20.06.2020

Amendment No. 1

Sub: Amendment to the referred tender enquiry

Ref.: Tender Enquiry no. HITES/PCD/AIIMS-IV/21/LabFur/19-20 dated 15-02-2020 read with Important Notice on Extension of Due Dates dated 25.03.2020.

The following changes are being incorporated in the above referred Tender Enquiry Document.

SECTION I

NOTICE INVITING TENDER (NIT)

(1)

Existing:

Tender ID	Name of items	Qty (Approx)	EMD (in INR)	Tender Processing Fee(in INR)
2020_HLL_ 40082_1	Laboratory Furniture	1800 Sq meter for 3 sites	8,70,000	2,950
	Gas Piping	300 meter for 3 sites		
	Gas Outlets	60 Nos. for 3 sites		
	Gas Manifold	9 Nos. for 3 sites		

Read as:

Tender ID	Name of items	Qty (Approx)	EMD (in INR)	Tender Processing Fee(in INR)
2020_HLL_ 40082_2	Laboratory Furniture	3	13,57,200	2,950

i. **Tender timeline:**

Read as:

Sl. No.	Description	Schedule
A	Last date of receipt of Pre-Bid queries	**25-06-2020,** 17:00 hrs IST
b.	Pre-bid meeting date, time& venue	**26-06-2020,** 15:00 hrs IST HLL Infra tech Services limited, Procurement & Consultancy Services Division, B-14 A, Sector-62, Noida-201 307

Sl. No.	Description	Schedule
c.	Closing date & time for submission of online bids	**13-07-2020**, 12:00 hrs IST
d.	Closing date & time for submission of **tender processing fee and EMD in physical form***	**14-07-2020**, 14:00 hrs IST
e.	Time and date of opening of online bids	**14-07-2020**, 14:30 hrs IST
f.	Venue for :- • Submission of tender processing fee, EMD in physical form. • Tender Opening-Tech Bid	HLL Infra Tech Services Limited, Procurement & Consultancy Services Division, B-14 A, Sector-62, Noida-201307

SECTION - III
SPECIAL INSTRUCTIONS TO TENDERERS (SIT)

Existing:

iii. **Bill of Quantity (BOQ) for each site (i.e. for 600 Sq Meter) must be submitted by the bidder in PDF from along with price bid and without price with technical Bid.**

iv. **Any other goods and/or services not separately mentioned in Technical Specification but required for set up for Laboratory, price of the same shall be incorporated while quoting Price in running Square meter and Details of the same may be provided as instructed at Pont no. iii) above.**

Read as:

iii. **Deleted**

iv. **Any other goods and/or services not separately mentioned in Technical Specification but required for set up for Laboratory, price of the same shall be incorporated under Miscellaneous heading while quoting Price. Details of the same may be provided as instructed in the price bid format in excel.**

Section VII
TECHNICAL SPECIFICATIONS

May be read as:

Lab Modular unit

Scope of Work

Supply and Installation of Laboratory Workbenches/Storage units including granite worktops and other supporting structures/hardware's of reputed brand. This includes delivery, unloading the consignment and transporting it from the place of storage to the installation site.

Supply & Installation of all utility service outlets and accessory fittings, electrical receptacles, plumbing and electrical switches & fittings, all laboratory sinks, bottle traps, drain troughs etc.

Supply & Installation of service structures where specified and setting in place reagent shelves of the type shown in the drawings. Removal of debris, dirt and rubbish accumulated as a result of installation/commissioning of the laboratory furniture and accessories and leaving the premises broom clean and orderly.

1.0 FLOOR BASED WELDED CABINET WITH METAL SKIRTING

- Welded cabinet body should be flush face construction with intersection of vertical and horizontal members like LH and RH side panel along with front horizontal channel, back panel and bottom panel.
- It should be relocated anywhere easily as it is an independent unit.
- Cabinet should of square non-sharp edge construction.
- Doors should be assembled with SS-304 hinge assembly.
- Removable back panel should be provided to easily access the service lines running behind the cabinet benches.
- Intermediate horizontal channels should be provided between door and drawer.
- Toe-space of 90mm X 90mm is provided at front-bottom side of cabinet.
- Levelers are provided for easy leveling of welded cabinet.
- Shelf should be eight-bend panel with 20mm height.
- Drawer tray should be of single piece construction. Drawer should be well supported on LH and RH ball slide suspension system.
- Steel door and drawer front should be of double wall construction with sound dampenening material filled inside.
- Doors should be easily removable and hinges should be easily replaceable. Knee space panel should be in 22 gauge construction
- Storage Units to be of the following types:
  - Floor based Welded cabinets with metal skirting type
  - Castor-based Mobile Type
- **Dimensions:** W=300/450/580/600/750/900 mm, D = 530mm, H = 875/725 mm
- **Configurations:** 1 Shutter + 1 Drawer/4 Drawers/Leg Spaces/1 Shutter/2 Shutters/3 Drawers/2 Shutters + 1 Drawer/Sink Unit + 2 Shutters
- **MOC:** MSCRCA: IS – 513 (1994)
- **Thickness:**
  - LH/RH side panels, shutter front, Bottom panel, Top front, Drawer separator, shelf, Alignment channel is of 1.2mm thk.
  - Removable Back panel, Shutter cover, Fr. Rack strip, Top cover panel is of 0.8mmthk

- **Finish:** Powder coating pure epoxy, thickness 40-50 microns
- **Handle:** Anodized Aluminum Recessed-Type**, CTC:** 160.0mm
- **Lock:** Units have a locking facility with 180° and 10 lever cam lock mechanism (except for sink and corner unit)
- **Hinge:** SS Hinge **Screw:** SS 304

Shutter should be of twin-type construction with sound dampening effect using profill. Shutter cover should be equipped with Bump on for sound dampening. Base Moulding should be made of PVC with corner clips. Ball Slide: 500mm Length. Shutter should have provision of roller catch

Size:
Supplying, Assembling and Placing of Lab benches with following items, accessories and specification as follows:

Under Bench Storage Cabinets:

