

**REGIONAL MEDICAL RESEARCH
CENTRE (RMRC)
(INDIAN COUNCIL OF MEDICAL RESEARCH)**

Tender

For

Supply, installation, testing & commissioning of Modular Type
Office & Laboratory furniture & associated works etc for Regional Medical
Research Centre (RMRC) at Dibrugarh, Assam.

Volume-III

Technical Specifications

JANUARY 2012



HSCC (INDIA) LTD.
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)
E-6(A), sector-1, NOIDA(U.P) 201301 (India)

Phone : 0120-2542436-40

Fax : 0120-2542447

PQ tender No. HSCC/Fur/RMRC/PG-III/2012

**TECHNICAL SPECIFICATION FOR FURNITURE/FURNISHINGS FOR
Regional Medical Research Centre at Dibrugarh, Assam.**

❖ Following Basic Material to be used in Office & Laboratory furniture with prior approval of Client:

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 hampdness 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.
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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 square.(for all thickness)	:	min 0.3 Newton per millimeter
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 thickness)	:	0.7 N/mm square.(for all
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.
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	:	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.

1.

Office Furniture Executive Tables



Providing and fixing Executive table with top made of 25mm thick plain particle board having post formed decorative laminate on top and balancing laminate on unexposed face. The understructure is made of 18mm thick prelaminated particle board with all exposed edges sealed with 2mm PVC edge banding tape and all unexposed edges sealed with 0.6mm edge banding tape pressed at 200o C with hot melt glue on special machines. Table having two front powder coated vertical legs of CRCA with triple bending shape of overall size 75x75mm with overall radius of 63mm, the angle of each bend should be 150°. The gable end of table having radial profile of radius 195mm. Table has three top hung drawer and provision for wire manager caps at top.

2.

Canteen Table



Providing and fixing Canteen Table with top made of 25mm thick particle board with post formed laminate on top & balancing laminate on unexposed face. The understructure is made of steel duly powder coated.

3.

Reading Tables



Providing and fixing Reading table with top made of 25mm thick Pre Laminated Particle Board with decorative laminate on top & balancing laminate on unexposed face. The understructure is made of 18mm thick prelaminated particle board with both side laminate having all exposed edges sealed with PVC edge banding tape.

4.

Center Table



Providing and supplying center table of size 1200x600x450 with top made of 12mm thick bevelled glass and understructure made of 18mm thick Pre Laminated Particle Board with all exposed edges sealed with PVC edge banding tape.

5.

H.O.D. Table



Providing & Fixing H.O.D table of an overall size 3000x900/1200x750 with top made of 36mm thick MDF board pressed with 0.4mm thick membrane foil clad pressed with PU glue. The foil is precoated with a layer of polyurethane for better scratch resistance. The table has 2 former module supported on CRCA vertical post of size 200mmx200mm having heptagonal (7 bends) shape with overall radius of 150mm, the angle of each bend should be 165° and have duly powder coated. The main table has verticals made of 36mm thick postformed particle board and modesty made of 18mm Pre Laminated Particle Board with 2 nos. CRCA strips of size 50mmx1000mm fixed in the center of modesty.

H.O.D. Side Unit



Providing & fixing side unit of an overall size 1200x500x750 with top made of 36mm thick board pressed with 0.4mm thick membrane foil clad pressed with PU glue. The foil is be precoated with a layer of polyurethane for better scratch resistance. Side unit understructure has body made of 18mm thick prelaminated particle board with openable shutter on one side and 2 drawers + 1 filing on other side in 18mm membrane finish facia with proper locking arrangement. All the exposed edges sealed with 2mm PVC edge banding tape and all unexposed edges sealed with 0.6mm edge banding tape pressed at 200o C with hot melt glue on special machines.

H.O.D. Back Unit



Providing & Fixing V.P. Series back unit of an overall size 3000x500x750 with top made of 36mm thick board pressed with 0.4mm thick membrane foil and pressed with PU glue. The foil is precoated with a layer of polyurethane for better scratch resistance. Storage unit has body made of 18mm thick prelaminated particle with openable shutter storage on both side and 2 Drawer and 1 filing drawer unit in center with facia in membrane finish. All the exposed edges sealed with 2mm PVC edge banding tape and all unexposed edges sealed with 0.6mm edge banding tape pressed at 200o C with hot melt glue on special machines.

6.

Corner Table



Providing and supplying side table of size 450x450x450 with top made of 12mm thick bevelled glass and understructure made of 18mm thick Pre Laminated Particle Board with all exposed edges sealed with PVC edge banding tape.

7.

Side Storage Unit



Providing and fixing side storage units of an overall size 900x450x725 with top made of 25mm thick particle board having Post formed laminate on top & understructure made of 18mm Pre Laminated Particle Board. The unit has one openable shutter on one side with shelf and two top drawers and one filing drawer on other side with all exposed edges sealed with PVC edge banding tape with proper locking arrangement.

8.

Storage Unit



Providing and fixing storage unit with top made of 25mm thick particle board having

post formed laminate on top & understructure made of 18mm thick Pre Laminated Particle Board having openable shutters, with all exposed edges sealed with PVC edge banding tape with proper locking arrangement. The shelves are made of CRCA steel sheet duly powder coated.

9.

