

**CSIR-INDIAN INSTITUTE OF CHEMICAL BIOLOGY
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(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH, NEW DELHI)

**TENDER FOR SUPPLY & ERECTION OF MODULAR LABORATORY
AND OFFICE FURNITURE
FOR
NEW CAMPUS OF CSIR - INDIAN INSTITUTE OF CHEMICAL BIOLOGY
AT SALT LAKE, KOLKATA**

VOLUME – V

TECHNICAL REQUIREMENTS

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**TENDER FOR SUPPLY & ERECTION OF MODULAR
LABORATORY AND OFFICE FURNITURE FOR NEW CAMPUS
OF CSIR-IICB AT SALT LAKE, KOLKATA**

Technical Requirements

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TECHNICAL REQUIREMENTS

(Indicative samples pictures are shown along with description)

1. Dining Table- 6 seater

It should be made of MDF/Rubber wood. The top should be appropriately protected for durability. It should be aesthetically elegant and strong enough for use in office canteen and guest house. Approximate size should be 1500x900x750 mm (lxwxh)



2. Dining Table- 4 seater

It should be made of MDF/Rubber wood. The top should be appropriately protected for durability. It should be aesthetically elegant and strong enough for use in office canteen and guest house. It should match with the six seater dining table. Approximate size should be 900x900x750 mm (lxwxh)

3. Matching Chair for dining table

The chairs should match with the dining tables. Approximate size 450x520x990 mm (wxdxh). The main body should be made of steel, 10mm plywood should be water and termite proof. Abrasion resistance steel structure should be appropriately chrome coated. Upholstery made of synthetic lather or equivalent. Colour to be pre-approved.



4. Coffee table

Aesthetically good looking coffee table made of MDF of approximate size 1000x600x400 mm (wxdxh) as per drawing. Should match with the sofa-sets. Pre-approved colour.



5. Centre Table

Aesthetically good looking centre table of MDF understructure and glass top approximate size 1100x600x400 mm (wxdxh) as per drawing or similar type. Should match with the sofa-sets. Pre-approved colour.



6. Corner table

Aesthetically good looking corner table of MDF ~450x550x400 mm (wxdxh) as per drawing or similar. Should match with the sofa-set. Pre-approved colour.



7. Dinning set round with chair

Round dining table dimension: 1450 (dia)x700 mm (height); Small glass: 700 (dia) as per design provided along with chairs and pouffs.

Chair: ~550x570x700 mm (wxdxh) - 3 No.

Pouff: ~350x550x400 (wxdxh) – 3 No.

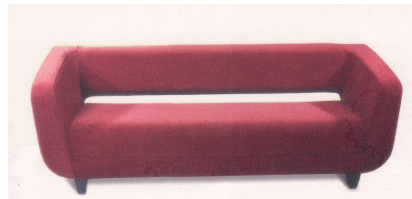
Colour scheme of table and chair to be pre-approved.



All wooden components must be made of good quality wood/hot pressed plywood which should be water and termite proof. Upholstered with fabric and moulded Polyurethane foam with PVC lipping all around as applicable. The polyurethane foam having density = 45 +/-2 kg/m³ and Hardness = 20 +/- 2 on Hampden machine at 25% compression desired.

8. Sofa 3 seater

Sofa with cotton/synthetic material of pre-approved colour with quality workmanship, material, water and termite proof wood/MDF material; as per diagram or similar; powder coated internal metal frames; PU Foam and Recron or equivalent fiber for soft and sinking feeling; Interchangeable polyester/cotton colour fast upholstery (~550g/sqm) for easy cleaning; 3 seater size ~2050x600x850mm; Seat height 400 mm or standard;



9. Sofa- 1 seater

Sofa with cotton/synthetic material of pre-approved colour with quality workmanship, material, spring, water and termite proof wood/MDF material; as per diagram or similar; powder coated internal metal frames; PU Foam and Recron or equivalent fiber for soft and sinking feeling; Interchangeable polyester/cotton colour fast upholstery (~550g/sqm) for easy cleaning; 1 seater size ~ 920x600x850 mm; Seat height 400 mm or standard;



