

**MINISTRY OF HEALTH & FAMILY WELFARE,
GOVERNMENT OF INDIA
(Department of AYUSH)**

Tender

For

Package-II :

**Supply, installation, testing & commissioning of Laboratory Furniture works
& other associated works including other miscellaneous works like minor
civil, electrical, PHE works etc. for All India Institute of Ayurveda (AIIA),
Sarita Vihar, New Delhi**

**Volume-III
Technical Specifications**

November 2013



**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/AIIA-AYUSH/Fur/2013

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

Granite	ASTM C 615	0.40%	2,560	10.34	131	25	8.27
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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 thermoset 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

GENERAL Specification for Civil/PHE/Electrical works etc. :-

- 1.01 The specifications and mode of measurements for Civil and Plumbing works shall be in accordance with C.P.W.D. specifications 2009 Volumes I and II with up to date correction slips unless otherwise specified in the nomenclature of individual item or in the specifications. The entire work shall be carried out as per the C.P.W.D. specifications in force with up to date correction slips upto the date of opening of tender.
- 1.02 For the item not covered under CPWD Specifications mentioned above, the work shall be executed as per latest relevant standards/codes published by B.I.S. (formerly ISI) inclusive of all amendments issued thereto or revision thereof, if any, upto the date of opening of tenders.
- 1.03 In case of B.I.S. (formerly I.S.I) codes/specifications are not available, the decision of the Engineer based on acceptable sound engineering practice and local usage shall be final and binding on the contractor.
- 1.04 However, in the event of any discrepancy in the description of any item as given in the schedule of quantities or specifications appended with the tender and the specifications relating to the relevant item as per CPWD specifications mentioned above, or in drawings the former shall prevail.
- 1.05 In general the building floor to floor height is 4.00 mtr unless specified otherwise in the drawing. However, the rates for different items of work shall be for up to 4.5 m floor to floor height at all levels, lifts, leads and depths of the building except where otherwise specified explicitly in the item of work or in special conditions appended with the tender. All works above the top most terraces (main) shall be paid under the level existing below (i.e. machine room, mumty etc)
- 1.06 The work shall be carried out in accordance with the architectural, structural, plumbing and electrical drawings etc. The drawings shall have to be properly co-related before executing the work. In case of any difference noticed between the drawings, final decision, in writing of the Engineer shall be obtained by the contractor. For items, where so required, samples shall be prepared before starting the particular items of work for prior approval of the Engineer and nothing extra shall be payable on this account.
- 1.07 All materials to be used on works shall bear I.S. certification mark unless specifically permitted otherwise in writing. In case I.S. marked materials are not available (not produced), the materials used shall conform to I.S. Code or CPWD specifications, as applicable in this contract.

In such cases the Engineer shall satisfy himself about the quality of such materials and give his approval in writing. Only articles classified as "First Quality" by the manufacturers shall be used unless otherwise specified. All materials shall be tested as per provisions of the Mandatory Tests in CPWD specifications and the relevant IS specifications. The Engineer may relax the condition regarding testing if the quantity of materials required for the work is small. Proper proof of procurement of materials from authentic manufacturers shall be provided by the contractor to the satisfaction of Engineer. Grade of cement used shall be OPC 43 Grade unless otherwise specified explicitly. The contractor shall get the Design Mix for RCC done by the labs approved by OWNER only. Reinforcement Steel used shall be of TMT Fe-500 unless otherwise specified.

- 1.08 In respect of the work of the sub-agencies deployed for doing work of electrification, air-conditioning, external services, other building work, horticulture work, etc. for this project and any other agencies simultaneously executing other works, the contractor shall afford necessary coordination and facilities for the same. The contractor shall leave such necessary holes, openings, etc. for laying / burrying in the work pipes, cables, conduits, clamps, boxes and hooks for fan clamps, etc. as may be required for the electric, sanitary air-conditioning, fire fighting, PA system, telephone system, C.C.T.V. system, etc. and nothing extra over the agreement rates shall be paid for the same.
- 1.09 Unless otherwise specified in the bill of quantities, the rates for all items of work shall be considered as inclusive of pumping out or bailing out water if required for which no extra payment will be made. This will include water encountered from any source such as rains, floods, or due to any other cause whatsoever.
- 1.10 Any cement slurry added over base surface (or) for continuation of concreting for bond is added its cost is deemed to have in built in the item unless otherwise/explicitly stated and nothing extra shall be payable or extra cement considered with consumption on this account.
- 1.11 The rate for all items in which the use of cement is involved is inclusive of charges for curing.
- 1.12 The contractor shall clear the site thoroughly of all scaffolding materials and rubbish etc. left out of his work and dress the site around the building to the satisfaction of the Engineer before the work is considered as complete.