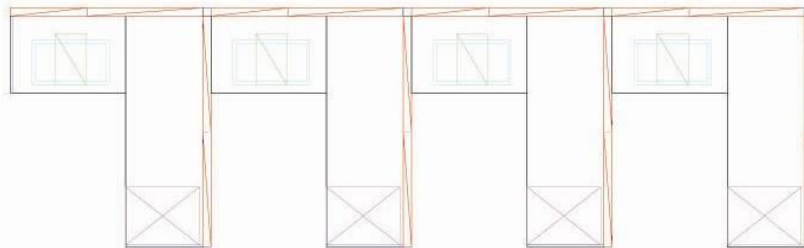
Workstation (Tile Based) with Postformed Top



Linear Workstation 1200x600



L Shape Workstation 1500x1800



Providing & Fixing tile Based Partition System of overall thickness 65mm and height 1230mm having inner framework of CRC steel covered with tiles on both sides and covered with aluminium powder coated trims on top and end sides. Partition has steel raceway at bottom and at middle level. Partition system provides option of various kinds of tiles like prelaminated board tiles, fabric tiles & white marker tiles. All metallic parts undergo a 7 stage antirust treatment and are powder coated in matt finish to a thickness of 40-60 microns. The modular partitions are independent and not grouted in the floors. The modular partitions are an assembly of the following parts:-

FRAME - Frame forms the basic support structure for all other components. The main vertical member of the frame bearing all the load is made of 1.2mm CRCA steel and the horizontal members are made of 1.0mm CRCA steel. The frames also has prefabricated slots for fixing brackets to support worktops, gable ends etc. The bottom module are mounted over a skirting of 135mm height. The skirting is designed so that switch cutout can be provided at the skirting level and are snap fitted on both sides with skirting plates made of 0.8mm thick CRCA steel.

LEVELLERS - Each frame is provided with two Nos. 12mm leveling bolts which allow 10-25mm adjustment for floor unevenness.

POST - The frames are connected at the junctions by aluminium connectors/posts. The posts are made of aluminium extrusions of 1.3mm thickness.

TRIMS -The exposed vertical and horizontal faces of the frames are snap fitted with curve trims. The trims are made of aluminum extrusions of 1.5mm thickness and 65mm width and are covered with ABS caps.

GROOVE COVERS - The vertical gaps between the tiles shall be properly and uniformly maintained and shall be vertically covered by fixing specially extruded aluminium section to maintain uniform groove on both the sides of the partition.

WIRE MANAGEMENT - Partitions system has concealed wire management capabilities to meet requirement and are engineered for responsive and safe operations of power, telecommunications and data (LAN) and has separate components for electrical, data and telephone cables having adequate capability of both the vertical and horizontal wire movements. Slots/cutouts are provided on Raceways to fix all electrical and data points.

TILES - The partition tiles shall be provided in Pre Laminated Particle Board/Fabric on Soft board/White Marker Laminate / Magnetic / Glass Finishes.

The Prelaminated Particle Board tile are provided in 12mm Prelaminated Particle Board with decorative laminate on top and white balancing on unexposed face, having all exposed edges sealed with PVC edge banding tape, pressed at 200°C with hot melt glue on special edge banding machine. The tiles are supported with Tile Hook made of MS steel sheet duly galvanized to clip on to the partition frame.

The Fabric Tiles are made of 9mm softboard inside and backed by 3mm MDF board & covered with fabric pasted on them by PVA glue. The tiles are supported with Tiles Hook made of MS steel sheet duly powder coated to clip on to the partition frame.

The Marker Tiles are made up of 9mm particle board pasted with 1mm white marker laminate, on the the exposed face having all exposed edges sealed with PVC edge banding tape, pressed at 180°C with hot melt glue on special edge banding machine. The tiles are supported with Tile Hook made of MS steel sheet duly galvanized to clip on to the partition frame.

The Magnetic Tiles are made up of fabric finish tile on CRCA sheet duly powder coated. The overall thickness of the tile is 12mm and is provided with magnetic coins is required. The tiles are supported with Tile Hook made of MS steel sheet duly galvanized to clip on to the partition frame.

The Double Skinned Glass Tile - is made up of 5mm thick clear / Glass of Modi / Asahi make and is fixed for both side of partition. The glass tile is provided with aluminium frame work and is fixed with aluminium section using transparent rubber beading. These glass tiles are completely inter changeable with other regular tile.



9B. Work Top 25 mm PF:-

Providing & fixing post formed worktop made of 25mm thick plain particle board with post formed decorative laminate on top and balancing laminate on unexposed face, with all exposed edges sealed with PVC edge banding tape.

10. Conference Table



Providing and fixing Conference table with top made of 36mm thick board pressed with 0.4mm thick membrane foil clad pressed with PU glue. The foil is precoated with a layer of ployurethane for better scratch resistance. The table has verticals made of 25mm thick post formed particle board and modesty made of 18mm thick prelaminated particle board with decorative laminate on both sides. The table ends are provided with half round piece / quarter round pieces made up of membrane finish and supported on steel verticals posts of 65mm dia duly powder coated.

11.

