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Contract Ref:	-	Year	2014
Laboratory	Chemical		

Laboratory benches and cabinets specification

Item 1: Laboratory Work Benches with cabinets, and shelves

Laboratory:	CHEMICAL LABORATORY/ food lab, chemical and agricultural.
Item Name:	Laboratory Work Benches with cabinets, and shelves
Description	<p>Heavy duty modular bench with a chemical resistant phenolic or epoxy resin top high pressure post forming horizontal grade laminates. The epoxy or phenolic resin laminated on Medium Density Fiberboard (MDF) which is a type of hardboard made from wood fibers glued under high heat and pressure. It shall be most suitable laboratory surface which is heat, shock, impact resistant and impervious to liquids. Modular units shall be suitable for wall, peninsula or island configurations.</p>
Technical Specifications:	<p>1. Bench</p> <ol style="list-style-type: none"> 1. The laboratory benches shall consist of tables with tops made of 1" thick black phenolic or epoxy resin laminate that withstands moisture and resists chemicals, suitable for heavy duty lab use (Top lab plus). The chemical resistance shall show excellent resistance against acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and bleaching substances. The benches shall also be impact resistant with rounded safety edge. 2. Bench system shall be assembled to adjustable steel or aluminum frame with slotted uprights which will support the upper shelving and work surface table frame. 3. Tubular Frames: Vertical support structure for tables, shelves and

Laboratory:	CHEMICAL LABORATORY/ food lab, chemical and agricultural.
	<p>service chase designed for service lines, data and electrical cables.</p> <ol style="list-style-type: none"> a. Electric/data, outlets, and service supply lines are contained in the tubular frame serving as a utility chase. b. The vertical height of table shelves shall be adjustable on 1" increments and two layers of shelves above the table. c. Services including electric/data, phone, and plumbing; all terminate at the top of the vertical support/chase. d. The bench system shall be modular type <ol style="list-style-type: none"> 4. The benches need to be fitted (on site) to a metal carrying frame made of steel tubing in shape of 60 x 30mm with 2 mm thickness. The perpendicular steel frames shall have steel horizontal base as a feet and shall be free standing. All metal parts shall be coated with epoxy-resin powder with the most modern processes of anti-rust protection and chemical resistant. 5. The chemical resistance of the frames like the tables shall include acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and bleaching substances. Samples shall pass test for these chemicals before delivery. The table frames shall be of modular work surface support structures allowing mechanically fastened height adjustability. That is, it shall be free standing and adjustable height work surface frames equipped with leveling device. 6. The benches shall be aesthetically appealing and durable with at least three years warranty 7. Steel ball-bearing drawer slides, multi-circuit power management, heavy-duty work surface construction, and fully welded steel assemblies are critically required in all of the cases. 8. Three drawers, modular and mountable base cabinets coated with chemical resistant epoxy resin powder. These Cabinets shall be constructed from 0.8mm thick electrogalvanized plate. All joints are welded to ensure rigidity of the cabinet carcass. The entire cabinet shall be coated with baked epoxy powder. Hinged doors and drawers shall be provided with silence pads to reduce noise during closure. 9. Ceiling panels shall have junction boxes factory attached for Electrical outlets, data outlets, cover plates and service fixtures attachment and field installed. 10. Size: The size of the tables shall be in three categories

Laboratory:	CHEMICAL LABORATORY/ food lab, chemical and agricultural.
	<p>a. Modular type tables of 1.83 x 0.92 m sized with aluminum or stainless steel coated frame with chemical resistant epoxy resins, heavy duty frame to support the table</p> <p>Quantity: 8 tables</p> <p>Stand</p> <p>Double sided work station starter and adder for each One Back panel for each Two Top support Bracket LT and Two RT for each stand Bolts and washers to fix the frame, top support brackets Length: 2.14m Width: 0.30m Quantity: 8</p> <p>Shelf</p> <p>Phenolic resin coated shelf with steel (stainless or cold rolled) frame to be mounted above each table shall be of</p> <p>a. Material manufactured by Top Lab Plus. b. Shelf platforms shall be available in phenolic resin, or epoxy powder coated cold rolled steel with rims</p> <p>size: 1.77 x 0.36 m</p> <p>Quantity: 10 over bench shelves 4 under bench shelves</p> <p>b. Modular type tables of 1.22 x 0.92 m sized with aluminum or stainless steel frames laminated with chemical resistant epoxy resins,</p> <p>Quantity: 8 tables</p> <p>Stand</p> <p>Two Top support Bracket Left Triangle and Two Top support</p>