1. The storage cabinets shall be of complete modular design Consisting of Cabinet Frame, Cover panels, metal shutters & drawers, support brackets, shelves, slides and handles.
2. The complete M.S. material of cabinet shall be pretreated (degreased, Zinc phosphated) and epoxy powder coated for better corrosion resistance.
3. Cabinet frame shall be a combination of 1.2 mm horizontal stiffeners and 0.8 mm vertical panel of CRCA MS sheet. Metal Shutters and drawers shall be made of 0.8mm thick CRCA MS sheet with profile insert to provide rigidity to the doors.
4. Granite /Reagent Support Brackets should be provided to serve the purpose of supporting the granite and carrying the service lines.
5. Support Brackets to be provided in 2 mm CRCA MS sheet.
6. Unit Shelves in CRCA shall have a load carrying capacity of 40 kg.
7. The overall load carrying capacity of drawer shall be 40 kgs.
8. UDL for a pair of ball slide.
9. High precision double extension ball slides shall be provided for the drawers.
10. Hinges shall be spring loaded, coated.
11. Legs shall be made of Polystyrene material with high impact resistance, height adjustable and to have a wide base of dia. 40mm.
12. Each unit shall be provided with a locking facility with 180°,

WELDED OVER-HEAD STORAGE CABINETS

The construction should be the same as the under-bench cabinets. The height of these cabinets should be around 635mm while the depth should be around 340mm. The shutters should be available in two options: Metal shutters and Metal frame with inserted glass. There should be one height-adjustable shelf inside each cabinet. Other construction should be similar to under-bench cabinet

2.0 COVER / FILLER PANELS

All side cover panels and back panels, filler panels should be made from CRCA MS panels of 1.0mm thickness with pure epoxy powder coating

SERVICE FITTINGS AND ACCESSORIES

Service fittings should be laboratory grade, and water faucets and valve bodies should be cast red brass alloy or bronze forgings, all fittings should be powder plated unless specified otherwise. **Service Indexes:** Fittings should be identified with service indexes in the color coding as per DIN 12920.

3.0 FIXED TYPE REAGENT SHELVES

Fixed-Type reagent shelves should be provided. It should be complete modular design consisting of 2 stage horizontal storage shelves made of CRCA MS with pure epoxy powder coating and having cutouts for electrical switches and sockets. It should have provision for placing Granite pieces (as per requirement in BOQ)

Powder Coating:

1. Shall be at least 35-50 microns with pure epoxy powder coated, which passes the test of Salt Spray for 1000 hours and having the Scratch Hardness of 3Kgs.
2. Plastic recess Handles to be provided for extra corrosion resistance.

Reagent Shelf:

1. There shall be two type of reagent shelf- Double sided 2-tier and Single sided 2- tier.
2. Single Sided 2-tier Reagent Shelf: It shall be a single sided, 2-tier system with depth of each shelf being 300mm.
3. The end vertical panels shall be 0.9mm & horizontal shelves of 0.8mm thick MS CRCA.
4. The end vertical panels should be supported on PP Base support pieces of 300L x 37 W x 15mmH.
5. The horizontal shelf should have provisions for fixing the electrical switches and sockets of approved make having 6 Module plates and 6/16A Electrical sockets

Double Sided 2-tier Reagent Shelf:

1. It should be a double sided, 2-tier system with depth of each shelf being 300mm.
2. The end vertical panels should be 0.9mm & horizontal shelves of 0.8mm thick MS CRCA.
3. The end vertical panels should be supported on PP Base support pieces of 300L x 37 W x 15mmH.
4. The horizontal shelf shall have provisions for fixing the electrical switches and sockets of approved make having 6 Module plates and 6/16A
5. Electrical sockets and switches& 1 Module plate with 1 Switch.
6. The load carrying capacity of each Reagent shelf should be 30 kgs.
7. It should have 1 cutout for 1 module plate and 2 cutouts for 6 module plate on every main and add on units.
8. Reagent Shelf shall have the provision of fixing a tube-light on both sides of each main and add on unit.

4.0 Sinks and Accessories:

- It should be made up of 5 mm thick high density and elastic poly propylene with good resistance to organic solvents
- PP Bottle-traps should be offered with PP Sinks
- Standard bowl size (L x W x D) should be 560 x 355 x 300 mm
- 1-way Faucet should be provided of Branded make

Water Faucet:

1. Sink unit shall have Single way (1 swan neck) 360° turn type water faucets made up of Brass with epoxy powder coating.
2. It should be PH and rust resistant.
3. The switch valve cast shall be made of ceramic that can avoid acid wear.
4. The outlet produced in PVC, shall have detachable hose nozzles, allay pressure,changeable high pressure outlet constructed or normal clean outlet control of water flow faucet immediately.

5.0 Electrical Fittings and accessories:

1. Race way to electrical points shall be provided above work surface where ever reagent shelves are provided and shall be concealed.
2. Each electrical 6 Module Plate should consist of 2 nos. 16 Amp 5 pin socket and 2 nos.
   16 AMP switch & 1 module should consist 1 switch of approved make.
3. This shall be provided on every main and add on unit of Reagent shelf.
4. Where Reagent shelf is double sided, the same shall be provided on both the sides.
5. Electrical trunking is made up of 0.8mm thick CRCA MS Sheet or SS 304 (as per schedule of quantities)
6. The complete M.S. material of cabinet should be pre-treated (degreased, Zinc phosphated) and epoxy powder coated for better corrosion resistance.
7. The thickness of powder coat should be 45-50 microns, which passes the test of Salt Spray for 1000 hours.
8. It should have a high temperature withstanding capacity with excellent electrical insulation properties
9. The rear portion of above accessories which is in contact with live metal should be made from thermo set material which will not melt on heating.
10. These are made of High gloss virgin grade engineering thermoplastics to impart a defect free surface.
11. They impart excellent electrical insulation properties i.e. do not melt on heating or catches fire
12. Owing to this all electrical switches and sockets are capable of handling higher currents and operating temperatures.
13. Front plates can be changed at any time with ease without disturbing the wiring to quickly and economically match changes in the surroundings.