Pedestal Drawer Unit (2+1 Filing)



Providing and fixing pedestal drawer unit of size 446x575x725 with 2 top drawers and 1 filing made of 18mm thick Pre Laminated Particle Board and inner drawer made of steel duly powder coated which runs on nylon roller channels with single multi drawer locking arrangement.

12.

Key Board Tray



Providing & fixing keyboard tray of size 500X220X75mm made of 1.2mm thick CRCA steel sheet duly powder coated having provision for mouse tray. The key board tray runs on telescopic slides for smooth movement.

13.

CPU TROLLEY



Providing and fixing CPU trolley of 240mm(h) with adjustable width made of 1.6mm thick CRCA steel sheet duly powder coated in black colour. The trolley is provided with castors for easy movement.

14.

Reception Table (2 Module)



Providing and fixing single module reception table of an overall size 1390x600x1050 with top made up of 25mm thick Pre Laminated Particle Board having exposed edges sealed with PVC edge banding tape. The table top is supported on steel vertical studs of 50mm(D) and lower modesty made up of perforated steel sheet duly powder coated. The main table has a transaction top made of 10mm thick toughened glass supported on steel studs and upper perforated Modesty duly powder coated.

15.

Periodical Display Rack



Providing & Fixing Periodical Display Rack for magazine/catalogues having overall size 890x400x1890h with body made of CRCA steel duly powder coated and vertical sides made of 25mm prelaminated particle board with all exposed edges sealed with 2mm thick PVC edge banding tape. Display Rack has top sliding shutter with provision to keep 18-20 magazines in Each Rack face behind shutters made up of CRCA steel duly powder coated.

16.

Sofa



Providing & placing fully upholstered leatherite Sofa available in configuration of single, two, three & four seats. Frame is made of good quality seasoned Assam teak wood duly anti termite treated with PU seat & back cushioned.

17.

Lounge Sofa



Providing and Placing Lounge Chair are made of steel pipe 30 to 35 mm dia of 16 swg. frame chrome plated, seat & back made of high density foam and having steel arms at the side, available in the following option

18.

Director's Chair



Providing & Supplying of Executive High Back revolving chair upholstered with Leatherite. The seat and back are made up of 1.2cm thick hot pressed plywood upholstered with leatherite. The back foam is designed with contoured lumber support for extra comfort. BACK SIZE shall be 54.0cm (W) x 84.0cm(H). SEAT SIZE as 55.0cm(W) x 48.0cm(D). The armrest shall be provided with wooden arms with Malemine polish with chrome plated end caps on both handles. The chair shall have Central tilt mechanism. The pedestal shall be made of chrome plated base with steel inserted. TWINWHEEL CASTORS: The twin wheel castors shall be injection moulded in black Nylon for trouble free movement.

19.

Director's visitor chair



Providing & Supplying of Executive Visitor chair upholstered with Leatherite . The seat and back are made up of 1.2cm thick hot pressed plywood upholstered with leatherite. The back foam is designed with contoured lumber support for extra comfort. BACK SIZE shall be 50.0cm (W) x 60.0cm(H) with SEAT SIZE as

52.0cm(W) x 45.0cm(D). The armrest shall be provided with wooden arms with Malemine polish with chrome plated end caps on both handles. The structure is made of 1" dia 14 gauge metal chrome plated pipe with rigid construction for visitor chair

20. Conference Chair



Providing & Fixing Medium Back Revolving Chair with central tilt mechanism
Upholstry/Frame: 12 mm hot pressed ply in seat back with PU moulded foam with E plastic body. Arms: PU arms Height Adjustment: Gas Lift
Base : Steel Inserted nylon base

21. Executive Chair (High Back)



Providing & Fixing High Back Revolving Chair with central tilt mechanism

Upholstry/Frame: 12 mm hot pressed ply in seat back with PU moulded foam with E plastic body. Arms: PU arms Height Adjustment: Gas Lift
Base : Steel Inserted nylon base

22. Executive Visitor's chair



Providing & Fixing Visitor Chair with Upholstry/Frame: 12 mm hot pressed ply in seat back with PU moulded foam with E plastic body. Arms: PU arms Base : Fixed Base.

23. Workstation Chair



Providing & Fixing Medium back revolving chair with SEAT SIZE as 49cmx46cm and BACK SIZE as 43cmx50cm. The Seat & Back shall be made of moulded PU Foam and black co-polymer and outer cover. The arm rest is made of steel inserted black polypropylene for superior comfort. Chair should have gas lift mechanism and shall be supported on steel inserted nylon base with castors as per manufacturer's specifications, drawings & direction of Engineer in charge.

24.

Reading Chair



Providing & Fixing Visitor Chair with Upholstry/Frame: 12 mm hot pressed ply in seat back with PU moulded foam with E plastic body. Arms: PU arms Base : Fixed Base.

25.

Dining Chair



cafeteria chair having 'L' type moulded laminated ply, with 19 mm chrome plated frame

26.

White Board



Providing & Placing non magnetic white board of size 1200x1200

27.