- 1.13 Rates for plastering work (excluding washed grit finish on external wall surfaces) shall include for making grooves, bands etc. wherever required and nothing extra shall be paid for the same.
- 1.14 The rates quoted for all brick/concrete work shall be deemed to include making openings and making good these with the same specifications as shown in drawings and/or as directed. No extra payment shall be made to the contractor on this account.
- 1.15 Rates for all concrete/plaster work shall include for making drip course moulding, grooves etc. wherever required and nothing extra shall be paid for the same.
- 1.16 Rates for flooring work shall include for laying the flooring in strips/as per sample or as shown in drawings wherever required and nothing extra shall be paid for the same.
- 1.17 The drawing(s) attached with the tender documents are for the purpose of tender only, giving the tenderer a general idea of the nature and the extent of works to be executed. The rates quoted by the tenderer shall be deemed to be for the execution of works taking into account the "Design Aspect" of the items and in accordance with the "Construction Drawings" to be supplied to the Contractor during execution of the works.
- 1.18 The quoted rate shall be for finished items and shall be complete in all respects including the cost of all materials, labour, tools & plants, machinery etc., all taxes, duties, levies, octroi, royalty charges, statutory levies etc. applicable from time to time and any other item required but not mentioned here involved in the operations described above. The client/OWNER/Employer shall not be supplying any material, labour, plant etc. unless explicitly mentioned so.
- 1.19 On account of security consideration, there could be some restrictions on the working hours, movement of vehicles for transportation of materials and location of labour camp. The contractor shall be bound to follow all such restrictions and adjust the programme for execution of work accordingly.
- 1.20 The contractor has to ensure co-ordination with Institute authorities to maintain the smooth functioning / operation of existing Institute without disruption during the execution of work. This may require working rescheduling the normal working hours, working in restricted period etc. Nothing extra shall be payable on this account.

He shall also ensure that all work sites within the Institute complex are properly cordoned off by means of barricades and screens upto a height of 3.0 m above ground

level. The contractor shall use painted CGI sheets which are in good condition mounted on steel props.

- 1.21 Stacking of materials and excavated earth including its disposal shall be done as per the directions of the Engineer-in-Charge. Double handling of materials or excavated earth if required shall have to be done by the contractor at his own cost.

1.22 LIST OF APPROVED MAKES : CIVIL WORKS

SI.No.	MATERIALS	MANUFACTURERS
1.	Doors & Windows fixtures/ Fittings:	Everite, Hardima, Global, Crown
2.	Door Closer / Floor spring Hardima	: Doorking, Everite, Hardwyn, Amar D army,
3.	Aluminium Sections.	: Hindalco, Jindal, Indal , Bhoruka,
4.	Clear Glass/ Clear Float Glass AIG / Toughened Glass	: Saint Gobain(SG),Modi,Gujrat Guardian, Tata ,
5.	Laminates	: Formica, Decolam, Century, Marino, Green Ply
6.	Synthetic Enamel Paints	: Berger (Luxol gold), Asian(Apcolite), ICI Dulux (Gloss), Nerolac (Full gloss hard drying)

