

National Institute of Unani Medicine , Kottegalapalaya, Bangalore

## **Tender (Second Call)**

**For**

**Supply, installation, testing & commissioning of Furniture for Auditorium & other miscellaneous works including minor civil, electrical, PHE works etc. for NIUM, Kottegalapalaya, Bangalore**

**Volume-III**

**Specifications**

**January 2014**



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**PQ tender No. HSCC/NIUM-Fur/2013**

National Institute of Unani Medicine , Kottegalapalaya, Bangalore

## TECHNICAL SPECIFICATION ( Second Call)

Supply, installation, testing & commissioning of Furniture for Auditorium & other miscellaneous works including minor civil, electrical, PHE works etc. for NIUM, Kottegalaya, Bangalore

### ❖ **Following Basic Material to be Used for Auditorium Chair/Furniture with prior approval of Client :**

#### **Material Requirements For All Revolving And Tubular Chairs, wherever required :**

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, wherever required:**

- 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, wherever required :**

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, wherever required :**

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 :**

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

|                     |   |
|---------------------|---|
| 100% poly Propylene | For a Span of 1.2 Meters shall have weight 230-grams/ meters. |
|---------------------|---|

**Material Specifications, wherever required :**

**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%<br>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, wherever required :**

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%<br>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, wherever required :

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%<br>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, wherever required :

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, wherever required :**

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, wherever required.**

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.

## **ITEM SPECIFICATIONS :**

### **Centre Table**

Providing and supplying of center table of an overall size 900x450x450 with top made of 12 mm thick bevelled glass and under structure with a shelf is made of 18mm thick pre - laminated particle board with aa exposed edges sealed with 2mm PVC edge banding tape pressed at 200o C with hot melt glue on special machines.

### **Side Table**

Providing and supplying of side table of overall size 450x450x450 with top made of 12mm thick bevelled glass and under structure with as half is made of 18mm thick pre-laminated particle board with all exposed edges sealed with 2mm PVC edge banding tape and unexposed edges sealed with 0.6mm PVC edge banding tape pressed at 200o C with hot melt glue on special machines.

### **Sofa- Three Seater**

Wooden Sofa:- Fully upholstered sofa with good quality seasoned wood duly anti termite treated. In seat, good quality flat spring steel are used and are covered by "U" foam. Seat cushion has premium quality rubber. The back is made of high density foam duly upholstered with fabric or leatherette. The armrest are made of seasoned teakwood duly sprit polished.

### **Sofa- Two Seater**

Wooden Sofa:- Fully upholstered sofa with good quality seasoned wood duly anti termite treated. In seat, good quality flat spring steel are used and are covered by "U" foam. Seat cushion has premium quality rubber. The back is made of high density foam duly upholstered with fabric or leatherette. The armrest are made of seasoned teakwood duly sprit polished.

### **Podium (Wooden)**

Providing and fixing Podium of an overall 600x600x1200/1050 made of 18mm pre - laminated particle board. The top is made up of 25mm thick particle board having post formed edge with 0.6mm thick decorative laminate. The podium also has a shelf below the top made up of 18mm Pre - laminated Particle board to keep papers etc. All exposed edges are sealed with 2mm thick PVC edge banding and unexposed edges sealed and unexposed edges sealed with 0.6mm PVC edge banding tape pressed at 200o C with hot glue on special machines.

### **Almirah:**

Providing & Fixing of storage Units having overall size 900x 450x2100 top & under structure & fascia made of 18mm pre - laminated particle board having openable shutter. All exposed edges sealed with 2mm edge 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, with proper locking arrangement. The shelves are made of 18mm thick Pre - laminated particle board direction of engineer-In- charge.

### **Black Perforated Chairs :**

Multi-seater chair with perforated metal sheet duly powder coated with arms in capsule pipe, side in 2" round pipe and bottom support in 3"x1/2" in gauge.

### **Chair:**

High Back Executive wooden with rubber wood as approved by Engineer In charge.

**Upholstry/Frame:** 12 mm hot pressed ply covered with moulded PU foam in seat & Back with ABS/ PP Cover & Fabric upholstery

**Seat & back size :** 500 mm (w) x 460 mm (D) , 500 mm (w) x 720 mm (H)

**Arms:** D-shape steel inserted PU arms

**Mechanism :** Center tilt mechanism

**Height Adjustment :** Gas Lift

**Base :** Steel Inserted nylon base with twin wheel castors

**Dias Table :** 2.5' x 2.5' as approved by engineer incharge

**END OF VOLUME**