Full Height Partition 65mm thick with Door Unit



Providing & Fixing minimum 65mm thick tile Based Partition having inner framework in CRC steel covered with tiles on both sides are covered with aluminium powder coated trims on top and end sides. Partition has Aluminium raceway at bottom and at middle level. Partitions are provided with option of various kinds of tiles like prelaminated board tiles, glass tiles, fabric tiles & white marker tiles. All metallic parts undergo a 7 stage antirust treatment and are epoxy powder coated and baked at 200° temp. to a powder coating thickness of 50-60 microns. The modular partitions are independent and not grouted in the floors. The modular partitions are an assembly of the following parts:-

Frames - Frame forms the basic support structure for all other components. The main vertical member of the frame bearing all the load is made of 1.2mm CRCA steel and the horizontal members are made of 1.0mm CRCA steel. The frames also have prefabricated slots for fixing brackets to support worktops, sharer tops, gable ends, overhead hampers etc. The bottom tiles are mounted over a skirting of 135mm height. The skirting is designed so that switch cutout can be provided at the skirting level and are snap fitted on both sides with skirting raceway plates made of 1.0mm thick Aluminium sheet. The bottom raceway panels are epoxy powder coated and baked at 200° temp. to a powder coating thickness of 50-60 micron.

Levellers - Each frame is provided with two Nos. 12mm leveling bolts which allows 10-25mm adjustment for floor unevenness.

Post - The frames are inter connected at the junctions by aluminium connectors/posts. The posts are made of aluminium extrusions of 1.2mm thickness duly powder coated.

Top Trim Joinery - Full Height Partitions are provided with top adjustors which allows 10-50 mm adjustment for ceiling unevenness. L shaped top patti is provided to cover the adjustors and fix partition with the ceiling / Beam.

GROOVE COVERS - The vertical gaps between the tiles shall be properly and uniformly maintained and shall be vertically covered by fixing specially extruded aluminium section to maintain uniform groove on both the sides of the partition.

The Magnetic Tiles are made up of fabric finish tile on CRCA sheet duly powder coated. The overall thickness of the tile is 12mm and is provided with magnetic coins is required. The tiles are supported with Tile Hook made of MS steel sheet duly

galvanised to clip on to the partition frame.

The Double Skinned Glass Tile - is made up of 5mm thick clear / Glass of Modi / Asahi make and is fixed for both side of partition. The glass tile is provided with aluminium frame work and is fixed with aluminium section using transparent rubber beading. These glass tiles are completely inter changeable with other regular tile.

The Glass Tiles are made up of 5mm thick clear / etched / frosted Glass of Modi / Asahi make and are fixed from both side of partition. The glass tile is provided with aluminium frame work and is fixed with aluminium section using transparent rubber beading. These glass tiles are completely inter changeable with other regular tile.

Wire management - Partitions system has concealed wire management capabilities to meet requirement and are engineered for responsive and safe operations of power, telecommuncations and data (LAN). It has seperate components for electrical, data and telephone cables having adequate capability of both the vertical and horizontal wire movements. Slots/cutouts are provided on Raceways to fix all electrical and data points.

The fabric tiles are made of 9mm soft board inside and backed by 3mm MDF board & covered with fabric pasted on them by PVA glue. The tiles are supported with Tile Hook made of MS steel sheet duly galaunised to clip on to the partition frame.

The Marker Tiles are made up of 9mm particle board pasted with 1mm white marker laminate, on the exposed face having all exposed edges sealed with PVC edge banding tape, pressed at 200° C with hot melt glue on special edge banding machine. The tiles are supported with Tile Hook made of MS steel sheet duly galaunised to clip on to the partition frame.

28.

Projector



Supplying & placing of Overhead ceiling mount Projector of approx. 2500 lumens Panasonic/Sony make.

29.

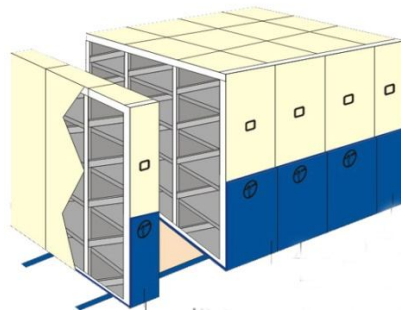
Roller Screen for Projector



Supplying & placing Roller screen having overall size 1800x1200

30.

COMPACTOR



Compactor / Mobile Storage System with 2080 mm height of following configuration and specification consisting of Single Faced Fixed Unit (SFF) , Single Faced Mobile Unit(SFM) and Double Faced Mobile Unit(DFM) with Provision of Single Bay, Double Bay and Triple Bay Systems.
The System shall be modular type(Knock Down) with five loading levels / 4 shelves. Each loading level should take 60 kg UDL.
If the system is more than single bay, there shall be a inner cover of both side of U – Channel Uprights and the same should be fixed with another body.
Each Bay shall be connected from the End back with the Dust proof arrangement

with the help of Tong and Groove system arrangement as shown in the Drawing. Handle shall be made of ABS in round type with Dia of 350mm minimum with a safety lock System at the Centre.

Upright of the compactor shall be U – Channels formation to carry more weight and to get more rigidity.

Mechanical arrangement shall be concealed inside the System, only handle shall be installed at the outer Sheet of the Compactor as Shown in the Drawing. The system shall be as per the given drawing. No changes or deviation will be allowed in over all size and thickness of the components.

