

**BID REQUEST NO.: 18 9020 DU U STRATEGIC SOURCING SPECIALIST: Darla Higgins**

**TITLE: Ambulatory Surgery Unit Lab Space Furniture System**

**PHONE NO.: (573) 884-8695**

**ISSUE DATE: April 5, 2018 E-MAIL:** [**higginsdj@umsystem.edu**](mailto:higginsdj@umsystem.edu)

**RETURN BID NO LATER THAN: April 19th, 2018 AT 12:00 PM**

**MAILING INSTRUCTIONS:** Print or type **Bid Request No.** and **Return Due Date** on the lower left hand corner of the envelope or package. Bids are to be contained in a sealed envelope and delivered to the following address by the return date and time noted above. ***Electronic Bid Submissions will not be accepted.***

**RETURN BID TO: UM Procurement Services**

**2910 LeMone Ind. Blvd.**

**Columbia, MO 65201**

You are invited to submit bids on the items or services specified. All bids must be made on this form and shall be subject to the terms and conditions on the reverse side hereof for furnishing items or services of the description listed below. Unless otherwise specified herein, all deliveries shall be made **FOB DESTINATION** with freight charges fully included and prepaid. The seller pays and bears the freight charges.

In compliance with this bid request and subject to all of the terms and conditions thereon, bidder offers and agrees to furnish or deliver the items or perform the services upon which prices are quoted herein, such items or services to be provided within the number of days indicated after receipt by bidder of University Purchase Order. Only cash discounts having a period of thirty (30) days or more will be taken into account in determining the lowest bid. Discount time is compiled from day of delivery and acceptance of items or services or receipt of correct invoice, whichever is later.

The bidder further agrees that the language of this bid document shall govern in the event of a conflict with his/her bid. The bidder further agrees that upon receipt of an authorized purchase order from the University of Missouri or when a Notice of Award is signed and issued by an authorized official of the University of Missouri, a binding contract shall exist between the bidder and The Curators of the University of Missouri.

**SIGNATURE REQUIRED**

|  |  |  |
| --- | --- | --- |
| **DOING BUSINESS AS (DBA) NAME** |  | **LEGAL NAME OF ENTITY/INDIVIDUAL FILED WITH IRS FOR THIS TAX ID NO.** |
| **MAILING ADDRESS** | **IRS FORM 1099 MAILING ADDRESS** |
| **CITY, STATE, ZIP CODE** | **CITY, STATE, ZIP CODE** |

|  |  |  |  |
| --- | --- | --- | --- |
| **CONTACT PERSON** | | **EMAIL ADDRESS** | |
| **PHONE NUMBER** | | **FAX NUMBER** | |
| **TAXPAYER ID NUMBER (TIN)** | **TAXPAYER ID (TIN) TYPE (CHECK ONE)**  \_\_\_ FEIN \_\_\_ SSN | | **VENDOR NUMBER (IF KNOWN)** |
| **VENDOR TAX FILING TYPE WITH IRS (CHECK ONE) (NOTE: LLC IS NOT A VALID TAX FILING TYPE.)**  \_\_\_ Corporation \_\_\_ Individual \_\_\_ State/Local Government \_\_\_ Partnership \_\_\_ Sole Proprietor \_\_\_Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **AUTHORIZED SIGNATURE** | | **DATE** | |
| **PRINTED NAME** | | **TITLE** | |

**BID REQUEST AND BID CONDITIONS**

This Bid Request and Bid is made upon and subject to the following conditions, all of which are accepted by bidder. Upon acceptance by University, this Bid Request and Bid and the University Purchase Order issued thereon shall constitute the contract for furnishing the items described in the bid in strict conformity with the contract instruments.

1. No oral explanation in regard to the meaning of the specifications will be made, and no oral interpretation will be given before the award of the contract. If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of any part of the specifications or any other proposed contract documents, he may submit to the University a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made by addendum duly issued or delivered to each person receiving a set of such documents. The University will not be responsible for any other explanation or interpretations of the proposed documents.