6.0 Work Top:

1. Worktop shall be of 20mm(+/-1mm) thick high quality Pre-Polished granite in jet black color with the edges having round profiles of 10 mm.
2. The overhang of granite should be 30 mm at front side of under storage cabinets.
3. The backing material for granite should be Neoprene Mat of 6mm thickness and 25 mm width.
4. The exposed edges of the worktop should be chamfered and smoothened. The bottom of the worktop should be polished and there should be a V-groove throughout the length of the exposed edges to protect the cabinets from coming in contact with the spillages.

Service Duct:

1. Service duct should be made up of 0.8mm thick CRCA MS Sheet.
2. The complete M.S. material of cabinet should be pretreated (degreased, Zinc phosphated) and epoxy powder coated for better corrosion resistance.
3. The thickness of powder coating should be 45-50 microns and should pass the test of Salt Spray for 1000 hours.
4. It should have a high temperature withstanding capacity with excellent electrical insulation properties.

RLB: Rectangular Laboratory Bench ; PLB: Peninsular

Laboratory Bench

Each bench shall have end panels and cover panels along with main frame for better aesthetics. The rates quoted for the main storage units and add ons shall be inclusive of the cover panels, end panels etc.

Construction:

1. Framed, welded construction for durability & strength.
2. Shutters and drawer fronts flush with the cabinet.

Material:

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

Surface Treatment:

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

Other Specifications:

1. The each storage unit is assembled with M6 Fasteners having Zinc-Cobalt coating for better corrosion resistance.

2. The two adjacent units are connected together with Zinc-Cobalt coated Cabinet Connectors.
3. 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.
4. The drawer trays are mounted on Delryn roller bearing slides, which are made up of 1.6 mm thick M.S. sheet and epoxy powder coated. A pair of slide can carry a UDL of 15 Kgs.

Shutters and Drawer fronts:

Shutters:

1. Two piece shutter construction with sound deadening material for quite operation and rigidity.
2. Rubber grommet on shutters for silent banging of shutter against body.
3. The shutters are fitted with Nickel-chrome plated self-closing hinges which are further coated by Cathode Electro-deposition (CED) process to improve the corrosion resistance.

Drawers:

1. Drawers are mounted with precision double extension (for full access) ball slides for smooth movement of drawers.
2. Built-in anti rebound mechanism prevents drawer from coming out once it is pushed inside the cabinet. These slides are tested as per **SEFA and BIFMA standards.**
3. One piece drawer tray construction for easy cleaning.
4. Two piece drawer front construction with sound deadening material for quite operation and rigidity.

Shelf:

1. Full width shelf for maximum storage space.
2. Adjustable shelf at pitch of 1”
3. Zinc plated rigid shelf supports.

Load Carrying Capacity:

1. The overall load carrying capacity of cabinet is 80 Kg of UDL (40 kgs. on each shelf and 40 kgs. On bottom).
2. The overall load carrying capacity of drawer is 15 kgs. of UDL for a pair of roller slide.

Gas Valves & Manifold (unit price to be quoted separately)

All gas valves for regular lab gases should be made of powder-coated brass and should have standard needle valve and push and turn type arrangement for all burning gases to be supplied. Bidder should supply & install gas pipline in all the modules and should install 2x2 gas manifold for each lab.:

Product Certifications:

Cabinets must be tested as per SEFA 8M standard from a SEFA approved Lab and also tested as per EN 14727 from a third party testing agency

Testing Clause:
Welded Cabinets should be tested for SEFA 8M from a SEFA approved lab and EN-14727 from a third party testing agency for the tests whose details are mentioned in Annexure 'A' and the name of model offered should be listed in SEFA's website. The Bidder to ensure that the supplies are made out of the approved & tested standards of the SEFA 8M.

Bidder/Manufacturer must submit one of the certification for Design, Development, manufacturing, Procurement and Supply for instructional Furniture:

i) ISO-9001(2015) or ii) ISO- 14001 (2015) or iii) OHSAS-18001(2007)

ii) Should be BIFMA certified and SEFA 8M

Indicative drawings :

MANDATORY TESTS REQUIRED

Laboratory Furniture

Test No **:** 01

Test Name **:** Cabinet Load Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The cabinet load test will challenge the structural integrity and load bearing capability of the cabinet construction. This test will demonstrate the ability of the cabinet to support heavy applied loads. This is not intended to test the functional characteristics of the cabinet under heavy loads

Test Procedure **:** Verify that the cabinet is level and supported only by the levelers. Load the cabinet top by using 2000 pounds (907.2 Kg) of solid steel bars (per Section 3.1) stacked five high and spaced per Fig 2. After ten minutes, unload the cabinet.

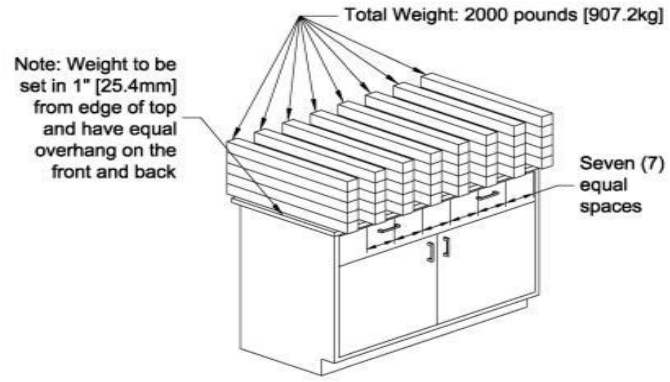


Figure 2. Cabinet Load Test Configuration

Acceptance Level **:** The cabinet will have no signs of permanent failure. After the load is removed, inspect the levelers. Any deformation shall not interfere with the function of the leveling system

Proof of Test Passed : Test certificate issued by SEFA Approved Lab for Cabinet Load test to be attached with the technical bid.

Test No **:** 02

Test Name **:** Cabinet Concentrated Load Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The purpose of this test is to challenge the functional characteristics of the cabinet when subjected to a concentrated load on the center of the cabinet top

Test Procedure **:** Using solid weights or 10 pound (4.535 Kg) sand bags (per Section 3.1), apply a total of 200 pounds (90.718 Kg) to the top of the cabinet along the cabinet centerline (see Figure 3). Operate doors and drawers.