7. Oil Bound Distemper : Asian (Tractor), Berger (Bison), Nerolac (Super Acrylic).
8. Cement Paint : Snowcem Plus, Berger (Durocem Extra), Nerolac (Nerocem with titanium),.
9. Plastic Emulsion Paint : ICI, Asian, Nerolac
10. Other Paints/Primers : ICI Dulux, Asian, Berger, Nerolac
11. Cement : OPC 43 grade conforming to BIS-8112 and approval of source by Engineer
12. Reinforcement Steel : TMT steel conforming to BIS-1786 and approval of source by Engineer
13. Glass Mosaic Tiles : Italice, Bizzaza. Pallidio
14. Back-up Rod. : Supreme Industries or equivalent
15. M.S. Pipe : Jindal Hisar, Prakash-Surya, BST, Kalinga, Tata
16. Polycarbonate Sheets : GE Plastics or approved equivalent
17. Wooden/Metal Fire Check Doors Control, : Navair, Shakti-met, Godrej, Pacific Fire Promat
18. Gypsum Board System : India Gypsum, Laffarge, Boral

Sl.No.	MATERIALS	MANUFACTURERS
19.	Sunken Portion Treatment	Choksey, Roffe, Krytone,Sika,
20.	Admixtures for concrete.	Cico, Vam Organics, Roffe, Pidilite,FOSROC
21.	Ceramic Tiles	Johnson, Somany, Kajaria, Nitco
22	Pre-Laminated Particle Board	Novopan, Greenlam, Kitlam, Marino
23.	Flush Door Shutters.	Century, Kitply, Novapan, Green Ply, Marino
24.	Glazed Tiles	Bell, Somany, Johnson, Kajaria, Cera,
25.	PVC Water Stops	Supreme, Fixopan or approved equivalent
26.	White Cement.	Birla White, J.K.
27.	Powder Coating Material Pure Polyester.	Jotun , Berger, Goodlass Nerolac
28.	Masking Tapes	Suncontrol , Wonder Polymer.

29. Stainless Steel Screws For
Fabrication and fixing of Windows.: Kundan , Puja , Atul.
30. Dash Fasteners./Anchor bolts : Hilti, Fischer, Bosch.
31. Stainless Steel Bolts, Washers and
Nuts. : Kundan, Puja, Atul.
32. Stainless Steel Pressure Plate
Screws. : Kundan, Puja, Atul.
33. Stainless Steel Friction Stay. : Securistyle, Earl Bihari.
34. E.P.D.M. Gaskets. : Anand Reddiplex, Enviro Seals
35. Weather Silicon. : Dow Corning, Wacker, GE
36. Structural Silicon at butt joints : - Do -
37. PVC continous fillet for periphery
packing of Glazings /Structural glazings.: Roop, Anand, Forex Plastic.
38. Floor Springs. : Doorking, Opel or equivalent
39. Water proofing / Injection Grouting : Specilized agency as approved by
engineer
40. 6mm thick Reflective Glass : Glaverbel, Glavermas, Saint Gobain.

SI.No.	MATERIALS	MANUFACTURERS
41.	Door Locks.	ACME, Godrej, Harrison, Hardima, Mobel
42.	Door Seal – Woolpile Weather Strip	Anand -Reddiplex.
43.	Aluminium Grill	Hindalco, Decogrille or approved Equivalent
44.	Vitrified Tiles	Restile , Naveen, Bell-Ceramics, Kajaria, Somani,
45.	Carpets	Hollitex, Standard, Mohawk
46.	Aluminium Cladding sheets	Alstrong , Alpolic, Alucobond, Alucomat Alu Decor
47.	Aluminium Die-cast handles & two point locking kit	Giesse, Securistyle, Alu-alpha
48.	Stainless steel D-handles	D-line, Giesse, Dorma,Hardima
49.	Fabric for Auditorium	ESSMA, Raymonds or equivalent

50. Stainless Steel Pipes/Flats : 304 Grade (as approved by Engineer)
51. Structural Steel : Conforming to BIS 2062 and approval of source by Engineer
52. Ready Mix Concrete : ACC,BIRLA, Ahlcon or approved equivalent
53. Epoxy Flooring/ wall coating : Fosrock, Beck, Famaflor,
54. SBS bitumen based Self adhesive membrane
Material : Grace-Bituthene CP1.5, Texsa-Texself 1.5
55. Acoustic Mineral Fibre : USG-Radar, Armstrong, 21st Century, Acostyle
56. Curtain wall/Structure Glazing/Hermatic seal Sliding
Doors : Specialised Agency to be approved by Engineer
57. Fire Panic bar : Briton, Monarch, Von-Duprin, Dorma, Mobel
58. Ply board : Greenply, Kitply, Century, Archid,
Marino