2. The University reserves the right to reject any and all bids and to waive any informality in bids.

3. Whenever the name of a manufacturer or vendor is mentioned on the face hereon and words "or equal" do not follow, it shall be deemed that the words "or equal" shall follow such designation unless the context specifies "no substitution". University assumes that items bid as equal are equal. University reserves the right to return at the bidder's expense all items that are furnished which are not acceptable as equals to items specified by the Bid Request and Specifications, and vendor agrees to replace such items with satisfactory items at the original bid price.

4. All items bid shall be new unless otherwise specified by the University.

5. Bidder agrees to unconditionally guarantee all items bid upon against defects in material and workmanship for a period of one year from the date of acceptance by the University unless otherwise specified.

6. Unless it is so noted on the bid it will be deemed that the article furnished is that designated. If the vendor proposes to furnish an item of a different

manufacturer or vendor other than the one specified on the face hereof, the manufacturer or vendor of the substituted items shall be noted and complete descriptive literature describing the items to be substituted must accompany the bid.

7. Materials and services furnished the University are not subject to either Federal Excise Taxes or the Missouri Sales Tax. Exemption certificates will be furnished on request.

8. Prices quoted are to be firm and final and prices shall be stated in units of quantity specified with packing and drayage charges included.

9. Shipments shall be marked as directed on the Purchase Order.

10. C.O.D. shipments will not be accepted. Unless otherwise specified herein, all shipping charges must be PREPAID. No packing or drayage charges will be allowed.

11. The University will not be responsible for articles or services furnished without a Purchase Order.

12. Risk of loss or damage to the goods prior to the time of their receipt and acceptance by the University is upon the vendor.

13. All invoices and correspondence shall show the Purchase Order Number. All invoices must be rendered in duplicate and contain full descriptive

information on items or service furnished. Separate invoices shall be rendered for each order and forwarded to the University.

14. Vendor agrees to defend, protect and save the University harmless from all claims and actions arising out of patent infringement.

15. University reserves the right to cancel all or any part of orders if shipment is not made as promised. Vendor shall notify the University if shipment cannot be made as promised. Time of proposed delivery must be stated in definite terms in the space provided.

16. The bidder hereby guarantees that no article listed herein is adulterated or misbranded within the meaning of the Federal Food, Drug and Cosmetic Act or an article which may not, under the provisions of Federal Law, be introduced into interstate commerce.

17. Samples, when required, are to be furnished prior to the date specified for receipt of bids.

18. In case of any doubt or difference of opinion as to the items to be furnished hereunder or the quality thereof, the decision of the UM Chief Procurement Officer shall be final and binding upon both parties.

19. The University reserves the right to award an order to the lowest aggregate bidder for all items or on an item basis, or a group of like items,

whichever is found to be in the best interest of the University. If a split award is not acceptable to a bidder, it must be stated in the bid response.

20. In awarding the contract, the University may take into consideration the skill, facilities, capacity, experience, ability, responsibility, previous work, the financial standing of the bidder or bidders; the amount of other work being carried on by the bidder; the quality, efficiency, and construction of the equipment proposed to be furnished; the period of time within which the equipment is to be furnished and delivered; and the necessity of prompt delivery of the items herein described. The inability of any bidder to meet the requirement mentioned above may be cause for rejection of his bid.

21. In the event that time and materials are a portion of this bid, the University reserves the right to audit vendor's records concerning this bid.

22. All items or services to be furnished hereunder shall meet all applicable State and Federal requirements of the Occupational Safety and Health Standard. All alleged violations and deviations from said State and Federal regulations or standards of the items of services to be furnished hereunder, must be set forth on the Bid Form at the time of submission of the bid. Or if at any later date the items or services contained herein shall not meet all applicable state and federal requirements after the bidder is awarded the contract hereunder the bidder must notify the Campus Purchasing Manager, immediately by certified mail, return receipt requested.