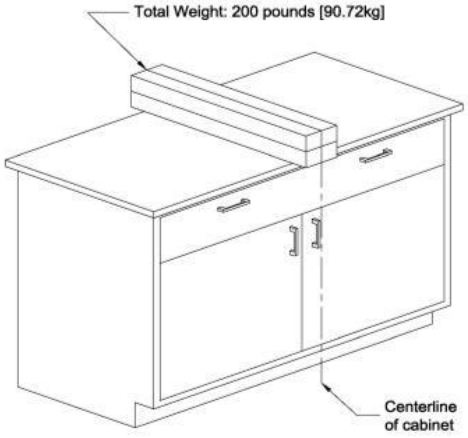


Figure 3. Base Cabinet Concentrated Load Test

Acceptance Level : Door and drawer operation shall be normal under condition of test load. There shall be no signs of permanent deformation to front rail, cabinet joinery, doors, or drawers

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Cabinet concentrated test load to attached with the technical bid.

Test No **:** 03

Test Name **:** Cabinet Torsion Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will evaluate the structural integrity of the cabinet construction when subjected to a torsional load

Test Procedure **:** The cabinet shall be tested in its normal upright position, raised not less than four-inches off the floor and supported on rear and one front corner. The area of support under the cabinet shall be located not more than 6" (152.4mm) in from each supported corner. Secure the cabinet diagonally from the unsupported corner with seven solid steel bars per Section 3.1 (350 pounds (158.757 Kg) of weight), on the top of the cabinet to prevent overturning. Apply four solid steel bars (200 pounds [90.718 Kg] of weight) to the unsupported corner for a period of 24 hours (see Figure 4). Remove weight and place cabinet on the floor in its normal upright position. Observe cabinet joinery. Level the cabinet and measure the face and back of the cabinet across the diagonal corners.

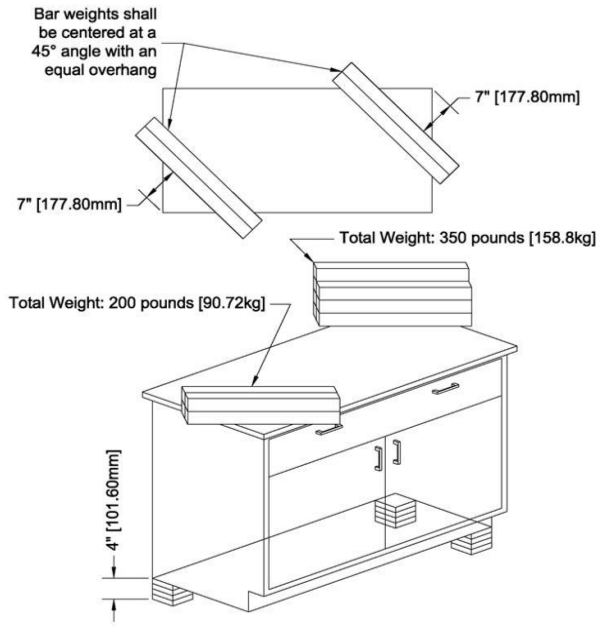


Figure 4. Base Cabinet Torsion Test Procedure

Acceptance Level : Door and drawer operation shall be normal under condition of test load. There shall be no signs of permanent deformation to front rail, cabinet joinery, doors, or drawers. When returned to normal position, the operation of the cabinet shall be normal, and there will be no permanent damage. The difference between the two measurements taken from measuring the diagonal corners shall be no more than 1/8" (3.175mm)

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Cabinet Torsion test to be attached with the technical bid

Test No **:** 04

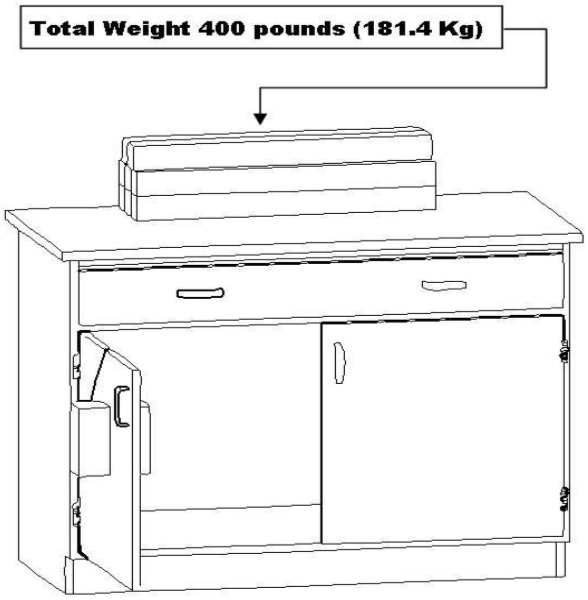
Test Name **:** Door Hinge Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the durability of the door, door attachment and its hardware (hinge leaf, screws, etc.) to an applied load of 200 pounds (90.72 Kg)

Test Procedure **:** Remove the shelf for this test. With unit and top set as described in Section 4.1, add sufficient weight to the top in order to prevent overturning. With cabinet door opened 90-degrees, hang a sling made up of two 100 pound (45.35 Kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8mm) out from the hinge centerline (see Figure 5). Slowly move door through two full cycles of the hinge at 160-degree arc. Remove weight and swing door through its full intended range of motion and close door.



Acceptance Level : The open door shall withstand a load of 200 pounds (90.72 Kg) when applied at a point 12"(304.8mm) from the hinge centerline without permanent damage. Operation of the door, after test shall show no significant permanent damage that will cause binding of the door or hinges or that will adversely affect operation of the catch

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Cabinet Torsion test to be attached with the technical bid

Test No **:** 05

Test Name **:** Door Impact Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the resistance of a 240 inch-pound (27.1 N-m) impact to the door face. Only units that extend below the work surface should be subjected to this test. This test should not be inclusive of glass doors

Test Procedure **:** With unit and top set as described in Section 4.1, add sufficient weight to the top in order to prevent overturning. A 20 pound (9.07 Kg) sand bag (Section 3.1) shall be suspended and dropped to provide an impact of 240 inch-pounds (27.1 N-m) at the center of the closed door. (See Fig 6.)