The component specification shall be as follows.

a. Upright U - Section: Section shall be minimum 1.0mm thk.

b. Material Thickness : Back Sheet : 0.8mm; Shelf: 0.8mm; Side Sheet: 1.0mm;

Under Carriage Frame - HR sheet 2.5mm thick.

c. Upright Post: U - Shaped Post.

d. Wheel: Iron die casting with anti-rust coating, Loading : 1000kg/Wheel

There shall be central locking system with wire, handle lock, Rail lock Plate & Rail Lock assembly in the chain box cover.

The material used for the system shall be as per following standards:-

Steel CRCA IS - 513 D

HR 10748

All steel component shall be given 7 tank antirust Phosphating treatment and to shall be Powder coated and baked at 200o centigrade with 40 -50 microns quoting thickness.

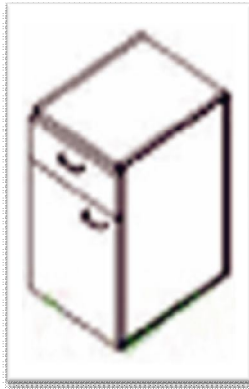
Superior quality, new steel shall be used for fabrication of Compactors and shall conform to IS 10748/IS 513. All steel components shall be given a thorough antirust treatment. The anti rust treatment shall include Pickling, Degreasing, Phosphating and rinse and De – mineralized water rinsing. Degreasing and pickling shall be done in conformity with IS 6005 of 1970 and iron phosphating shall be done in conformity with IS 3618 of 1966 , Class D. All steel component shall be powder coated for obtaining a smooth, scratch- resistant and lasting attractive finish. The powder used for the process shall be a mixture of finely grounded particles of pigments and resin. They shall be applied by means of electrostatic spray equipment and the coated objects shall be backed at a high temperature oven to form a smooth finish.

31. Floor Mounted Storage Unit Steel

The floor mounted cabinet with steel shutter are made up of 0.8mm thick CRCA M.S. sheet. The Complete M.S. material of cabinet is pretreated (degreased Zinc Phosphated) and epoxy powder coated for better corrosion & chemical resistance.

The thickness of powder coating is 50 microns, and have scratch resistance/hardness of 3 Kgs (IS:101 & IS:13871). The shutters are fixed with nickel chrome plated auto closing hinges. The drawer trays are mounted on telescopic slides. The overall load bearing capacity of the cabinets is 80 Kgs of UDL (40 Kgs on shelf & 40 Kgs on bottom). Multipurpose Lock are used wherever required.

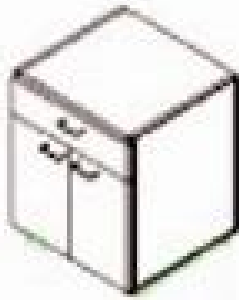
i. 450(W) x 570(D) x 675(H) 1 shutter+1 Drawer



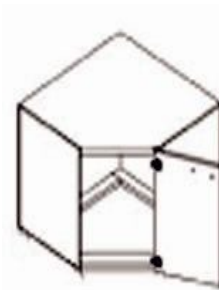
ii. 600(W) x 570(D) x 675(H) 2 shutter+1 Drawer



iii. 750(W) x 570(D) x 675(H) 2 shutter+1 Drawer



iv. Corner 900(W) x 570(D) x 675(H) 1 shutter



v. 600(W) x 570(D) x 675(H) 2 shutter (Sink Unit)

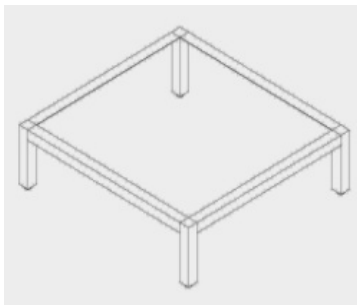


vi. 900(W) x 570(D) x 675(H) 2 shutter (Sink Unit)



32.

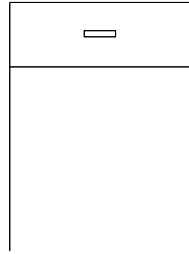
Understructure Stand



The raw material used for storage understructure stand is 1.2mm thick, 30mmx30mm heavy duty ERW M.S. Square tubes. The complete M.S. Material of understructure is pretreated (degreased, Zinc Phosphated) and epoxy powder coated (Black colour) for better corrosion resistance. The thickness of powder coating is 45-50 microns. The understructure stand consists of 4 height adjusters which take care of all levelling aspects.

33.

Leg Space



Providing & fixing Legspace is made up of 1.0mm thick CRCA M.S. sheet. The Complete M.S. material of drawer is pretreated (degreased Zinc Phosphated) and epoxy powder coated for better corrosion & chemical resistance. The thickness of powder coating is 50 microns.

34.

Reagent Shelf With Service Stand



Supply & installation of reagent racks with service line stand shall consist of various carrying electric & plumbing etc. service line. Overall thickness of the reagent racks shall be 300mm depth & raw material to be used for the table shall be 2mm thick 30mm x 30mm heavy duty ms square tubes the end support are made up of 1.2mm crca ms sheet.

35.

Worksurface

Providing and Installation of 18mm thick Granite Work Top with edge moulding cutting and polishing fixed over 8mm thick Marine ply complete as per approved drawing, design, specifications & directions of Engineer in charge.

18mm thick Granite (Sqm)

36.

Sink



Providing and fixing stainless steel sink of size 510 mm (L) x 430 mm (W) x 200mm (D). - 1 No.