23. The University serves from time to time as contractor for the United States Government. Accordingly, the provider of goods and/or services shall

comply with federal laws, rules, and regulations applicable to subcontractors of government contracts including those relating to equal employment

opportunity and affirmative action in the employment of minorities (Executive Order 11246), women (Executive Order 11375), persons with disabilities (29 USC 706 and Executive Order 11758), and certain veterans (38 USC 4212 formerly [2012]) contracting with business concerns with small disadvantaged business concerns (Publication L. 95-507). Contract clauses required by the Government in such circumstances are incorporated herein by reference.

24. The Curators of the University of Missouri have adopted a policy which is binding upon all employees and departments of the University, and which by contract shall be binding upon independent contractors and subcontractors with the University, whereby all other things being equal, and when the same can be secured without additional cost over foreign products, or products of other states, a preference shall be granted in all construction, repair and purchase contracts, to all products, commodities, materials, supplies and articles mined, grown, produced and manufactured in marketable quantity in the State of Missouri and to all firms, corporations or individuals doing business as Missouri, firms, corporations, or individuals. By virtue of the foregoing policy, preferences will be given to materials, products, supplies, or provisions, and all other articles produced, manufactured, mined or grown within the State of Missouri, and to all firms, corporations or individuals doing business as Missouri firms, corporations or individuals. Each bidder submitting a proposal agrees to comply with and be bound by the foregoing policy.

**University of Missouri – Columbia, MO**

**Request for Bid**

**18-9020-DH-U Ambulatory Surgery Unit Lab Space Furniture System**

The University of Missouri-Procurement Services requests bids for the Furnishing, Delivery and Installation of Ambulatory Surgery Unit Lab Space Furniture System, as described herein.

**QUESTIONS:**

1. For all procurement related questions, please contact Darla Higgins, Strategic Source Specialist for all Procurement related questions, 573.884.8695 or via email at, [higginsdj@umsystem.edu](mailto:higginsdj@umsystem.edu)
2. For all project/ detailed specification questions, please contact Paulette Wilkinson at 573.882.0053, or

[wilkinsonp@health.missouri.edu](mailto:wilkinsonp@health.missouri.edu)

**AWARD:**

1. The University of Missouri reserves the right to award the bid on a line by line basis or on an all or none basis, whichever is determined to be in the best interest of the University. The University of Missouri reserves the right to award to the bid to the vendor(s) that can provide the product the fastest.
2. Bidders must price product as specified.
3. Bidders must quote Prevailing Wage rate for installation services.
4. The awarded vendor(s) may visit the site to verify dimensions if desired or required after award of bid(s).

**DELIVERY:**

1. Delivery and installation shall be coordinated with Paulette Wilkinson,

[wilkinsonp@health.missouri.edu](mailto:wilkinsonp@health.missouri.edu)

1. The Awarded vendor shall maintain possession of the product from shipping to delivery through installation. Installers must be present and ready to install at the time of delivery. Products are to be delivered to the University of Missouri, Columbia, MO.
2. The University wants to ensure it receives the absolute lowest bid on all actual items being purchased. Therefore, effective immediately, without exception all bidders must show the shipping costs (freight) as a separate line item on the bid proposal and invoices. If shipping costs are being included in the product unit cost, deduct the amount added for shipping and break it out as a separate line item. Freight terms to be FOB Destination.
3. The quantity of each item to be delivered shall be specified by the University of Missouri Procurement Services Department and their authorized representative. The University will be responsible only for those items the successful bidder has been requested to deliver by the University of Missouri Procurement Service Department.
4. The University reserves the right to return at the bidder’s expense, shipments failing to meet the specification.

**INSTALLATION:**

1. If installation services are available from the bidder, the bidder shall list installation costs as a separate line item on their bid, including all labor and materials necessary to complete the installation.
2. The supplier shall be responsible for any damage to the facility incurred during installation. Building repairs will be done by University personnel and/or University approved personnel. Supplier will be billed on a time and material basis to fix any damage resulting from the installation of the equipment.
3. The University reserves the right to select or not select supplier installation at the time of bid award.

**INSURANCE:** If the bidder has provided a bid including installation, and installation is determined to be necessary by the University, the following insurance requirements must be met BEFORE the Contractor will be allowed on University premises to install the equipment.