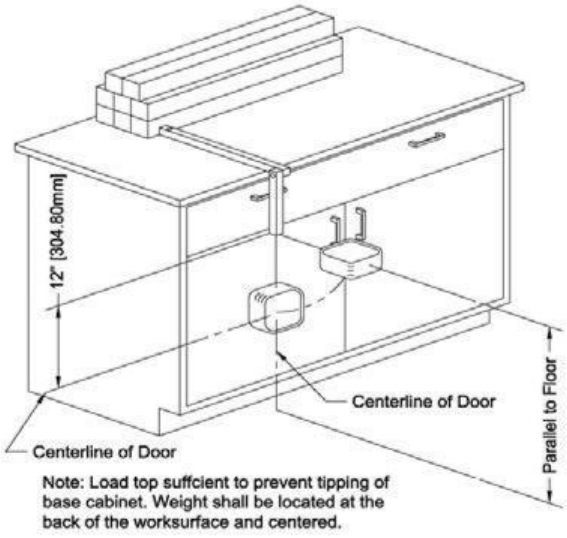


Figure 6. Base Cabinet Door Impact Test Configuration

Acceptance Level **:** After the test, the door and catch shall operate normally and show no signs of permanent damage. A dent or depression is an indication of permanent damage. This test is not intended to evaluate the cabinet finish

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Door Impact test to be attached with the technical bid

Test No **:** 06

Test Name **:** Door Cycle Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the durability of the door hinge hardware to withstand 100,000 cycles as a reliable measure for longevity).

Test Procedure **:** This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing door 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute

Acceptance Level **:** Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding

Proof of Test Passed **:** Test Certificate issued by SEFA Approved Lab for Door Cycle test to be attached with the technical bid

Test No **:** 07

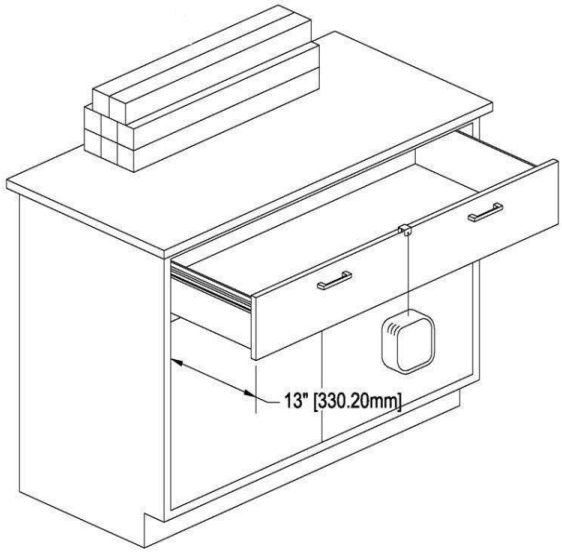
Test Name **:** Drawer Static Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the ability to support a point load given to the front of the drawer and will challenge the drawer suspension system and the attachment of the drawer head to the drawer

Test Procedure **:** With unit and top set as described in Section 4.1, add sufficient weight to the top in order to prevent overturning. Open the drawer to 13" (330.2mm) of travel and hang 150 pounds (68.03 Kg) from the drawer head at the centerline of the drawer for five minutes. Remove the weight and operate the drawer through the full cycle



Note: Load top suffcient to prevent tipping of base cabinet. Weight shall be located at the back of the worksurface and centered.

Acceptance Level **:** There shall be no interference with the normal operation of the drawer and the drawer head should remain tightly fastened to the drawer

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Drawer static test to be attached with the technical bid

Test No **:** 08

Test Name **:** Drawer & Door Pull out test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will evaluate the strength of the pull and pull hardware

Test Procedure **:** Pulls are to be installed in accordance with manufacturer's practice using specified attaching hardware and method. Block door and drawer closed. Using a force gauge attached with a 1" (25.4mm)wide bracket (see Figure 8), apply a force of 50 pounds (22.68 Kg), for 15 seconds, perpendicular to each pull. Revise setup to apply force downward (see Figure 9)

Figure 8. Base Cabinet Door and Drawer Pull Horizontal Load Test Configuration

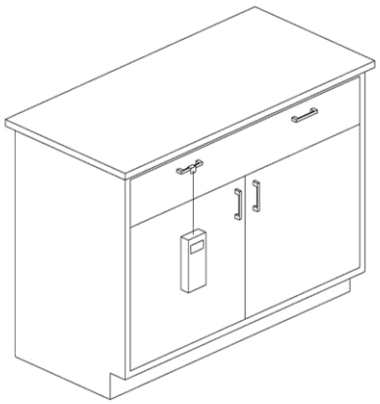


Figure 9. Base Cabinet Door and Drawer Pull Vertical Load Test Configuration

Acceptance Level **:** Pulls shall resist force without breakage. After completion of test and removal of weight, there shall be no significant permanent deformation

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Drawer & Door Pull out test to be attached with the technical bid

Test No **:** 09

Test Name **:** Drawer Impact Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the resistance to impact of the drawer bottom

Test Procedure **:** Remove drawer; support each corner with 2”x2”x1” (50.8 x 50.8 x 25.4 mm) supports. Drop a 10 pound (4.545 Kg) sand or shot bag from a height of 24” (609.6 mm) into the bottom of the drawer at the center of the width of the drawer

Acceptance Level **:** No damage or breakout of the drawer bottom

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Drawer impact test to be attached with the technical bid

Test No **:** 10

Test Name **:** Drawer Internal Rolling Impact Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will evaluate the strength of the drawer head, bottom, and back as a result of opening and closing the drawer with a rolling load

Test Procedure **:** Position the drawer on a table at a 45-degree angle per Figure 7. Place a 2" (50.8mm) diameter by 12" (304.8mm) long steel rod (approximately 10 pounds [4.545 Kg]) 13" (330.2mm) from the target impact area such that the rod will roll freely to impact the back of the drawer. Subject the back to three impacts and reverse the drawer to subject the front to three additional impacts