10. High back Chair

High back chair with handle, Width ~70cm depth ~70 cm height ~100-110 cm; seat height 40-50 cm; 360° revolving type with five prong wheel; 20° maximum tilt on pivot at centre; tilt tension adjustment; upright locking; Seat/back tilting ratio of 1:3; The pneumatic height adjustment with adjustment stroke of ~10.0 cm.. The seat and back made up of 1.2 cm. thick hot-pressed plywood water and termite proof, upholstered with fabric upholstery covers (colour to be approved) and moulded Polyurethane foam. The Polyurethane foam moulded with density = 45 +/-2 kg/m³ and Hardness = 20 +/- 2 at 25% compression. The pedestal made injection moulded in black 30% glass-filled Nylon and fitted with 5 nos. twin wheel castors. The pedestal ~65.0cm pitch-center dia. (~75.0 cm with castors). The frame preferably made of Dia.2.54cm.(1")x 14 BG M.S. E.R.W. tube and black powder coated.



11. Mid back Chair

Mid back chair with handle, width ~70cm depth ~70 cm height ~80-90 cm; seat height 40-50 cm; 360° revolving type with five prong wheel; 20° maximum tilt on pivot at centre; tilt tension adjustment; upright locking; 360° revolving type; Upright position locking; Seat/back tilting ratio of 1:3; The pneumatic height adjustment with adjustment stroke of ~10.0 cm. Colour of upholstery to be selected later.



The seat and back should be made up of 1.2 cm. thick hot-pressed plywood water and termite proof, upholstered with fabric upholstery covers and moulded Polyurethane foam. The Polyurethane foam is moulded with density = 45 +/- 2 kg/m³ and Hardness = 20 +/- 2 at 25% compression. The pedestal made injection moulded in black 30% glass-filled Nylon and fitted with 5 nos. twin wheel castors. The pedestal is ~65.0cm pitch-center dia. (~75.0 cm with castors). The frame preferably made of Dia.2.54cm.(1")x 14 BG M.S. E.R.W. tube and black powder coated.

12. Visitor's Chair

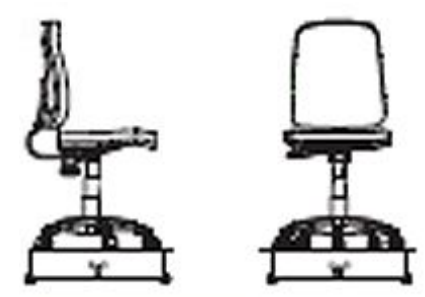
Mid back chair with handle, Width ~50 cm depth ~60 cm height ~80 cm; seat height 45 cm; flat base; with handle; colour of upholstery to be selected later.

The seat and back to be made up of 1.2 cm thick hot pressed plywood, water and termite proof upholstered with fabric and moulded Polyurethane foam with PVC lipping all around. The polyurethane foam moulded with density = 45 +/- 2 kg/m³ and Hardness = 20 +/- 2 on Hampden machine at 25% compression. The armrest tops injection moulded from black Polypropylene. Fitted to armrest supports made of Dia.1". 14 BG M.S. E.R.W. tube and black powder coated. The frame preferably made of Dia.2.54cm.(1")x 14 BG M.S. E.R.W. tube and black powder coated.



13. Chair for Students

Mid back chair without handle, Width ~65 cm depth ~65 cm height ~80-100 cm; seat height 40-55 cm; 360° revolving type with five prong wheel; 20° maximum tilt on pivot at centre; 15° tilt with tension adjustment; upright locking; colour of upholstery to be selected later.



The seat and back should be of 1.2 cm. thick hot pressed water and termite proof plywood upholstered with fabric and moulded Polyurethane foam together with seat and back covers. The polyurethane foam moulded with density = 45 +/- 2 kg/m³ and Hardness = 20 +/- 2 on Hampden

machine at 25% compression. Pedestal should be fitted with 5 nos. twin wheel castors (moulded in Black Nylon. castor wheel dia. 5.0cm.). The pedestal ~ 55.0 cm. pitch-centre dia. (~65.0 cm with castors). The frame preferably made of 14 BG M.S. E.R.W. tube and black powder coated.