1. Coverage to be provided as follows by a carrier with A.M. Best minimum rating of A- XI:

|  |  |
| --- | --- |
| **Coverage** | **Minimum Limits** |
| Workers Compensation | Statutory |
| Employers Liability | $500,000 |
| Auto Liability  (To included Owned, Hired, and Non-owned) | $1,000,000 Combined Single Limit, Per Occurrence and $3,000,000 Aggregate |
| Commercial General Liability  (Commercial Form MUST include:  Premises & Operations, Contractual, and Products/completed Operations Exposure)  Occurrence coverage is required. | $1,000,000 Combined Single Limit, Per Occurrence and $3,000,000 Aggregate |

1. The Curators of the University of Missouri, its officers, employees and agents are to be Additional Insured with respect to the project to which these insurance requirements pertain. A certificate of insurance evidencing all coverage required is to be provided at least 10 days prior to the inception date of the contract between the contractor and the University. The University must receive at least 10 days advance notice in the event of policy cancellation or material change to the policy.
2. The University reserves the right to require higher limits on any contract provided notice of such requirement is stated in the request for bids for such contract.
3. Failure to maintain the required insurance in force may be cause for contract termination. In the event the Contractor fails to maintain and keep in force the required insurance, the University shall have the right to cancel and terminate the contract without notice.
4. The insurance required by the provisions of this article is required in the public interest and the University does not assume any liability for acts of the Contractor, any Subcontractor, or their employees in the performance of the contract.

### INDEMNIFICATION:

1. The Contractor agrees to defend, indemnify, and save harmless The Curators of the University of Missouri, their Officers, Agents, Employees and Volunteers, from and against all loss or expense from any cause of action arising from the Contractor’s operations. The contractor agrees to investigate, handle, respond to and provide defense for and defend against any such liability, claims, and demands at the sole expense of the Contractor or at the option of the University, agrees to pay to or reimburse the University for the Defense Costs incurred by the University in connection with any such liability claims, or demands.
2. The parties hereto understand and agree that the University is relying on, and does not waive or intend to waive by any provision of this Contract, any monetary limitations or any other rights, immunities, and protections provided by the State of Missouri, as from time to time amended, or otherwise available to the University, or its officers, employees, agents or volunteers.

**DETAILED SPECIFICATIONS/DRAWINGS:**

**BID FORM – CASEWORK**

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**SECTION 12 35 53 - METAL LABORATORY CASEWORK**

**Revise this Section by deleting and inserting text to meet Project-specific requirements.**

**This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.**

**Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.**

1. **GENERAL**
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      1. SUMMARY
         1. Section Includes:

This Section is for specifying standard laboratory casework; if custom products are required, consider indicating that in appropriate subparagraphs below.

Metal laboratory casework.

Utility-space framing at backs of base cabinets.

Filler and closure panels.

Laboratory countertops.

Tables.

Shelves.

Laboratory sinks.

Laboratory accessories.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 06 10 00 "Rough Carpentry" for wood blocking for anchoring laboratory casework.

Section 09 22 16 "Non-Structural Metal Framing" for reinforcements in metal-framed partitions for anchoring laboratory casework.

Section 09 65 13 "Resilient Base and Accessories" for resilient base applied to metal laboratory casework.

Section 11 53 13 "Laboratory Fume Hoods" for fume hoods**,**including base cabinets and countertops under fume hoods.

Section 12 35 60 "Laboratory Furniture System” for mobile laboratory casework.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

Retain "Keying Conference" Paragraph below if locks are required to be keyed as directed.

* + - 1. COORDINATION

Usually delete first paragraph below and show reinforcements on Drawings. Delete if cabinets are installed directly on masonry or on continuous hanging strips, or if using support framing system.

* + - * 1. Coordinate layout and installation of framing and reinforcements for support of laboratory casework.
        2. Coordinate installation of laboratory casework with installation of fume hoods and other laboratory equipment.
      1. ACTION SUBMITTALS
         1. Product Data: For each type of product.
         2. Shop Drawings: For laboratory casework. Include plans, elevations, sections, and attachment details.