<p>Laboratory:</p>	<p>CHEMICAL LABORATORY/ food lab, chemical and agricultural.</p> <p>Bracket Right Triangle for each stand. Bolts and washers to fix the frame, top support brackets Back panel for each. Length: 2.14m Width: 0.30m Quantity: 8</p> <p>Shelf</p> <p>Phenolic resin coated shelf with steel (stainless or cold rolled) frame to be mounted above each table shall be of</p> <ul style="list-style-type: none"> • Material manufactured by Top Lab Plus standard. • Shelf platforms shall be available in phenolic resin, or epoxy powder coated cold rolled steel with rims <p>size: 1.16 x 0.36 m (should fit in to table specification)</p> <p>Quantity: 8 over bench shelves</p> <p style="padding-left: 40px;">4 under bench shelves</p> <p>c. Modular type tables of 0.94 x 0.94 m sized with aluminum or stainless steel frames laminated with chemical resistant epoxy. This is to join two sets of benches to make peninsular type of layout.</p> <p style="padding-left: 40px;">Quantity: 8 tables</p> <p>Adjustable leg support sub-assembly to support the tables at one corner with inserts in the underside of the corner work surface to fix the adjustable leg support</p> <p style="padding-left: 40px;">Length: adjustable up to one meter Quantity: 8</p> <p>2. MOBILE and /or SUSPENDED BASE CABINETS</p> <ul style="list-style-type: none"> • Cabinets shall be constructed of prime 18 gauge steel for the sides, backs, and toe space • Base cabinets shall incorporate an inset flush door and drawer or flush overlay design in which the cabinet body is completely
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Laboratory:	CHEMICAL LABORATORY/ food lab, chemical and agricultural.												
	<p>concealed.</p> <ul style="list-style-type: none"> • Under bench cabinets shall be mobile and mountable (suspended) independent of modular size so as to allow sitting niches are possible anywhere. • Self-closing hinges with Cathode Electronic Deposition (CED) coating for chemical and corrosion resistance. • Drawers: Drawer bodies shall be one piece 20 gauge constructions, fully covered on all four sides horizontally and formed out of one sheet of steel. • All parts of the body of each cabinet shall be coated with chemical resistant phenolic resin, or epoxy powder • The cabinets shall have three drawers of the following size <ul style="list-style-type: none"> a. Drawer 1 and 2 - 12 cm depth, 31.8 cm width and 50 cm length b. Drawer 3- 25 cm depth, 31.8 cm width and 50 cm length <p style="text-align: center;">Quantity: 16</p>												
Mandatory Requirements:	<table border="0" style="width: 100%;"> <tr> <td style="background-color: #e0f2f1;">Appearance</td> <td>Low sheen finish – black</td> </tr> <tr> <td style="background-color: #e0f2f1;">Chemical Resistance</td> <td>Excellent</td> </tr> <tr> <td style="background-color: #e0f2f1;">Heat Resistance</td> <td>Excellent</td> </tr> <tr> <td style="background-color: #e0f2f1;">Impact Resistance</td> <td>Excellent</td> </tr> <tr> <td style="background-color: #e0f2f1;">Moisture Resistance</td> <td>Excellent</td> </tr> <tr> <td style="background-color: #e0f2f1;">Bacteria Resistance</td> <td>Excellent</td> </tr> </table> <ul style="list-style-type: none"> • The supplier should supply Assembly instructions (manual) in English • All the stands should be double sided work station starter and adder • The supplier should demonstrate (show) the bench design, with all electrical system and its outlets, water connections and lighting • The supplier should indicate the warranty period 	Appearance	Low sheen finish – black	Chemical Resistance	Excellent	Heat Resistance	Excellent	Impact Resistance	Excellent	Moisture Resistance	Excellent	Bacteria Resistance	Excellent
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Bacteria Resistance	Excellent												
Delivery:	Not more than 8 weeks from the time of the order placement												
Reference Product:	<ul style="list-style-type: none"> • Company: IAC Industries • Model: D4 work station • or equivalent reference product 												