14. Stool for laboratory

The seat made up of 1.2 cm thick water and termite proof plywood with moulded Polyurethane foam and with replaceable fabric covers. Seat diameter 40.0 cm and 360 Degree Revolving type. No back rest or pedestal are required. The polyurethane foam moulded with density = 45 +/-2 kg/m³ and Hardness 25 +/- 2 or better. The stool must come with manual height adjustment is very easy to operate and locking device. The wheels must be smooth and nylon based or compatible material under cold room conditions. The five prong pedestal should be made of CR Steel (Powder coated) molded with black PP cap.



15. Steel Visitors chair – 2 seater

The chairs with 2 seats with handle should be made of steel with chrome electroplating wherever applicable and as shown in the picture. The material should be sturdy and aesthetically good looking.

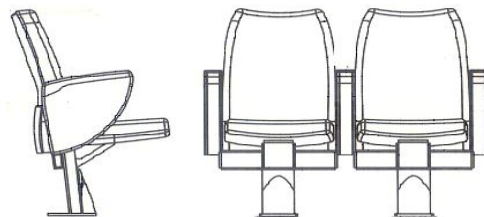


16. Steel Visitors chair – 3 seater

Same as above with 3 seats

17. Chair for seminar room with slope

Chair as per drawing attached; wooden handle; mid back (89x60x70::hxwxd); pre-approved fabric design and colour. Design as per drawing; MS black powder coated understructure with integrated, auto tip-up mechanism. Footprint area of base plate: ~150mm X 230mm X 5mm thick. Understructure fixed to ground by

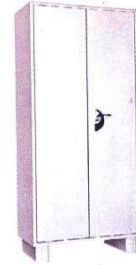


foundation expansion bolts M10 X 100 with washer and nut. Seat assembly made of Polyurethane foam moulded with 1.5 cm. thick water and termite proof plywood insert having effective seat width ~460.0 mm and depth ~450.0 mm. Polyurethane foam back assembly moulded with >19mm x 16BG MS tubular frame insert. Stitched velvet finish fabric upholstery (~ 400 gm/running meter;

1.35 M; 100% Polyester. Armrest covered from side with upholstered pad of 8 mm thk. MDF with 6mm U-foam & fabric.

18. Steel storage almirah

Size ~910 mm (W) x ~490mm (D) x ~1980 mm (H); Welded construction; 0.8 mm thick CRCA for back and Shelf & 0.9-1.0 mm thick CRCA for all other components; Height wise Adjustable Shelves 4 Nos. Epoxy Polyester Powder coated to the thickness of 50 microns; 3 way locking mechanism; rust proof handle. The colour to be approved. The lock should be highly secured ~10 lever lock.



19. Glass door steel almirah

Same as above specification for steel storage almirah. Except that the front door of almirah fitted with glasses (full height should be appropriately mounted on steel frame & two way locking mechanism) as shown in the picture.



20. Book Case

4 door (scissor mechanism for receding inside); easy grip handle; book case; ~900x 320x1750 (wxdxh) made of prime quality of CRCA steel of 0.9mm thickness; KD construction; each door with good quality ~ 7 lever lock; Load capacity per shelf ~80Kg.;3mm transparent glass; Epoxy Polyester Powder coated to the thickness of 50 microns. The colour to be pre approved.



Size

21. Storage unit-VSDU

The VSDU size ~1150 (H) 900 mm (W) x 450 mm (D) with metal door made of prime Quality CRCA Steel (0.8 mm Thick); Sliding Door with top hanging arrangement to prevent derailment. Each door with 2 Plastic roller having steel ball bearing for smooth movement of door; Height wise Adjustable Shelf Mounting; Uniformly Distributed Load Capacity



per each full shelf is 80 Kg maximum & for half shelf it is 40 Kg; 2 Nos. of Adjustable Full Shelves. Epoxy Polyester Powder coated to the thickness of 50 microns.

22. Book Rack for library one main unit and three add on unit

Size ~900x1850x600 (wxhxd). Rigid KD construction with CRCA 0.8 mm thickness. It should have additional panel support for rigidity. Bottom plus five preferably adjustable racks on each side.

Epoxy Polyester Powder coated to the thickness of 50 microns; 12 adjustable shelves on two sides having load capacity per shelf is ~100 Kg. One main unit and add on units can be stacked widthwise; label holder; Stand with levelers. Pre approved colour.