Indicate types and sizes of cabinets.

Retain applicable subparagraphs below.

Indicate locations of hardware.

Indicate locations and types of service fittings.

Indicate locations of blocking and reinforcements required for installing laboratory casework.

Retain first subparagraph below if casework includes a utility space.

Include details of utility spaces showing supports for conduits and piping.

Retain first subparagraph below if casework includes a support framing system.

Include details of support framing system.

Include details of exposed conduits, if required, for service fittings.

Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other laboratory equipment.

Include coordinated dimensions for laboratory equipment specified in other Sections.

* + - * 1. Keying Schedule: Include schematic keying diagram and index each key set to unique designations that are coordinated with the Contract Documents.

Delete "Samples for Initial Selection" Paragraph above if preselecting and specifying or scheduling colors and other characteristics. Retain one of two "Samples for Verification" paragraphs below with or without above.

* + - * 1. Samples for Verification: For each type of cabinet finish and each type of countertop material, in manufacturer's standard sizes.

Usually retain "Samples for Verification" Paragraph above and delete "Samples for Verification" Paragraph below; retain below if full-size Samples are required. Insert or delete Samples below to suit Project. Below may add cost to Project and may be unnecessary if restricting manufacturers to a list of those known to be acceptable.

* + - 1. INFORMATIONAL SUBMITTALS

Coordinate "Qualification Data" Paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

* + - * 1. Qualification Data: For manufacturer.
        2. Product Test Reports for Casework: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory casework with requirements of specified product standard.
        3. Product Test Reports for Countertop Surface Material: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory countertop surface materials with requirements specified for chemical and physical resistance.
      1. MAINTENANCE MATERIAL SUBMITTALS
         1. Furnish complete touchup kit for each type and color of metal laboratory casework provided. Include fillers, primers, paints, and other materials necessary to perform permanent repairs to damaged laboratory casework finish.
         2. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

"Cabinet Mounting Clips and Related Hardware" Subparagraph below is an example only; revise to suit Project.

Cabinet Mounting Clips and Related Hardware: Quantity equal to 5 percent of amount installed, but no fewer than 20 of each type.

"Modular Countertop Units" Subparagraph below is an example only; revise to suit Project.

Modular Countertop Units: Two extra units of each length and material installed.

* + - 1. QUALITY ASSURANCE

Usually retain first option in "Manufacturer Qualifications" Paragraph below for metal laboratory casework to help ensure that all bidders can comply with requirements. Retain last option if required for LEED. Before retaining, verify that manufacturers comply. See www.certifiedwood.org for a list of cabinet manufacturers that are certified for FSC chain of custody.

* + - * 1. Manufacturer Qualifications: A qualified manufacturer that produces casework of types indicated for this Project that has been tested for compliance with SEFA 8 M.
      1. DELIVERY, STORAGE, AND HANDLING
         1. Protect finished surfaces during handling and installation with protective covering of polyethylene film or other suitable material.
      2. FIELD CONDITIONS

Revise or delete "Environmental Limitations" Paragraph below if casework contains no wood products.

* + - * 1. Environmental Limitations: Do not deliver or install laboratory casework until building is enclosed, utility roughing-in and wet work are complete and dry, and temporary HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
        2. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before being enclosed, and indicate measurements on Shop Drawings.

1. **PRODUCTS**

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products. For an explanation of options and Contractor's product selection procedures, see Section 016000 "Product Requirements."

* + - 1. MANUFACTURERS

Retain "Manufacturers" Paragraph and list of manufacturers below to require products from manufacturers listed or a comparable product from other manufacturers.

* + - * 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Retain "Basis-of-Design Product" Paragraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed. Retain option and delete insert note if manufacturer's name and model number are indicated on Drawings.

[Kewaunee Scientific Corporation; Laboratory Products Group](http://www.specagent.com/LookUp/?uid=123456838541&mf=04&src=wd).