Item 2: Stainless steel Laboratory Work Benches with sink

Laboratory:	CHEMICAL LABORATORY/ food, Agri and chemical
Item Name:	Laboratory Work Benches with sink (stainless Steel)
Description	Heavy duty modular bench with a chemical resistant stainless steel laminated top high pressure post forming horizontal grade laminates. It shall be most suitable laboratory surface which is heat, shock, impact resistant and impervious to liquids. Modular units shall be suitable for wall, peninsula or island configurations.
Technical Specifications:	<p>Bench</p> <ol style="list-style-type: none"> 1. These bench tops shall be made of stainless steel that withstands moisture and resists chemicals, suitable for heavy duty lab use (Top lab plus) with two sinks in one bench. The chemical resistance shall show excellent resistance against acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and bleaching substances. The benches shall also be impact resistant with rounded safety edge. 2. Bench system shall be constructed of adjustable steel or aluminum frame with slotted uprights which will support the upper shelving and work surface table frame. 3. Tubular Frames: Vertical support structure for tables, shelves and service chase designed for service lines, data and electrical cables. <ul style="list-style-type: none"> • Electric/data, outlets, and service supply lines are contained in the tubular frame serving as a utility chase. • The vertical height of table shelves shall be adjustable on 1" increments and two layers of shelves above the table. • Services including electric/data, phone, and plumbing; all terminate at the top of the vertical support/chase. • The bench system shall be modular 4. The benches need to be fitted (on site) to a metal carrying frame made of steel tubing in shape of 60 x 30mm with 2 mm thickness. The perpendicular steel frames shall have steel horizontal base as a feet and shall be free standing. All metal parts shall be coated with epoxy-resin powder with the most modern processes of anti-rust protection and chemical resistant. 5. The chemical resistance of the frames like the tables shall include acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and

Laboratory:	CHEMICAL LABORATORY/ food, Agri and chemical
	<p>bleaching substances. It shall pass test for these chemicals. The table frames shall be of modular work surface support structures allowing mechanically fastened height adjustability. That is, it shall be free standing and adjustable height work surface frames equipped with leveling device.</p> <ol style="list-style-type: none"> 6. The benches shall be aesthetically appealing and durable with at least three years warranty 7. Steel ball-bearing drawer slides, multi-circuit power management, heavy-duty work surface construction, and fully welded steel assemblies are critically required in all of the cases. 8. Three drawers, modular and mountable base cabinets coated with chemical resistant epoxy resin powder. These Cabinets shall be constructed from 0.8mm thick electro galvanized plate. All joints are welded to ensure rigidity of the cabinet carcass. The entire cabinet shall be coated with baked epoxy powder. Hinged doors and drawers shall be provided with silence pads to reduce noise during closure. 9. Ceiling panels shall have junction boxes factory attached for Electrical outlets, data outlets, cover plates and service fixtures attachment and field installed. <ul style="list-style-type: none"> • Size: The size of the benches shall be modular type tables of 1.83 x 0.92 m sized with aluminum or stainless steel coated frame with chemical resistant epoxy resins, <p style="text-align: center;">Quantity: 2 benches</p> <p>Sinks</p> <ul style="list-style-type: none"> • Stainless steel sinks with drain boards: Sinks of SS 304 (18% chrome and 8% nickel) make which have large and extra deep bowls for bulky utensils to be used in required areas. They shall have non – rusting, easy to maintain, hygienic and satin/matte finish and can be fitted with the worktops made of vitrified ceramic, tiles, marble stainless steel and epoxy surfaces. • Excellent resistance against moderate acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and bleaching substances. • The sink should fit with the above stainless steel bench • They shall also have sloping drain board for easy drainage and special