3 Way Brass Faucet Sink unit has 3-way (2 straight + 1 Swan Neck) water tap made up of Brass and with epoxy powder coated. - 1 No.

37.

3 Way Faucet



3 Way Brass Faucet Sink unit has 3-way (2 straight + 1 Swan Neck) water tap made up of Brass and with epoxy powder coated.

38.

Anti Vibration Table



Providing & Fixing Anti-vibration table having overall size 1200x750x900mm consisting of Tubular frame: Completely modular type tubular frame, carries the load of the Kadappa slab or granite placed on it.

Material: 40SqX1.6mm Thick ERW tube.

Load Carrying Capacity: The tubular frame handles a UDL of 250 Kgs.

Cover Panels: The cover panels are made of 0.80mm thick CRCA M.S Sheet duly powder coated with thickness of 45-50 microns.

Kadappa: 25mm thick Kadappa is used as the main shock dampening component.

Work Surface: The work top is made up of 18mm thick jet black granite with polished/bevelled edges. Vibration isolating rubber pads made of a combination of nitrite rubber, cork particles, and cross linked polyester fibres are provided.

Leveling screws: are provided at the bottom of the frame to accommodate any variations/undulations in the finished floor.

39.

Chemical Storage (with Ventilation) in SS 304 Grade



Providing & Fixing Chemical Storage Cabinet having an Overall size 900(L)x500(D)x1950(H)following features:-

- * Complete Structure made up of heavy duty, durable, chemical resistant aluminium channels with epoxy powder coating internal paneling
- * Shelves made up of "Phenolic resin Laminates" (6mm thick). Chemical & heat resistant & fire retardant.
- * Front doors are provided with safety glass fitted in aluminium channels with sliding movement with lock & key arrangement with visible internal storage area.
- * Storage Facility:- Total 4 nos. shelves with compartments having 400mm height each is provided along with PP trays to store chemical bottles.
- * Damper:- operated flow control valve at the top of the canopy.

**40. EMERGENCY SHOWER CUM EYE WASH (HAND / FOOT OPERATED)
(GI) (SSS-ESS-1005)**



Providing and Fixing of Emergency showers cum Eye wash as per following specifications:

- * This contains mainly two types of showers i.e. one for Face protection at lower level and Second for Full Body protection.
- * Both the showers can either be operated simultaneously or singularly as per the requirements.
- * Showers are fitted with pull chain for Body Shower as well as Foot operated for Face wash.

*** Material of construction:**

Pipe : Stainless steel pipe 304 grade conforming to Schedule 40

Self closing valve: Stainless steel 304 grade IC

Bowl for eyewash: Stainless steel 304 grade IC

Eye wash nozzles: Stainless steel 304 grade IC

Shower head: Stainless steel 304 grade IC

Foot Pedal: Stainless steel 304 grade IC

41.

SPOT EXTRACTOR



- a) Ceiling mounted 3 joint reach 1230mm (75mm)
- b) P.P. Hood 385mm Dia
- c) Ceiling Columns
- d) Blower

42.

Stool For Lab



Providing & Fixing of revolving stool with gas height adjustment and upholstery on seat.

43.

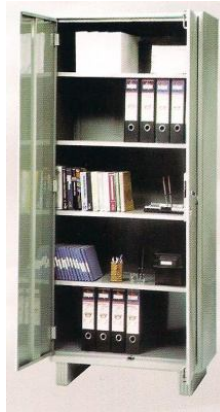
Closed Steel Rack 910(W)X450(D)X2400(H)



Providing & Fixing metal shelving rack as per ISI : 1883/75 with angles of size 40x40x2mm. MS shelves are provided in with of corners 1mm thick & 75mm long. The complete steel rack is duly powder coated.

44.

Steel Almirah



Providing & Fixing Office Amirah having an overall size of 910(W)x480(D)x1980(H) with CRCA Body of 22 guage with anti corrosion treated components & oven baked powder coating process & door facia made up of CRCA steel of 20 guage having openable shutters fixed on 3 hinges on each door. The almirah has 4 shelves making 5 compartments made up of CRCA 20 guage steel sheet. The storage will proper inbuilt locking arrangement with handle in single piece.

45. FUMEHOOD



Fume Hood 4'(W) consisting of Apparatus base cabinet
Providing & Fixing of Fume Hood of 4 feet Autobypass bench type having of size (1200X900X1600H).

Material Construction:- Exterior Structure is made of 1.2mm heavy duty CRCA sheets (as per IS: 513) with Powder coated (50 to 60 microns) durable, with rigid structure. Inner Structure is made of durable special material integral work walls (6 mm thick). Chemical & heat resistant & fire retardant. Worktop made up of 18mm thk 'Jet Black Granite'. Worktop will have oval shaped 100 mm X 200 mm sink for drainage with water tap on left side of worktop. Vertical Type Sash is made up of 4 mm thick Safety Glass for smooth and light sash operation.