SI.No. MATERIALS

MANUFACTURERS

59	PVC Doors (Solid Profile)	:	Rajshri or approved equivalent
60	PVC Doors (Hollow Profile)	:	Syntex, Plasopan or approved equivalent
61	PVC Flooring	:	LG, Tarkett, Responsive or approved equivalent
62	SS Railing	:	Specialised Agency to be approved by Engineer
63	Interlocking Paver Tiles	:	Ultra, Shree or Approved Equival
64	Wall Clading Tiles	:	Ultra, Shree or Approved Equivalent
65	Acoustic Seals	:	Anand Reddiplex , Enviroseal or equivalent
66	Smoke Seals	:	Pemko or Equivalent
67	Fire rated door closer/Mortice Lock/ Door Co-ordinator		Dorma, Becker F.S. Australian or approved equivalent

Note : **Wherever makes have not been specified for certain items, the same shall be as per BIS and as per approval of Engineer**

LIST OF APPROVED MAKES : PLUMBING WORKS

S.No.	Materials	Relevant IS Code	Manufacturers
1.	Vitreous China Sanitary ware	2556	Hindustan Sanitary ware, Cera, Kohler, American standard
2.	White Glazed Fire Clay Sink	771	Sanfire, Cera, Neycer, Hindware.
3.	Stainless Steel Sink		Jayna, Jaguar, Commander, Nirali
4.	Plastic seat cover of W.C	2548	Commander, Cera, Kohler Jaquar, American standard
5.	Geyser		Racold, Jaguar, Rheem, Usha Lexus
6.	C.P. Fittings Mixer/Pillar taps Washers, C.P. brass accessories	1795 4291/4827	Aquabaths, Othello, Jaquar, Kingston, Marc
7.	Centrifugally /Sand cast iron pipes & fittings	3989/1729	Neco, Hepco, SKF
8.	G.I. Pipes	1239 Part I	Jindal-Hissar, Tata, Prakash-Surya B.S.T., SAIL,
9.	G.I. Fittings	1239 Part I	Unik, K.S., Zoloto Zenith
10.	Gunmetal Valves	778	Zoloto, Leader,
11.	Brass stop & Bib Cock	781	Zoloto, Sant, L&K, Jaquar
12.	Ball valve with floats	1703	Zoloto, Leader, Sant, Jayco
13.	Stoneware pipes & Gully Traps	651	IS Marked pipes
14.	R.C.C. pipes	458	IS Marked pipes
15.	D.I. Manhole Covers	1726	RIF, NECO, SKF
16.	Water Tank		Sintex, Polycon, Uniplast
17.	Mirror		Golden, Atul, Modi guard

			Gujrat Guardian
18.	Hand drier		Kopal, Automat, Euronics
19.	PVC flusing cistern		Commander, Parryware, Duralite
20.	Insulation of Hot water pipes		Vidoflex insulation, Superlon, Paramount Kaiflex
21.	PVC Rain Water Pipes.		Supreme, Prince, Finolex. Oriplast
22.	D.I pipes		Jindal, Tata, Electrosteel.
23.	Sluice valve / NRV		Kirloskar, Kilburn, Zoloto Castle,
24.	Water supply pumps	:	KIRLOSKAR, WILO, GRUNDFOS
25.	Submersible pumps	:	KIRLOSKAR, GRUNDFOS, KSB, Mather & Platt
26.	UPVC pipes & fittings	;	Finolex , Prince, Supreme, Oriplast
27.	Chlorinator	:	ALFA, USA, Ion exchange, Sigma DH Combine Inc.
28.	HDPE Solution tank	:	WATCON, ION EXCHANGE, Water Supply Specilist P (Ltd)
29.	C.P Flush Valves	:	Jaquar, DOCOL(Germany) marketed by GEM, Ideal

- 30 C.P Angle Valves, bib cock : Othello, Jaquar, Marc,
Kingston ,Aquabaths
- 31 Decorative bath room fittings : Jaquar (Florentine range),
Marc (equivalent)
Aquabaths (equivalent)