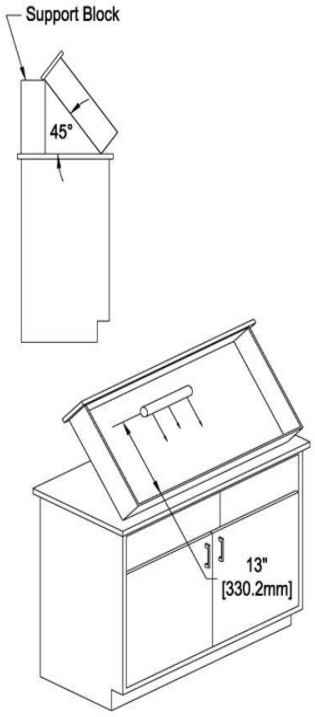


Figure 10. Base Cabinet Drawer Internal Rolling Impact Test Configuration

Acceptance Level **:** The drawer shall show no permanent damage. All joinery shall be intact and the drawer, when replaced in the unit, shall operate normally. Minor scratches and dents are acceptable

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Drawer internal rolling impact test to be attached with the technical bid

Test No **:** 11

Test Name **:** Drawer Cycle Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test is intended to replicate years of operation of a drawer under full load

Test Procedure **:** Attach a bracket to the center of the drawer front by bolting it through the drawer front and body. Attach a cycling mechanism to the bracket using a free floating poly block and pin

Laboratory Load – 100 pounds (45.36kg) A static of 100 pounds (45.35kg) (using ten 10-pound [4.54kg] sandbags per Section No. 3.1) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within ¼" (6.35mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute

Heavy Duty Laboratory Load – 150 pounds (68.04kg) A static of 150 pounds (68.04kg) (using fifteen 10-pound [4.54kg] sand bags per Section No. 3.1) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within ¼" (6.35mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute

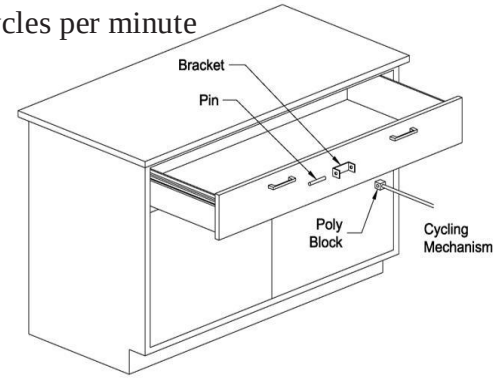


Figure 11. Drawer Cycling Mechanism Test Configuration

Acceptance Level **:** The drawer shall operate freely without evidence of dragging, rubbing or binding. The force required to open and close loaded drawer shall not be greater than 8 pounds (3.63kg) to activate hardware

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Drawer cycle test to be attached with the technical bid

Test No **:** 12

Test Name **:** Shelf Load test

Component **:** Base Cabinet / shelf

Standard Applicable **:** SEFA-2016

Purpose of Test **:** This test will demonstrate the ability of a shelf and its mounting hardware to support normal laboratory loads

Test Procedure **:** A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.54 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (18.14 Kg) per square foot of shelf area to a maximum of 200 pounds (90.72 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two

Acceptance Level **:** The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of .25" (6.35mm). The following formula may be used to calculate the approximate deflection expected from a uniformly distributed load:

D(max.) = 5W L^3 / 384 E I

WHERE:

D = Deflection in inches (Maximum 1/180 span, not to exceed .25" (6.35mm).

W = (Design Load) x (Shelf Depth in Inches) x (Shelf Span in Inches) (Design Load = 40 pounds (18.14 Kg) / square foot divided by 144)

"W" shall not exceed 200 pounds (90.72 Kg).

L = Span between supports in inches

E = Modulus of Elasticity Steel = 29 * 10^6 psi 1-M-2

I = Cross section moment of inertia.

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Shelf load test to be attached with the technical bid

Test No **:** 13

Test Name **:** Chemical Spot Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The purpose of the chemical spot test is to evaluate the resistance a finish has to chemical spills. Many organic solvents are suspected carcinogens, toxic and/or flammable. Great care should be exercised to protect personnel and the environment from exposure to harmful levels of these materials

Test Procedure **:** Provide 2" x 2" (50.8mm v 50.8mm) 18 gauge CRS test sample with between 2 and 4 mills of the manufacturer's standard paint finish applied. The sample to be tested for chemical resistance as described herein.
Place panel on a flat surface, clean with soap and water and blot dry. Condition the panel for 48-hours at 73º +/- 3ºF (23º +/- 2ºC) and 50 +/- 5% relative humidity or the currently accepted guideline set by ASTM. Test the panel for chemical resistance using forty-nine different chemical reagents by one of the following methods.
Method A - Test volatile chemicals by placing a cotton ball saturated with reagent in the mouth of a 1-oz. (29.574cc) bottle and inverting the bottle on the surface of the panel.
Method B - Test non-volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24mm watch glass, convex side down.
For both of the above methods, leave the reagents on the panel for a period of one hour. Wash off the panel with water, clean with detergent and naptha, and rinse with deionized water. Dry with a towel and evaluate after 24-hours at 73º +/- 3ºF (23º +/- 2ºC) and 50 +/- 5% relative humidity, or the currently accepted guideline set by ASTM using the following rating system.