23. Periodical display rack

Each compartment having a pivoted inclined retractable tray for display and compartment behind the tray for storage; Width-wise stackability with common panel for easy tray movement to optimize space; Nylon rollers with ball bearing. Made of CRCA steel of appropriate thickness for load bearing capacity of about 100 kg /shelf. Size: ~900x450x1850 (wxdxh). Colour must match with the book rack.



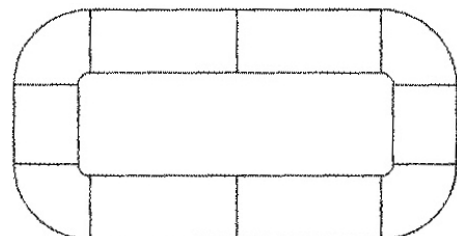
24. Conference table for library

The table should be suitable for 8 persons having boat convex shape (w~2400; d~1200mm) as per diagram or similar. It should be slick for good aesthetics. This should be Made from PLT (prelaminated Twin) boards of 18mm thick or better material both water and termite resistant. Work surface top thickness ~40 mm with ~0.5mm Membrane thickness; Waterfall Edge 10mm radius on top edge and 5mm at bottom. The colour must match with other furniture and must be pre approved.



25. Conference table for conference room

The conference table must be of suitable size for seating of 20 persons. Made from PLT (Prelaminated Twin) boards of 18mm thick or better material which are water and termite proof. Work



surface top thickness ~40 mm with ~0.5mm Membrane thickness; Waterfall Edge 10mm radius on top edge and 5mm at bottom. Legs may be from 36mm PPB having a straight profile with half round edges and clad with 0.6mm thick Post Forming laminate or other suitable design.

Wire Carrier is required and made from 0.6mm thick CRCA powder coated. Carrier cover made of 12mm thk. MDF Painted all over. Pre-coated with layer of polyurethane for better scratch resistance. The configuration of the table is as shown in the pictures.

26. Table, ERU and pedestal for manager

Elegant all wood table (1350w X 750d X 750h) designed to aesthetics; top in white cedar, side panels in black, while the modesty panel a combination of black & white cedar
Keyboard, CPU attached.



The ERU should be independent standing unit (900mm W x 450mm D x 750mm) in above colour combination. The two drawers Mobiles Pedestal with one Box and one Filing drawer (390 x 435 x529mm) matching with the table. Wooden part to be made from 18mm thick PLB with PVC lipping. Handles made of good quality material. All material must be termite and water proof.

27. Writing Desk for Librarian with pedestal

Post formed desks with drawers (~3 no) for librarian as per diagram. Size ~1500x750x740 (wxdxh). Top and side panels made of 25 mm thick plain particle board (ppb) clad with 0.6mm thick post-formed laminate and 1mm thick backing Laminate. Flat edge duly sealed with 2mm thick PVC beading.



Some other portion may be made of 18mm thick plain particle board (ppb) clad with 1.0mm thick decorative laminate (dl) on both sides; all edges sealed with 2mm thick PVC beading. For Table, ERU and door, partition and shelves of the back unit. Height and level adjustment mechanism. Key board holder etc.

The two drawers Mobiles Pedestal with one Box and one Filing drawer (390 x 435 x529mm) matching with the table.

28. Matching ERU for above

The ERU should be independent standing unit with matching colour combination. Wooden part to be made from 18mm thick PLB with PVC lipping. Handles made of good quality material. All material must be termite and water proof.

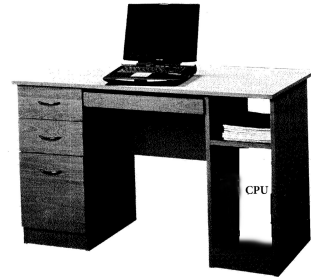
- (1) dimension ~1550x520x705 (wxdxh)
- (2) dimension ~1050x520x705 (wxdxh).

29. Back unit for above

The back unit for the above should be made of same material and colour combination. Dimension ~1280x520x705 (wxdxh).

30. Writing table with drawers, KBPT, CPU etc

Desks with top and side panels made of 25 mm thick plain particle board (ppb) clad with 0.6mm thick laminate and 1mm thick backing Laminate. Flat edge duly sealed with 2mm thick PVC beading. Some other portion may be made of 18mm thick plain particle board (ppb) clad with 1.0mm thick decorative laminate (dl) on both sides; all edges sealed with 2mm thick PVC beading. Height and level adjustment mechanism. Must contain arrangement for Key board tray, mouse tray (optional) and CPU holding.



