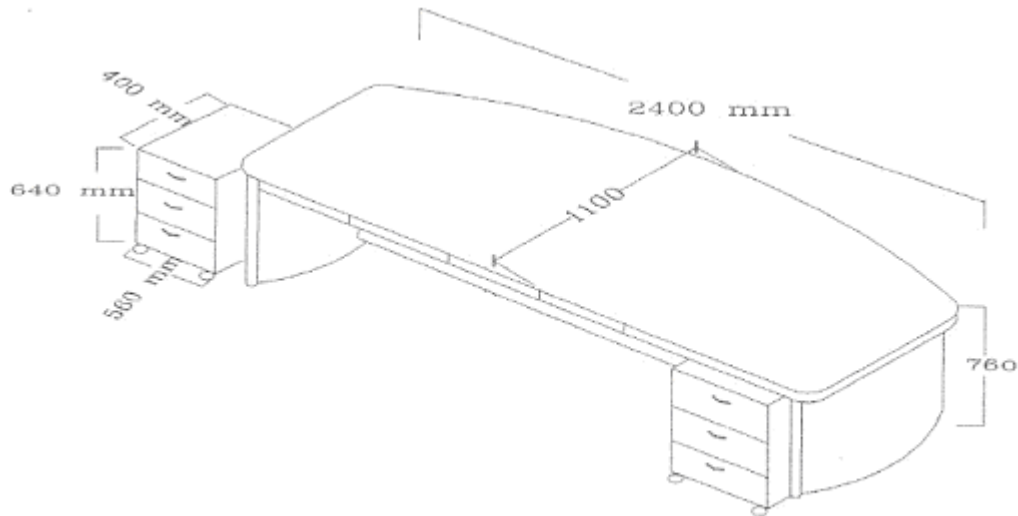


Office Table : 1no.

The main desk of size 2400mm (L) X 1100mm (D) X 760mm (H) made out of 18mm thick MDF batons and 0.5mm paper veneer to achieve an overall thickness of worktop 50mm, veneered portion shall be finished in high gloss polyester. The under structure made out of 18mm thick MDF board, provision for wire management and side panel out of 18mm thick MDF pigmented black and coated with melamine.

The sides return unit shall be of size 1200mm L x 430mm D x 640mm H. The worktop shall be made out of 18mm MDF with 0.5mm thick paper veneer finished in high glass polyester (overall thickness of top 19mm). The modesty panel shall be made out of 18mm thick MDF board and coated with melamine, the drawer unit shall be constructed out of 18mm thick MDF board shall have a combination of 3 drawer size is 640mm (H) x 400mm (D) x 560mm (W). The drawer fronts shall be in paper veneer coated with high gloss polyester or melamine.

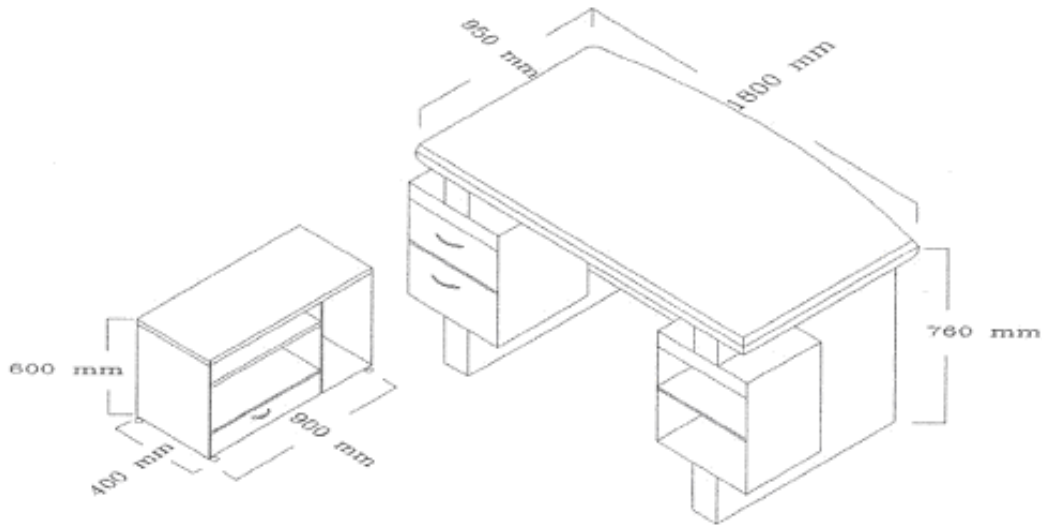
The main desk shall have a mobile back storage size 1600mm L x 400mm D x 670mm H and made out of 18mm thick MDF boards, shall have a combination of Sutter door unit, the drawer fronts shall be in paper veneer coated with high gloss polyester or melamine



Office Table : 8nos.