Level 0 - No detectable change.
Level 1 - Slight change in color or gloss. Level 2 - Slight surface etching or severe staining.
Level 3 - Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration Laboratory Load – 100 pounds (45.36kg) A static of 100 pounds (45.35kg) (using ten 10-pound [4.54kg] sandbags per Section No. 3.1) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within ¼" (6.35mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute

Acceptance Level **:** Results will vary from manufacturer to manufacturer due to differences in finish formulations. Laboratory grade finishes shall result in no more than four (4) Level 3 conditions. Individual test results, for the specified 49 reagents, will be verified with the established third party, independent SEFA 8 test submittal form. Suitability for a given application is dependent upon the chemicals used in a given laboratory
Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Chemical Spot test to be attached with the technical bid

Test No **:** 14

Test Name **:** Hot water Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The purpose of this test is to insure the surface is resistant to hot water

Test Procedure **:** Hot water (190ºF to 205ºF [88ºC to 96ºC]) shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces [177.44cc] per minute) on the finished surface, which shall be set at an angle of 45º, for a period of five minutes

Acceptance Level **:** After cooling and wiping dry, the finish shall show no visible effect from the hot water

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Hot water test to be attached with the technical bid

Test No **:** 15

Test Name **:** Impact Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The purpose of this test is to evaluate the ductility of the coating

Test Procedure **:** An 18 gauge CRS sample panel shall measure approximately 14" x 24" (355.6mm x 609.6mm). The panel shall have between 2 and 4 mills of the manufactures standard paint finish applied.
Position the panel on a smooth concrete floor. A one-pound ball (approximately 2" [50.8mm] in diameter) shall be dropped from a distance of 12" (304.8mm) onto a flat horizontal surface

Acceptance Level **:** There shall be no visual evidence to the naked eye of cracks or checks in the finish due to impact

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Hot water test to be attached with the technical bid

Test No **:** 16

Test Name **:** Paint Adhesion Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The paint adhesion test is used to determine the bond of the coating to steel

Test Procedure **:** Using one of the samples described in section 10.1.2, perform the following test.
This test is based on ASTM D3359-02 "Standard Test Methods for Measuring Adhesion by Tape Test1 – Test Method B". Two sets of six parallel lines 2mm apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 25 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. Brush the grid area lightly with a soft brush, and then place a piece of tape over the grid. Rub the tape firmly with the eraser of a pencil to ensure good contact. Remove the tape by rapidly pulling it back upon itself as close to an angle of 180° as possible

Acceptance Level **:** A 4B rating or better (ninety five percent or more of the grid area shall show finish intact

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Paint adhesion test to be attached with the technical bid

Test No **:** 17

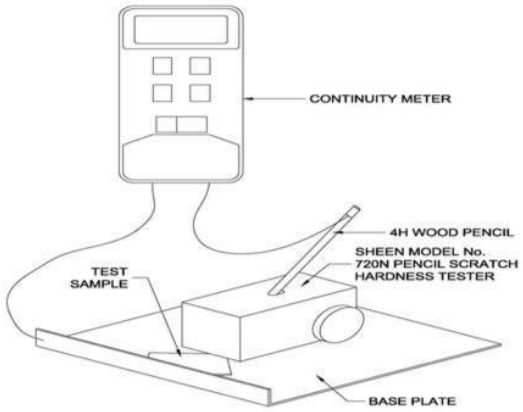
Test Name **:** Paint Hardness Test

Component **:** Base Cabinet

Standard Applicable **:** SEFA-2016

Purpose of Test **:** The paint hardness test is used to determine the resistance of the coatings to scratches

Test Procedure **:** This test is based on ASTM D3363-0 "Standard Test Method for Film Hardness by Pencil Test1". Using one of the samples described in section 10.1.2, perform the following test. Clip a corner of the sample at 45° exposing a raw metal edge. Place the sample on a raw metal base plate so that the exposed metal edge of the sample makes contact with the turned up side of the base plate (see Figure 12)



Remove approximately 6mm of wood from a 4H pencil, being careful to leave an undisturbed smooth cylinder of lead. Holding the pencil at an angle of 90° to an abrasive paper, rub the lead against the paper maintaining an exact angle of 90° until a flat smooth and circular cross section is obtained. On the other end of the pencil remove approximately 13mm of wood from one half of the pencil (see Figure 13). Install the pencil into a Sheen model 720N Pencil Scratch Hardness Tester. Connect a continuity meter to the base plate and to the top of the pencil, being sure to make good contact with the exposed portion of the lead. Following the manufacturers instructions place the tester on the surface of the test sample and push it forward approximately13mm. Rotate the pencil 90° in the holder and repeat the test to one side of the first test. Repeat this two more times for a total of four tests, each with a different quadrant of the pencil lead

Acceptance Level **:** The paint finish shall withstand the abrasion of a 4H pencil without penetrating through to the substrate and completing a continuous circuit

Proof of Test Passed : Test Certificate issued by SEFA Approved Lab for Paint Hardness test to be attached with the technical bid.

Sr. No.	Description	UOM	Qty for each site	Total Estimated Qty for 3 site	Unit Price at Consignee Site (excluding GST)	Applicable GST (%)	Applicable GST value/ unit	Unit price at consignee site	Total Price is at consignee site (Rs.)
1	2	3		4	5	6	7=(5 X6)	8=(5+7)	9=(4X8)
1	**FLOOR BASED WELDED CABINET WITH METAL SKIRTING**								
1.1	SINK UNIT 2 SHUTTER-750W-875H	Nos.	428	1284					
1.2	SINK UNIT 2 SHUTTER-600W-875H	Nos.	3	9					
1.3	LEG SPACE-750W-875H	Nos.	343	1029					
1.4	LEG SPACE-600W-875H	Nos.	176	528					
1.5	LEG SPACE-730W-875H	Nos.	26	78					
1.6	LEG SPACE-580W-875H	Nos.	14	42					
1.7	CORNER UNIT 900W-1S-LH-875H	Nos.	13	39					
1.8	2 SHUTTER WELDED-750W-875H	Nos.	1	3					
1.9	2 SHUTTER 1 DRAWER WELDED-900W-875H	Nos.	24	72					
1.10	2 SHUTTER 1 DRAWER WELDED-750W-875H	Nos.	514	1542					
1.11	2 SHUTTER 1 DRAWER WELDED-600W-875H	Nos.	200	600					
1.12	1 SHUTTER WELDED445W-875H	Nos.	3	9					
1.13	1 SHUTTER WELDED LEFT-445W-875H	Nos.	3	9					
1.14	1 SHUTTER 1 DRAWER-RH-450W-875H	Nos.	8	24					
1.15	1 SHUTTER 1 DRAWER-LH-450W-875H	Nos.	9	27					
2.00	**Panels: All side cover panels and back panels, filler panels should be made from CRCA MS panels of 1.0mm thickness with**								