- (a) Size ~1650x900x750 (wxdxh) 7 no
- (b) Size ~1800x900x750 (wxdxh) 2 no
- (c) Size ~1200x600x750 (wxdxh) 72 no.

31. Table for store

Table with ~25 mm prelaminated water and termite proof board sealed with 2mm PVC beeding; Understructure made of CRCA steel 0.9mm thick, powder coated finish; Tubular frame round tube dia 25mm thickness 1.2 mm; other panel 1.0mm thick CRCA sheet. Drawer units and tray shell made of CRCA steel 0.5 mm. 10 lever cam-lock and handle. Size: ~1400x700x750 (wxdxh):



32. Table for Scientists



Table with ~25 mm pre-laminated water and termite proof board sealed with 2mm PVC beeding; Understructure made of CRCA steel 0.9mm thick, powder coated finish; Tubular frame round tube dia 25mm thickness 1.2 mm; other panel 1.0mm thick CRCA sheet. Drawer units and tray shell made of CRCA steel 0.5 mm. 10 lever cam-lock and handle. Size: ~1700x900x750 (wxdxh). The colour and asthetics should match with the other furnitures in scientists room.

33. Computer table for scientists

Should be made of pre-laminated 18 & 25 mm thick particle board; water and termite proof; having load bearing capacity of 35 Kg or more and drawers/shelf 10 Kg. Size: 900x500x750 (wxdxh) complete KD structure. Wooden dowels, Quality slides,



All work surface edges are duly sealed with 2mm thick PVC beading and inserts; Any metal part should be made of CRCA MS sheet 0.9 mm thick and powder coated. The colour and asthetics should match with the other furnitures in scientists room.

34. Laboratory instrument bench medium duty

Understructure should be fully bolted construction and totally knock down structure. All steel components should be treated with anti rust and anti corrosion agents and powder coated to ~50 micron thickness. Weight bearing load ~100kg. Top should be made of water & termite proof plywood in combination having thicknesses of ~25mm; appropriately laminated for durability
Dimension of tables: 36x36"x30" (lxbxh)



35. Laboratory instrument bench heavy duty with separate drawer

Work top should be made of water & termite proof plywood/wood having thicknesses of ~38mm; Load bearing capacity of ~600Kg; teak wood topfinish or approved finish. Understructure should be fully bolted construction and totally knock down structure. Understructure leg should be made of box section of approx 100 mm x 50.0 mm with 20 mm lip made of 1.6 mm thick HR steel for added strength. All steel components should be treated with anti rust and anti corrosion agents /powder coated to ~50 micron thickness. Dimension ~ 1800mmx750mmx900mm.

Storage cabinete made of CRCA virgine steel (1.6mm) with overall dimension ~700x700x400 (lxbxh); two drawers made of 1.0mm CRCA; load capacity 100 Kg. UDL. Central locking. Channel; understructured frame.



36. Laboratory instrument bench heavy duty without drawer

Same as above except the drawer unit

37. Adjustable slotted angle storage system:

Size of each storage system: 7' x 3' x 18" (hwxwd) open type with 7 shelves. Material Specifications of Angles & Straps are IS: 5986 (ST 42). The length of the Angles shall correspond to the height of the rack. The thickness of the angles when made from sheet steel are not less than 1.6 mm. Angles are of rolled formed construction to ensure minimal residual stresses and accuracy throughout the length of the angles. The angles are free from twist, sharp edges and burrs.

Six Bend Panels : Materials Specifications of Six Bend Panels are IS : 513 D. Panels are made from mild steel sheets not less than 0.8 mm in thickness as the application warrants. Panels provided with lipped flanges. Panels are provided appropriate holes for fitting.

Corner Plates as per IS : 513 D. Adequate numbers of Corner Plates should be fitted to the rack to impart stability to the system. Corner Plates should be made of 1.60 mm thick mild steel sheet and provided with black powder coated finish.



Nuts & Bolts : All fasteners like nuts, bolts, clips etc. are supplied in Galvanised condition for protection against environment and corrosion in cold room conditions.

Design of Components : The components to be designed with a minimum factor of safety of 1.67 with respect to yield stress in accordance with IS : 800 & IS : 801.