The main desk of size 1800mm (L) X 950mm (D) X 760mm (H) made out of 18mm thick MDF batons and 0.5mm paper veneer to achieve an overall thickness of worktop 40mm, veneered portion shall be finished in high gloss polyester. The under structure made out of 18mm thick MDF board, provision for wire management and side panel out of 18mm thick MDF coated with melamine.

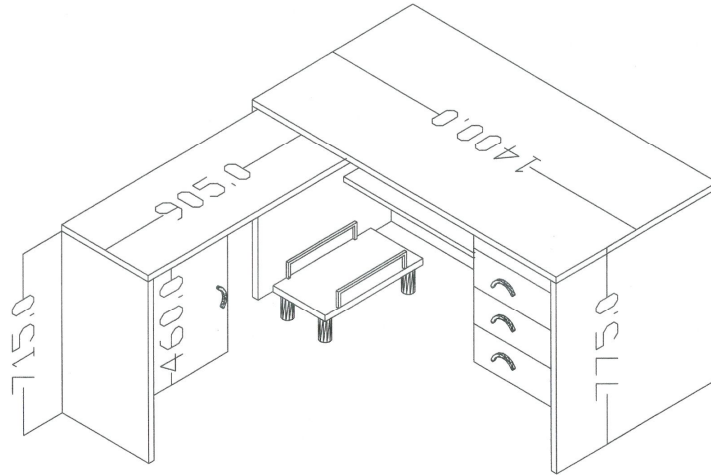
The sides return (mobile storage) unit shall be of size 900mm L x 400mm D x 660mmH. The worktop shall be made out of 18mm MDF with 0.5mm thick paper veneer finished in high gloss polyester (overall thickness of top 19mm). The modesty panel shall be made out of 18mm thick MDF board and coated with melamine, the drawer unit shall be constructed out of 18mm thick MDF board shall have a combination of 2 drawer and other pedestal is open with two shelves. The drawer fronts or sides shall be in paper veneer coated with high gloss polyester or melamine.



Office Tables: 3nos.

The main desk of size 1400mm (L) X 740mm (D) X 740mm (H) made out of 18mm thick MDF top and 0.5mm paper veneer to achieve an overall thickness of worktop 19mm, veneered portion shall be finished in high gloss polyester. The under structure made out of 18mm thick MDF board, provision for wire management and side panel out of 18mm thick MDF coated paper veneer with melamine polish.

The sides return (fixed storage) unit shall be of size 930mm L x 400mm D x 715mmH. The worktop shall be made out of 18mm MDF with 0.5mm thick paper veneer finished in high glass polyester (overall thickness of top 19mm). The modesty panel shall be made out of 18mm thick MDF board and coated with melamine, the drawer unit shall be constructed out of 18mm thick MDF board shall have a combination of 3 drawer with single lock. The drawer fronts or sides shall be in paper veneer coated with high gloss polyester or melamine.



Center Tables : 2nos.

The under structure shall be an assembly of tubular frames made of MS ERW oval tubes of 35mm x 15mm x 18 BG thick held together with perforated MS shelf and threaded nuts and m/c screws. The ends of tubular frames shall be fitted with rubber studs at top and bottom, the top studs shall be fitted with PVC vacuum pads for mounting and gripping glass top of 9.5mm thick float glass with rounded corners, the powder coated shelf shall be made out of 0.5mm thick perforated MS sheet welded to MS square pipe 15mm x 15mm x 14BG thick with 3mm thick HR steel plate on each side for fixing under structure assembly. The tables shall have Top size 800mm (W) x 550mm (D) an overall height of 425 mm.

Side Tables : 28nos.

The under structure shall be an assembly of tubular frames made of MS ERW oval tubes of 35mm x 15mm x 18 BG thick held together with perforated MS shelf and threaded nuts and m/c screws. The ends of tubular frames shall be fitted with rubber studs at top and bottom, the top studs shall be fitted with PVC vacuum pads for mounting and gripping glass top of 9.5mm thick float glass with rounded corners, the powder coated shelf shall be made out of 0.5mm thick perforated MS sheet welded to MS square pipe 15mm x 15mm x 14BG thick with 3mm thick HR steel plate on each side for fixing under structure assembly. The tables shall have top size 550mm (W) x 550mm (D) and overall height of 425 mm.

Side Credenza : 42nos.

Size : 1200mm W x 500mm D x 705mm H with top made from 25mm thick plain particle board clad with 0.5-0.6mm thick laminate post formed & backing laminate and the edges sealed with 2mm thick beeding. Sides, shutters/doors & inner shelves made from 18mm thick prelaminated particle board sealed with 2mm thick beading.