Sr. No.	Description	UOM	Qty for each site	Total Estimated Qty for 3 site	Unit Price at Consignee Site (excluding GST)	Applicable GST (%)	Applicable GST value/ unit	Unit price at consignee site	Total Price is at consignee site (Rs.)
1	2	3		4	5	6	7=(5 X6)	8=(5+7)	9=(4X8)
	pure epoxy powder coating								
2.10	Filler Panel For Island Type Furniture Without Upright 1540 Wd X 875H	Nos.	122	366					
2.20	Filler Panel For Wall Side Furniture Without Upright 770 Wd X 875H	Nos.	146	438					
2.30	Back Support Bracket Without Upright For 770 Working Depth	Nos.	1856	5568					
3.00	**FIXED TYPE REAGENT SHELVES Fixed-Type reagent shelves should be provided. It should be complete modular design consisting of 2 stage horizontal storage shelves made of CRCA MS with pure epoxy powder coating and having cutouts for electrical switches and sockets. It should have provision for placing Granite pieces (as per requirement in BOQ)**								
3.10	Fixed Type Reagent Shelf (Main Type) 900 L-Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	2	6					
3.20	Fixed Type Reagent Shelf (Main Type) 750 L-Cutout : 3 Module + 3 Module (Total 2 Cutouts Only)	Nos.	66	198					
3.30	Fixed Type Reagent Shelf (Main Type) 1800 L-Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	10	30					
3.40	Fixed Type Reagent Shelf (Main Type) 1650 L-Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	1	3					
3.50	Fixed Type Reagent Shelf (Main Type) 1500 L-	Nos.	158	474					

Sr. No.	Description	UOM	Qty for each site	Total Estimated Qty for 3 site	Unit Price at Consignee Site (excluding GST)	Applicable GST (%)	Applicable GST value/ unit	Unit price at consignee site	Total Price is at consignee site (Rs.)
1	2	3		4	5	6	7=(5 X6)	8=(5+7)	9=(4X8)
	Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)								
3.60	Fixed Type Reagent Shelf (Main Type) 1200 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	78	234					
3.70	Fixed Type Reagent Shelf (Main Type) 1050 L- Cutout : 6 Module + 6 Module (Total 2 Cutours Only)	Nos.	5	15					
3.80	Fixed Type Reagent Shelf (Add On Type) 900 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	13	39					
3.90	Fixed Type Reagent Shelf (Add On Type) 900 L- Cutout : 6 Module	Nos.	13	39					
3.10	Fixed Type Reagent Shelf (Add On Type) 750 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	14	42					
3.11	Fixed Type Reagent Shelf (Add On Type) 750 L- Cutout : 3 Module + 3 Module (Total 2 Cutouts Only)	Nos.	14	42					
3.12	Fixed Type Reagent Shelf (Add On Type) 600 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	2	6					
3.13	Fixed Type Reagent Shelf (Add On Type) 1500 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	66	198					
3.14	Fixed Type Reagent Shelf (Add On Type) 1200 L- Cutout : 6 Module + 6 Module (Total 2 Cutouts Only)	Nos.	38	114					
3.15	Fixed Type Reagent Shelf (Add On Type) 1050 L- Cutout : 6 Module + 6 Module (Total 2	Nos.	1	3					

Sr. No.	Description	UOM	Qty for each site	Total Estimated Qty for 3 site	Unit Price at Consignee Site (excluding GST)	Applicable GST (%)	Applicable GST value/ unit	Unit price at consignee site	Total Price is at consignee site (Rs.)
1	2	3		4	5	6	7=(5 X6)	8=(5+7)	9=(4X8)
	Cutouts Only)								
				0					
4.00	**Sinks, water supply and Accessories:**			0					
4.10	Pp Drop-In Sink Model S 06 560 Mm (W) X 355 Mm (D)	Nos.	431	1293					
4.20	Single Water Faucet, Deck Mounted, 8" Swing Gooseneck, Without Positioning Pins Model No. 253408410 01 - 08	Nos.	431	1293					
4.30	Anti-Siphon Bottle Trap Model : S 04 Make: Premier	Nos.	431	1293					
4.40	Flexible/F Serated Connector Model : Hp 01 Make: Premier	Nos.	431	1293					
				0					
5.00	**Providing and supply of Electrical accessories**			0					
5.10	6 Module Plate - Model No: Cs956M-S	Nos.	1924	5772					
5.20	16A, 1 Way Switch Model No: M0130	Nos.	3848	11544					
5.30	6/16A, 6 Pin Shutter Socket - Model No: M1332	Nos.	3848	11544					
6.00	**Providing and supply of Granite Work Top : It shall be 20mm(+/-1mm) thick Jet Black Granite worktop.**								
6.10	Jet Black Granite (Sq.Mt.) 20 (±2) Mm Thk	Sq. Mtrs.	1000	3000					
6.20	Neoprene Strip (Running Meter) (30Mm Wide & 6 Mm Thick)	R.M trs.	4130	12390					
6.30	Sr-998 Glue For Neoprene Mat. (Litres)	R.M trs.	121	363					
6.40	Silicon Sealant - Black	Nos.	63	189					
6.50	Masking Tape	R.M	63	189					

Sr. No.	Description	UOM	Qty for each site	Total Estimated Qty for 3 site	Unit Price at Consignee Site (excluding GST)	Applicable GST (%)	Applicable GST value/ unit	Unit price at consignee site	Total Price is at consignee site (Rs.)
1	2	3		4	5	6	7=(5 X6)	8=(5+7)	9=(4X8)
		trs.							
7.00	**Lab Stool**	Nos.	643	1929					
8.00	Gas Piping	R.M trs.	100	300					
9.00	Gas Outlets	**Nos.**	20	60					
10.00	Gas Manifold	**Nos.**	3	9					
11	Miscellaneous	**Set**	1	3					
	Total Amount:								
	Total Amount: in word								

Added Para:
Click on the below link to download the Drawing :

https://drive.google.com/drive/folders/1NaATDNasLEk8I8QtMGgUX3L4gGVkIDQr?usp=sharing

All other contents of the Tender enquiry including terms & conditions remain unaltered.
Note:

I. **Prospective Bidders are also advised to check the website regularly prior to the closing date and time of online submission of bids**