[Lab Crafters, Inc](http://www.specagent.com/LookUp/?uid=123456838542&mf=04&src=wd).

[Mott Manufacturing Ltd](http://www.specagent.com/LookUp/?uid=123456838544&mf=04&src=wd).

Bedcolab – Addendum 004

Hamilton Lab Solutions – Addendum 004

Institutional Casework Inc. (ICI) – Addendum 004

Or equal if and as specifically approved by Architect by Addendum during the bidding period.

* + - * 1. Source Limitations: Obtain laboratory casework from single source from single manufacturer unless otherwise indicated.

Retain "Product Designations" Paragraph below if using manufacturer's catalog numbers to designate cabinet types. Revise to suit office practice. Below may not be allowed for public projects.

* + - * 1. Product Designations: Drawings indicate sizes and configurations of laboratory casework by referencing designated manufacturer's catalog numbers. Other manufacturers' laboratory casework of similar sizes and similar door and drawer configurations and complying with Specifications may be considered.
      1. CASEWORK, GENERAL
         1. Casework Product Standard: Comply with SEFA 8 M, "Laboratory Grade Metal Casework."

Retain "Flammable Liquid Storage" Paragraph below if using flammable liquid storage cabinets. Retain second option if FM approval is required for insurance purposes.

* + - * 1. Flammable Liquid Storage: Where cabinets are indicated for solvent or flammable liquid storage, provide units that are listed and labeled as complying with requirements in NFPA 30 by a testing and inspecting agency acceptable to authorities having jurisdiction.
        2. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Retain "Regional Materials" Paragraph below for LEED-CI Credit MR 5, Option 1; before retaining, verify availability of materials that comply.

* + - 1. METAL CABINET AND TABLE MATERIALS
         1. Metal: Cold-rolled, commercial steel (CS) sheet, complying with ASTM A 1008/A 1008M; matte finish; suitable for exposed applications.

Usually delete "Nominal Metal Thickness" Paragraph below if retaining requirement for compliance with SEFA 8 M in "Casework, General" Article.

* + - * 1. Nominal Metal Thickness:

Sides, Ends, Fixed Backs, Bottoms, Tops, Soffits, and Items Not Otherwise Indicated: 0.048 inch (1.21 mm). Except for flammable liquid storage cabinets, bottoms may be 0.036 inch (0.91 mm) if reinforced.

Back Panels, Doors, Drawer Fronts and Bodies, and Shelves: 0.036 inch (0.91 mm) except 0.048 inch (1.21 mm) for back panels and doors of flammable liquid storage cabinets and for unreinforced shelves more than 36 inches (900 mm) long.

Intermediate Horizontal Rails, Table Aprons and Cross Rails, Center Posts, and Top Gussets: 0.060 inch (1.52 mm).

Drawer Runners, Sink Supports, and Hinge Reinforcements: 0.075 inch (1.90 mm).

Leveling and Corner Gussets: 0.105 inch (2.66 mm).

* + - 1. AUXILIARY CABINET MATERIALS

If glazed doors are required, retain one of three "Glass for Glazed Doors" paragraphs below; verify availability with manufacturers.

* + - * 1. Glass for Glazed Doors: Clear tempered glass complying with ASTM C 1048, Kind FT, Condition A, Type I, Class 1, Quality-Q3; not less than 5.0 mm thick.
      1. COUNTERTOP, TABLETOP, SHELF, TROUGH AND SINK MATERIALS
         1. Epoxy: Factory-molded, modified epoxy-resin formulation with smooth, nonspecular finish.

Retain "Manufacturers" Subparagraph and list of manufacturers below to require products from manufacturers listed or a comparable product from other manufacturers.

[Manufacturers](http://www.specagent.com/LookUp/?ulid=7096&mf=04&src=wd): Subject to compliance with requirements, provide products by one of the following:

[Durcon, Inc](http://www.specagent.com/LookUp/?uid=123456838549&mf=04&src=wd).

[Prime Industries, Inc](http://www.specagent.com/LookUp/?uid=123456838550&mf=04&src=wd).