Pre-treatment : All components of the system to be duly finished with Epoxy-Polyester powder coating after doing the surface treatment of all the items by using pre-treatment method as

mentioned. All components are subjected to a Five Zone 8-stage special pretreatment. The pre-treatment process consists of degreasing, phosphating and final rinse with demineralised water. The degreasing conform to the requirements of IS : 3194 / 6005 – 1980

Phosphating to be carried out as per IS : 6005 and IS : 3618 Class. Cold water rinse is to be done using two different tanks and one final rinse is done with de-mineralised water to remove all traces of retained chemicals. The material will be dried up using drying oven at an air temperature of 125°C.

Final Finish : Epoxy Polyester powder coating of approved colour (to be provided later) and shade is applied to all components with an average dry film thickness not less than 40 microns. The material components are oven baked within a controlled temperature as specified by Powder Manufacturer for a flawless finish. The finish is as stronger as to withstand a 2H pencil hardness test.

38. Adjustable slotted angle storage system long span

Same as above except the following;
Size:7'x5'x2' (hxwxd) with 5 shelves

39. Modular ladder

Light weight anodized aluminium ladder with wheels and locking system suitable for use up to height of 10 feet. The ladder must be strong enough to load and unload material from storage racks



40. Single Bed

Bed structure should be made of M.S. Pipe in 1.2 mm Thickness; Epoxy powder coated to the thickness of 50 microns (+- 10); overall Length ~2050.0 mm; Width ~1000.0 mm; Seating Height ~400.0 mm; Total Height ~ 950 mm; internal Width - 920.0 mm Length ~ 1980.0 mm; any wooden portion should be made of water and termite proof wood/plywood; Wooden trimming is made of P.V.C. complete with curlon or equivalent quality mattress and pillow.



41. Dressing Table:

Size ~1800x800x420 (hxwxd); storage unit made of CRCA Steel 0.6mm thickness with epoxy powder coated finish; wooden treaming; mirror frames and quality mirror >5mm thick. Four or two drawers; Colour should match with the bed and to be pre- approved.



42. Examination bed

The bed should have head rest with continuous adjustment from 0-30°. It should be made of CRCA sheet construction and SS hinge; KD construction; Epoxy powder coated (50 micron); The Mattress should be made from PU molded foam with density 50-55. Seamless upholstery to avoid spread of bacteria A swivel tray for apparatus that can be concealed when not in use. Includes mattress and pillow.



43. Bed Side Locker

Bed Side Locker should have cabinet with lock and with plastic molded handle with lock to be used for keeping essential medicines Sliders made of MS with zinc plating; Cabinet made of CRCA; Top ABS; Plastic Molded Knob; Telescopic channels with ball slides if applicable for smooth operation.

44. Modular Works Station:

Modular Tile Based System with thickness of 50 mm main Frame. Vertical upright should preferably made from 1.5mm thick CRCA M.S. Grade D. The frame should be powder coated in standard pre approved colour. The bottom horizontal would also have 2 slots for carrying wires. Fabric magnetic tiles should be ~ 0.6 mm thick GI Sheet metal tiles, which are fabric upholstered (pre-approved). Plain Metal tiles should be powder coated metal tiles in 0.6 mm thick M.S. CRCA Grade D as per IS:513 – 1994. White board or Post laminated



tiles should be made from 0.6 mm decorative laminate on visible side and 0.6 mm backing laminate on back side with 8 mm MDF as substrate. Metal fascia should be powder coated, in 0.8 mm thick M.S. CRCA Grade D as per IS:513 -1994. All other metal portions, brackets should be Powder coated. All universal connectors should be made of 2.0mm thick M.S. using the 0.5mm thick spring steel snap fit clip. Wooden worktop should be 25 mm thick prelaminated (with PVC lipping) particle board. All the edges of work surface shall be provided with machine pressed 2 mm thick PVC lipping glued with hotmelt EVA glue to ensure durability. The side panels should be made from 25 mm thick PLT boards. Electrical connection to be completed for ready use. Will include CPU trolley.

(a) for 12 persons: The arrangement of the modular workstation inside the room to be finalized after inspection only in consultation with the scientist in charge. The orientation will depend on room size and other furnitures. Colour of boards to be pre- approved.