Fluorescent light (20 watt, 2 Nos.) with vapour-proof fitting for proper illumination. Two nos. electrical sockets 'Northwest' make (230 V, 6/16 A, 50 Hz), Two nos. 'NorthWest' make MCBs with blower NO/NC switch (with built in starter) & light switch on front fascia. Blower 1 HP

a. FPT Ducting 8" (Optional)

46. Meeting Table

Providing and fixing Meeting table of size 3000x1200x750 with top made of 25mm thick Pre Laminated Particle Board with decorative laminate on top & balancing laminate on unexposed face. The understructure is made of 18mm thick prelaminated particle board with both side laminate having all exposed edges sealed with PVC edge banding tape.

47. Lounge Sofa



Providing and Placing Lounge Chair are made of steel pipe 30 to 35 mm dia of 16 swg. frame chrome plated, seat & back made of high density foam and having steel arms at the side, available in the following option

48.

Center Table



Providing and supplying center table of size 1200x600x450 with top made of 12mm thick bevelled glass and understructure made of 18mm thick Pre Laminated Particle Board with all exposed edges sealed with PVC edge banding tape.

Laboratory Furniture : Modular Laboratory Steel Furniture shall be designed for convenient on the spot installation at laboratory site. The principal components includes pedestal structure, under bench storage modules, bench tops, sink tops, water tap, gas tap, under bench services panels etc. all factory finish needing only assembly at laboratory site. Rates of all the operations mentioned below are included in the quoted rates.

All steel sheet component shall be fabricated by precision shearing, leveling notching, piercing and die forming on precision sheet metal processing machines to achieve consolidates dimension within close tolerances and shall be assembled with the aid of fixtures. Exposed welding marks shall be polished smooth. Corner intersections of vertical and horizontal members shall be in the same plane with bolted joints and shall be suitably aligned. Shutters and drawer fronts shall be in the same plane. Components and subassemblies shall be processed through eight stage zinc phosphating line followed by air drying by blower. Better cleaning & coating uniformity to increase the corrosion resistance of the powder coated products. Epoxy powder costing are specially formulated to provide excellent finish, outstanding hardness and high resistance to chemical, thermal and mechanical stress.

Gauges of sheet to be used:

- | | | |
|--|---|-------------------|
| 1. Side, back, bottom and top | - | 22 SWG CRCA Sheet |
| 2. Outer drawer & outer shutter | - | 20 SWG CRCA Sheet |
| 3. Inner drawer & Inner shutter selves,
End cover panels and base frame | - | 22 SWG CRCA Sheet |
| 4. Drawer suspension glides | - | 18 SWG CRCA Sheet |
| 5. Threaded strips, hinges reinforcement | - | 10 SWG CRCA Sheet |
| 6. Gussets for base | - | 14 SWG CRCA Sheet |

1. Understructure Stand

Size:

Completely modular type understructure of following dimensions:

Length: 500mm / 1000mm / 1500mm

Depth: 550mm

Height: 875mm

Material:

The raw material used for table is 2.2mm thick 30mm x 30mm Heavy Duty ERW M.S. square tubes.

Surface Treatment:

The complete M.S. material of understructure is pretreated (degreased, Zinc Phosphated) and epoxy powder coated (Black colour) for better corrosion resistance. The thickness of powder coat is 45 – 50 microns which passes the test of Salt Spray for 1000 Hours and having the Scratch Hardness of 3 Kgs.

Other Specifications:

The each understructure table consists of 4 height adjusters which take care of all leveling aspects. The modular construction is joined together with High Tension Pan head M6 Zinc Black coated Fasteners for better corrosion resistance.

Load Carrying Capacity:

The overall load carrying capacity of understructure table is 250Kg of UDL for the width of 500mm.

2. Storage Cabinets

Types:

The storage units are available in three configurations

1. Storage unit with one/two shutters and one adjustable shelf

2. Storage unit with one/two shutters and one drawer and one adjustable shelf
3. Storage unit with 4 drawers

All the cabinets will have shutters and drawers fronts in two options, either in CRCA steel or in PVC coated MDF. The storage units can be provided with 6 Lever Multi-purpose Lock if required.

Size:

The storage cabinets are ADD-ON type and available in following dimensions:

Width: 450mm / 600mm / 900mm

Depth: 570mm

Height: 675mm

Material:

The Cabinet and steel shutters are made up of 0.8mm thick CRCA M.S. sheet

Surface Treatment:

The complete M.S. material of cabinet is pretreated (degreased, Zinc Phosphated) and epoxy powder coated (Ivory colour) for better corrosion resistance. The thickness of powder coat is 45-50 microns which passes the test of Salt spray for 1000 Hours and having the Scratch Hardness of 3 Kgs.

Other Specifications:

The each storage unit is assembled with M6 Fasteners having Zinc-Cobalt coating for better corrosion resistance. The two adjacent units are connected together with Zinc-Cobalt coated.

Cabinet Connectors. The shutters are fitted with Nickel-chrome plated self closing hinges which are further coated with Cathodic Electro-deposition (CED) paint to improve the resistance to corrosion. The drawer trays are mounted on Delryn roller bearing slides which are made up of 1.6mm thick M.S. sheet and epoxy powder coated. A pair of slide can carry a UDL of 15 Kgs.

Shutters and Drawer Fronts:

The cabinets shall be steel shutters.

Steel

These shutters are made up of 0.9mm thick CRCA M.S. sheet with the above mentioned surface treatment. These shutters are also provided with seals from all sides. The handle provided for steel shutters is made up from 8mm diameter M.S. rod (Make: Aries) with Black powder coat and we can offer a SS handle option as well.