American Epoxy Scientific – addendum 004

Or equal if and as specifically approved by Architect by Addendum during the bidding period.

Physical Properties:

Flexural Strength: Not less than 10,000 psi (70 MPa).

Modulus of Elasticity: Not less than 2,000,000 psi (1400 MPa).

Hardness (Rockwell M): Not less than 100.

Water Absorption (24 Hours): Not more than 0.02 percent.

Heat Distortion Point: Not less than 260 deg F (127 deg C).

Chemical Resistance: Epoxy-resin material has the following ratings when tested with indicated reagents according to NEMA LD 3, Test Procedure 3.4.5:

No Effect: Acetic acid (98 percent), acetone, ammonium hydroxide (28 percent), benzene, carbon tetrachloride, dimethyl formamide, ethyl acetate, ethyl alcohol, ethyl ether, methyl alcohol, nitric acid (70 percent), phenol, sulfuric acid (60 percent), and toluene.

Slight Effect: Chromic acid (60 percent) and sodium hydroxide (50 percent).

Color: Durcon: Gray ; As selected by Architect from manufacturer's full range.

Product in "Phenolic Composite" Paragraph below has pigmented surface film that can be scratched with sharp knife to reveal dark core. See Evaluations.

* + - 1. METAL CABINETS
         1. Fabrication: Assemble and finish units at point of manufacture. Use precision dies for interchangeability of like-size drawers, doors, and similar parts. Perform assembly on precision jigs to provide units that are square. Reinforce units with angles, gussets, and channels. Except where otherwise specified, integrally frame and weld cabinet bodies to form dirt- and vermin-resistant enclosures. Where applicable, reinforce base cabinets for sink support. Maintain uniform clearance around door and drawer fronts of 1/16 to 3/32 inch (1.5 to 2.4 mm).
         2. Flush Doors: Outer and inner pans that nest into box formation, with full-height channel reinforcements at center of door. Fill doors with noncombustible, sound-deadening material.
         3. Glazed Doors: Hollow-metal stiles and rails of similar construction as flush doors, with glass held in resilient channels or gasket material.
         4. Hinged Doors: Mortise for hinges and reinforce with angles welded inside inner pans at hinge edge.

"Drawers" Paragraph below describes typical metal drawer construction; revise if other construction is required. Delete option if retaining heavy-duty drawer slides in "Hardware" Article.

* + - * 1. Drawers: Fronts made from outer and inner pans that nest into box formation, with no raw metal edges at top. Sides, back, and bottom fabricated in one piece with rolled or formed top of sides for stiffening and comfortable grasp for drawer removal.

Retain first five paragraphs below if wood doors and drawer fronts are required. Verify availability with manufacturers.

* + - * 1. Adjustable Shelves: Front, back, and ends formed down, with edges returned horizontally at front and back to form reinforcing channels.

Delete "Toe Space" Paragraph below if laboratory casework is hung from support framing systems.

* + - * 1. Toe Space: Fully enclosed, 4 inches (100 mm) high by 4 inches (100 mm) deep, with no open gaps or pockets.
        2. Utilities: Provide space, cutouts, and holes for pipes, conduits, and fittings in cabinet bodies to accommodate utility services and their support-strut assemblies.

Retain subparagraph below if required.

Provide base cabinets with removable backs for access to utility space.

"Utility-Space Framing" Paragraph below is used to support utility services between back-to-back base cabinets and between base cabinets and walls where utilities are not within walls.

* + - * 1. Utility-Space Framing: Steel framing units consisting of two steel slotted channels complying with MFMA-4, not less than 1-5/8 inches (41 mm) square by 0.105-inch (2.66-mm) nominal thickness, that are connected at top and bottom by U-shaped brackets made from 1-1/4-by-1/4-inch (32-by-6-mm) steel flat bars. Framing units may be made by welding specified channel material into rectangular frames instead of using U-shaped brackets.
        2. Filler and Closure Panels: Provide where indicated and as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets and with hemmed or flanged edges unless otherwise indicated.