Laboratory:	CHEMICAL LABORATORY/ food, Agri and chemical												
	<p>coupling to stop hot or soapy water.</p> <ul style="list-style-type: none"> The laboratory sinks shall be deeper than those commonly used in kitchens in order to make glassware rinsing easier and to minimize splashing. <p>Supplies</p> <ul style="list-style-type: none"> Laboratory casework, which includes cabinets below the laboratory bench with water boiler Water Faucets: Shall be laboratory grade, and water faucets and valve bodies shall be cast red brass alloy or bronze forgings, All fittings shall be powder plated. The water valve should be W/L series needle valve Inlet connection: 3/8" female NPT Materials: PVC, Natural polypropylene, PVDF Seal material: Virgin PTFE Configuration: Deck or wall mount Operating Pressure range: 15- 200 PSI The maximum Deck or wall Thickness is 3" A polypropylene waste trap (stench trap) is available for connection to the waste-water pipe, whether horizontal or vertical. Connection: 1½" female screw x 100 mm Standard dimension L x W x D (mm): 520 x 440 x 250 mm <p>The sink should be fitted with the bench</p> <p>With all accessories for the water boiler and sink fittings</p> <p>Quantity : 4</p>												
Mandatory Requirements:	<table border="0"> <tr> <td>Appearance</td> <td>Low sheen finish – black</td> </tr> <tr> <td>Chemical Resistance</td> <td>Excellent</td> </tr> <tr> <td>Heat Resistance</td> <td>Excellent</td> </tr> <tr> <td>Impact Resistance</td> <td>Excellent</td> </tr> <tr> <td>Moisture Resistance</td> <td>Excellent</td> </tr> <tr> <td>Bacteria Resistance</td> <td>Excellent</td> </tr> </table> <ul style="list-style-type: none"> The supplier should supply Assembly instructions (manual) in English 	Appearance	Low sheen finish – black	Chemical Resistance	Excellent	Heat Resistance	Excellent	Impact Resistance	Excellent	Moisture Resistance	Excellent	Bacteria Resistance	Excellent
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	<ul style="list-style-type: none"> • All the stands should be double sided work station starter and adder • The supplier should demonstrate (show) the bench design, with all electrical system and its outlets, water connections. • The sinks should be excellent resistance against acids, alkaline solutions, coloring and corrosive substances, ketones, alcohols, esters, aromatics, chlorinated and aliphatic hydrocarbons, oxidizing and bleaching substances. • All the sinks should be fitted with the stainless steel benches • The supplier should indicate the warranty period
Delivery:	Not more than 8 weeks from the time of the order placement
Reference Product:	<ul style="list-style-type: none"> • Company: IAC Industries • Model: D4 work station • or equivalent reference product

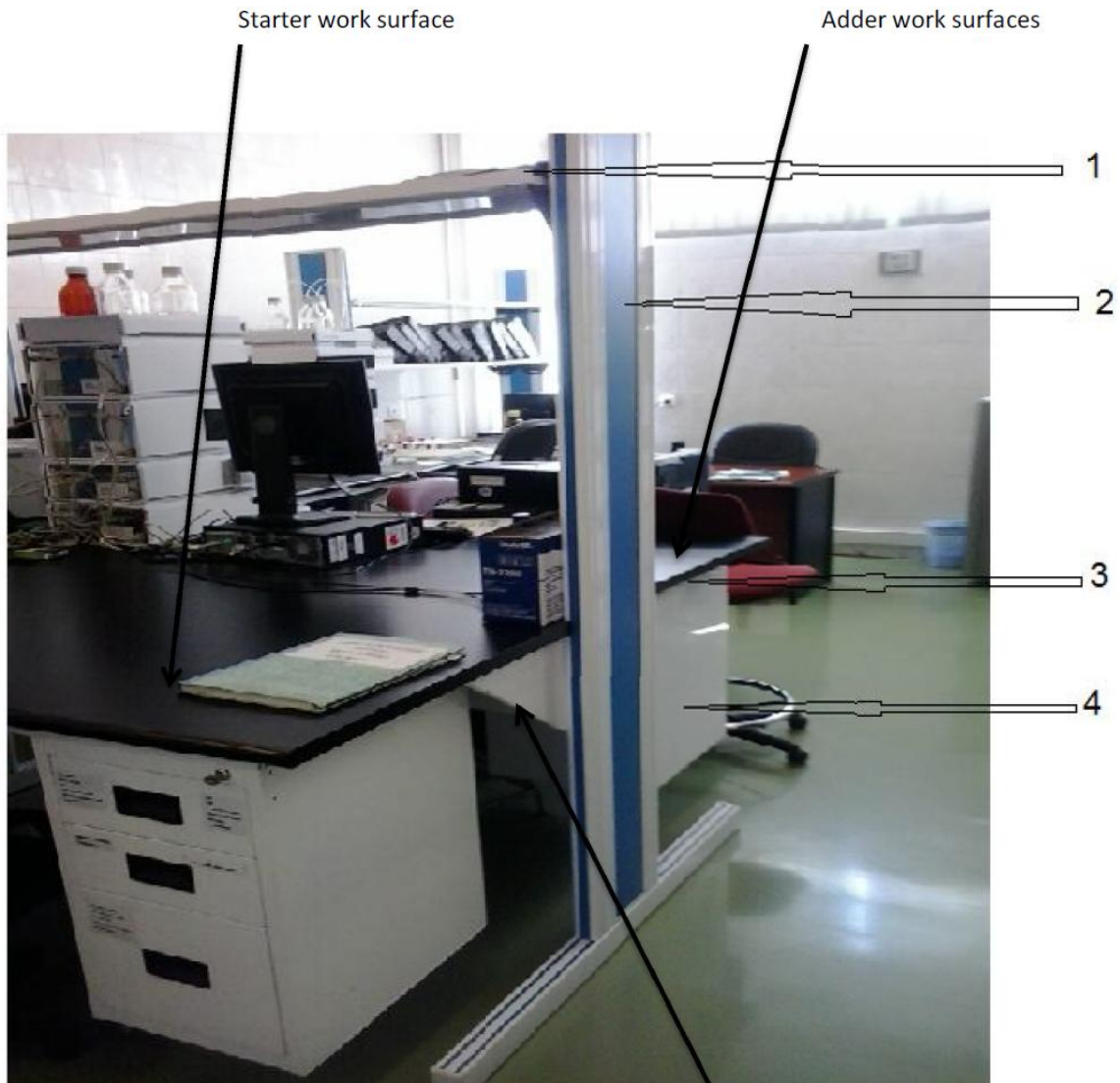
NB:

- All suppliers shall produce samples for testing for the mandatory requirements listed above before delivery of the benches or shall present third party certificate of conformity. Only laboratory benches which comply to the requirement will be acceptable.
- There may be a possibility for the successful bidder to supply similar benches for other rooms for the same price.
- Interested bidder can visit the sample benches at ECAE laboratories near AMCE.

Picture of the bench

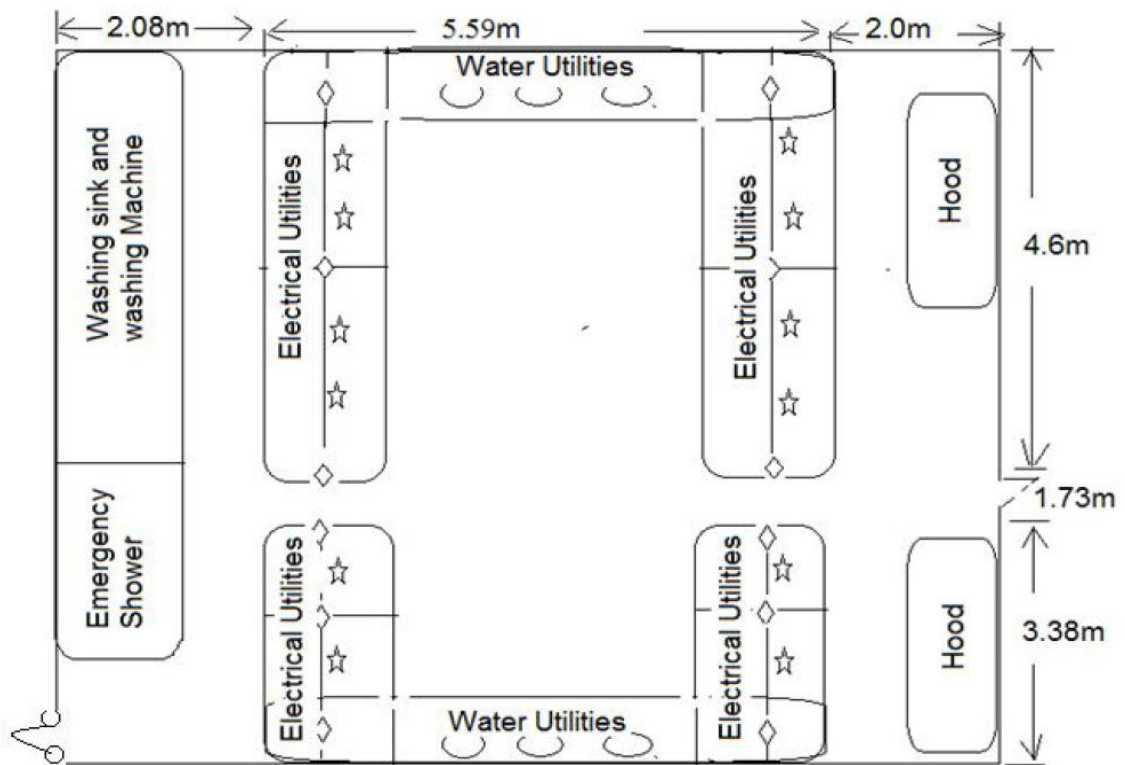
Bench parts





1. Above bench shelf
2. Stand
3. Bench
4. Cabinet
5. Bracket

Floor plan



Floor plan of sample preparation room.