(b) for 15 persons: The arrangement of the modular workstation inside the room to be finalized after inspection only in consultation with the scientist in charge. The orientation will depend on room size and other furnitures. Colour of boards to be pre- approved.

45. Wall laboratory bench with storage unit, reagent shelf, electrical fitting, sink etc.

(I) General Description – The steel frames, panels & shutters should be made from Prime Quality CRCA steel. All cabinet bodies shall be of over closing design with fully KD (knock down) construction and having a Main and Add On construction to avoid any gaps in between two units. All units have interlocking type construction to form a rigid integral structure. The units are supported on wide base plastic legs of diameter ~40 mm. These legs are height adjustable with a range of +/- 50 mm approximately. Each unit should have a locking facility with 180° and quality cam lock mechanism (7 lever or more). Floor cabinets made of hollow tubular square cross sections would not be acceptable. Welded joints in the floor cabinets would not be acceptable.



Other Features and requirements

1. Surface Treatment: The complete M.S. material of cabinet to be pre – treated (degreased, Zinc Phosphated) and epoxy powder coated for better corrosion resistance. The thickness of powder coat to be ~ 50 microns, which passes the Salt Spray test for 1000 hours and having the Scratch Hardness of 3Kgs.
2. Cabinet frame: Frame is a combination of ~1.2 mm horizontal stiffeners and ~0.8 mm vertical panel of CRCA MS sheet.
3. Cover panels: End side panel, false panel and back panel of ~0.8 mm thick CRCA MS sheet.
4. Shelves and Drawers: CRCA shelves having a load carrying capacity of about 40 kg. The overall load carrying capacity of cabinet should be 80 Kg of UDL (40 kgs. on each shelf and 40 kgs. on bottom). The overall load carrying capacity of drawer should be 40 kgs. of UDL for a pair of ball slide.
5. Door Pulls: Flush pulls of PVC or better material, providing a recessed finger grip to be used. Finger holes or slots machined into doors will not be acceptable.
6. Drawer: Drawer and door, when closed, shall be over closing on the cabinets.
7. Slides: High precision Double Extension Ball slides which have passed more than 55000 cycles of Drawer Cycle test (forward & backward movements) with a 20 kg load in the drawer should be used which enables the drawer to open fully. Roller Slides would not be acceptable.
8. Shutters: Metal Shutters should be double walled and made up of 0.8mm thick CRCA MS sheet with profil inserts and ~50 microns pure epoxy powder coated. MDF Shutters with laminates with 18mm thickness.
9. Hinges: Hinges shall be made of MS with Cathode electrode deposition for better corrosion resistance. The hinges should be spring loaded with 105 degree opening. Welding of hinges to door or case will not be accepted. Doors under 36" in height shall be hung on one pair of hinges, and doors over 36" high shall be hung on 3 hinges in case of under storage cabinets.
10. Positive Catch: All units to be with self closing type spring loaded hinges. The hinge should close the doors once left at a certain angle. No additional catch will be allowed in the units.
11. Shelf supports: Shelf support clips shall be nickel-plated steel.
12. Legs: All Legs to be made of polystyrene with a load carrying capacity of 450 kg/each. Fully enclosed flush design will not be acceptable. Leg should be able take evenness of the floor. It should have at least 50mm adjustability.

13. Support Brackets: Granite /Reagent Support Brackets which serve the purpose of supporting the granite and for carrying the service lines should be made of >2 mm CRCA MS sheet with epoxy powder coating.

(II) Reagent Shelves – Reagent Shelves to be made of complete modular design consisting of horizontal 2 stage shelves. The end vertical support should be ~>0.9mm & horizontal shelves of ~>0.8mm thick CRCA MS mounted on PP caps. Each shelf should have a load carrying capacity of ~30 kgs or more of UDL for the length of 1000 mm. Each vertical panel shall be assembled with horizontal shelf with M6 fasteners having Zinc-Cobalt coating for better corrosion resistance. The complete M.S. material of reagent shelf should be pretreated (degreased, Zinc phosphated) and epoxy powder coated for better corrosion resistance. The thickness of powder coat to be ~50 microns, which passes the test of Salt Spray for 1000 hours and has a Scratch Hardness of 3Kgs.