Load Carrying Capacity

The overall load carrying capacity of Cabinet is 80Kg of UDL. (40 Kg on each shelf and 40Kg On bottom). The overall load carrying capacity of Drawer is 15Kg of UDL for a pair of roller slide.

3.Work Surfaces

The various work surfaces provided are as follows:

Granite:

The bench top will be manufactured from 18mm thick high quality marine plywood at the top of which high quality abrasion, acid & alkali resistant Jet black & Mirror polished granite of 18mm (+/-) 1mm thickness without cut pieces & edge half rounded shall be provided in built as work surface. Bench top granite shall be projected 25-40mm beyond marine plywood. Width of the work bench top of skirting shall be grinded to half round. The joints of granite shall be nominal and shall be sealed with silicon.

Table of Dimension Granite Stone Testing Values

		Absorption (max) per ASTM C 97	Density (min) per ASTM C 97	Modulus of Rupture (min) ASTM C 99 ⁽⁹⁾ (10)	Compressive Strength (min) ASTM C 170	Abrasion Resistance (min) ASTM C 241	Flexural Strength (min) ASTM C 880
Stone Type	ASTM Standard	%	Kg/m ³	Mpa	Mpa	H _a	Mpa
Granite	ASTM C 615	0.40%	2,560	10.34	131	25	8.27

Stainless Steel:

1.6mm thick 316 Grade Stainless Steel with Hairline Finish

Backing Material:

The backing material for work surfaces to be provided is 8mm marine Ply for granite and 18mm block board for SS tops with alround PVC lipping.

Handles

Flush or exposed type handles to be provided on all selves as approved by the engineer.

Locking arrangements

Inbuilt type flush with the main body locking arrangements with exposed portion CP brass with two keys of each lock to be made in selves or wherever required.

4.Reagent Shelf

The reagent shelves are mostly provided with Peninsular and Island type work Benches where there is need to store Reagent bottles. Reagent shelf comes with the modular range of Understructure table length.

The reagent Shelf is consists of:

- 1) Granite support Table
- 2) End Supporting Vertical Panel
- 3) Horizontal Shelves

Size:

Completely modular type understructure with horizontal 2-stage Storage Shelves of following dimensions:

Length: 500mm / 1000mm / 1500mm

Depth: 300mm

Height: 875mm for Table + 680mm for 2-stage storage shelves

Material:

The raw material used for table is 2mm thick 30mm x 30mm x 30mm Heavy Duty ERW M.S. square tubes.

The End Vertical Support and Horizontal Shelves are made up of 1.2mm thick CRCA M.S. sheet duly supported at bottom with suitable braces and frames.

Surface Treatment:

The complete material of understructure table and M.S. Panels is pretreated (degreased, Zinc Phosphated) and epoxy powder coated for better corrosion resistance. The thickness of powder coat is 45-50 microns which passes the test of Salt Spray for 1000 Hours and having the Scratch Hardness of 3Kgs.

Other Specifications:

The each understructure table consists of 4 height adjusters which take care of all leveling aspects. The modular construction is joined together with High Tension Pan head M6 Zinc Black coated Fasteners for better corrosion resistance.

The each Vertical Panel is assembled with Horizontal Shelf with m6 Fasteners having Zinc-Cobalt coating for better corrosion resistance. The two adjacent units are connected together with Zinc-Cobalt coated Cabinet Connectors studs with Nylon cap nuts. The horizontal shelf has provision for fixing the service panel to it.

Load Carrying Capacity:

The load carrying capacity of each Reagent shelf is 30 Kg of UDL for the length of 1000mm.

5.Service Panels

The Service Panels carry all electrical fittings and are attached with Reagent Shelf. It comes in the modular range of Reagent shelf.

Size:

Completely modular type detachable panels fixed to Reagent Shelves of following dimensions:

Length: 500mm / 1000mm / 1500mm

Height: 120mm

Material:

The raw material used for service panel is 0.8mm thick CRCA M.S. sheet

Surface Treatment:

The complete M.S. material of cabinet is pretreated (degreased, Zinc Phosphated) and epoxy powder coated (Ivory colour) for better corrosion resistance. The thickness of powder coat is 45-50 microns which passes the test of Salt Spray for 1000 Hours and having the Scratch Hardness of 3 Kgs

Other Specifications:

The each service panel is assembled with Reagent shelf through Pop-rivet for better aesthetics. It has bottom panel cover. All the electrical fittings, wires and plumbing works required for the sink coming from main line on service panels are completely enclosed to take avoids any accidental situations because of external hazardous means.

Electrical Fittings:

The each electrical module consists of (approved make):

- 1) 16 Amp 5 Pin socket
- 2) 16 Amp Switch with LED
- 3) Tiny Trip S.P. 32Amp (Protection Device – optional)

All the above accessories have a very high temperature withstanding capacity and excellent electrical insulation properties. The rear portion of above accessories which is in contact with live metal are made from thermostet material which does not melt on heating.

6.Sink Units**Size:**

The sink unit cabinets are required in two widths:

Width: 600mm / 900mm

Depth: 570mm

The sink unit consists of a base cabinet, S.S. sink, Tap