(III) Service Panels - The service panels should be made of ~0.8 mm thick CRCA MS Sheet. The material should be pre-treated & Brass/Satine finish. All the electrical fittings, wires coming from mains to switches on service panels should be completely enclosed to avoid any accidental situations. All the accessories should have a very high temperature withstanding capacity and excellent electrical insulation properties.

Each service panel should be assembled with Reagent shelf by pop-rivets for better aesthetics. Also it should have a bottom panel cover. All the electrical fittings, wires coming from mains to switches on service panels are completely enclosed to avoid any accidental situations. Each electrical module (North-West or equivalent make) should consist of:

Each electrical panel/module should contain 16 Amp 5 Pin combo socket (2 No) & 16 Amp Switch (2 No) There should be provision for more additional 5 A socket and switch (1 NO.) and fuse which should be finalized after discussion. All electrical connections with fire proof copper wire of required rating should be included in the bid. IICB will only provide main power source at the nearest DB box.

Adequate no of panels/modules must be there in each table and should be approximately 800 cm apart and evenly distributed. For example, in an approximately 16 ft work bench there should be altogether ~17 no electric panels/modules.

The rear portion of above accessories, which is in contact with metal are made from thermo set material, which does not melt on heating.

(IV) Worktop (Granite) – It shall be > ~20 mm thick jet black granite (with minimum no of joints) with edges having round profiles of ~10 mm radius on top side. The overhang on the storage cabinet is 40 mm at the front side and 50 mm at the side. It should also have a V-Groove cut at 30 mm from the front edge. The backing material (neoprene) used for granite mat of 6 mm thickness.

(V) Sink Units – The sink unit should consist of a base cabinet, S.S. & a faucet. The raw material used for a base cabinet is 0.8-0.9 mm thick CRCA M.S. Sheet. The complete M.S. material of cabinet should be pretreated (degreased, Zinc Phosphated) and epoxy powder coated for better corrosion resistance. The thickness of powder coat ~ 45-50 microns, which passes the test of Salt Spray for 1000 Hours and having scratch hardness of 3 kg. The standard size of sink is follows: SS Sink: 520 x 440 x 200 mm or as per site requirement.



Sink unit should have good quality 3-way (2 Straight + 1 Swan Neck) water faucet made up of Brass and with Epoxy powder coatings. All water and drainage connection should be included in the proposal. IICB will only provide single point water supply and drain line inside the room.

(VI) Electrical Trunking - Electrical trunking should be made up of 0.8mm thick CRCA MS Sheet. The complete M.S. material of cabinet should be pretreated (degreased, Zinc phosphated) and epoxy powder coated for better corrosion resistance. The thickness of powder coating should be ~50 microns and should pass the test of Salt Spray for 1000 hours. It should have a high temperature withstanding capacity with excellent electrical insulation properties.

The length of the workbenches are tentative (will vary on case to case basis) and will be of different size. The actual length of the work benches to be finalized after actual measurement at site. Colour of the work benches to be preapproved. No of drawers and leg space in working tables to be finalized after consultation with the concerned scientists.

46. Island laboratory bench with storage unit; reagent shelf; electrical fitting

The specification will be same as in item no 45. There will be no sink unit in island benches. Item no (a) and (b) are same material having different length.

47. Wall mounted top storage unit with one shelf

The top unit to be of the same construction as that of the base storage cabinets and shall have a completely finished interior same as exterior. Item no (a) to (f) are of different length which is tentative and to be finalized after actual measurement. Other appropriate specifications are as mentioned in item no 45.

48. Pegboard –Single faced stainless steel pegboard having a tray hole for water drainage and detachable pegs. The essence is made up of 1 mm thick stainless steel (SS 304) whereas the pegs should be made up of polypropylene and are adjustable with a minimum 10mm distance between each peg (L x W x H is 420 x



550 x 54 mm).

49. Kitchen Units.

Single wall kitchen simple kitchen unit as per drawer design made from water and termite proof plywood/equivalent material. Sink unit (600mmx800mmx900mm) made from good quality stainless steel, brass handle, poly vinyl chloride skirting. Quality tap; The drawers in the top and bottom unit should be plain with one shelve only. The kitchen shade will be finalized later. Top made of $\frac{3}{4}$ " granite with side moulding.



(a) 8' - floor unit with granite top, sink etc.1

(b) Kitchen 8' - wall storage unit 1