Provide knee-space panels (modesty panels) at spaces between base cabinets, where indicated. Fabricate from back-to-back panels or of hollow construction to eliminate exposed hemmed or flanged edges.

Delete subparagraphs below if no utility space is required.

Provide utility-space closure panels at spaces between base cabinets where utility space would otherwise be exposed, including spaces below countertops.

Provide closure panels at ends of utility spaces where utility space would otherwise be exposed.

* + - 1. METAL CABINET FINISH
         1. General: Prepare, treat, and finish welded assemblies after assembling. Prepare, treat, and finish components that are to be assembled with mechanical fasteners before assembling. Prepare, treat, and finish concealed surfaces same as exposed surfaces.
         2. Preparation: After assembly, clean surfaces of mill scale, rust, oil, and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it.
         3. Chemical-Resistant Finish: Immediately after cleaning and pretreating, apply laboratory casework manufacturer's standard two-coat, chemical-resistant, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).

Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8 M. Acceptance level for chemical spot test shall be no more than four Level 3 conditions.

Insert other chemical-resistance requirements based on specific chemicals to be used in Project's laboratories if required.

Retain one of three options in "Colors for Metal Laboratory Casework Finish" Subparagraph below. If retaining first, indicate colors in a separate schedule.

Colors for Metal Laboratory Casework Finish: As selected by Architect from manufacturer's full range.

Insert other chemical-resistance requirements based on specific chemicals to be used in Project's laboratories if required. Also insert other test requirements to suit Project.

* + - 1. HARDWARE

Most laboratory casework manufacturers offer choices for cabinet hardware designs, materials, and finishes, but not all choices are available from all manufacturers. Verify availability with manufacturers.

* + - * 1. General: Provide laboratory casework manufacturer's standard, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.

Hardware items in "Hinges" Paragraph below are typical; revise to suit Project.

* + - * 1. Hinges: Stainless-steel, five-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide two for doors 48 inches (1200 mm) high or less and three for doors more than 48 inches (1200 mm) high.
        2. Hinged Door and Drawer Pulls: Stainless-steel back-mounted pulls. Provide two pulls for drawers more than 24 inches (600 mm) wide.

If retaining "Design" and "Overall Size" subparagraphs below, verify availability of designs and sizes with manufacturers. Delete if manufacturer's standard pulls are acceptable.

Design: Wire pulls.

Overall Size: 1-1/4 by 4-1/2 inches (32 by 114 mm).

Catches can be eliminated if using self-closing hinges. Roller spring catches cost more than magnetic catches but are more effective.

* + - * 1. Door Catches: Nylon-roller spring catches. Provide two catches on doors more than 48 inches (1200 mm) high.

Manufacturers' standard products may not comply with requirements in "Drawer Slides" Paragraph below; retaining below may increase cost.

* + - * 1. Drawer Slides: Side mounted, epoxy-coated steel, self-closing; designed to prevent rebound when drawers are closed; complying with BHMA A156.9, Type B05091.

Grades in first two subparagraphs below correspond to the following initial load test requirements: Grade 1, 50 lb (22.2 kg); Grade 1HD-100, 100 lb (44.5 kg); Grade 1HD-200, 200 lb (90 kg).

Provide Grade 1HD-100; for drawers not more than 6 inches (150 mm) high and 24 inches (600 mm) wide.

Provide Grade 1HD-200; for drawers more than 6 inches (150 mm) high or 24 inches (600 mm) wide.

* + - * 1. Label Holders: Stainless steel, aluminum, or chrome plated; sized to receive standard label cards approximately 1 by 2 inches (25 by 50 mm), attached with screws or rivets. Provide on all drawers.

Retain first option in "Locks" Paragraph below if more than 225 key changes are required. Most cabinet manufacturers offer disc tumbler locks as standard rather than pin tumbler locks. For laboratories in schools, delete second option, which allows cams attached with screws or nuts rather than permanently attached cams.

* + - * 1. Locks: Cam or half-mortise type with five-pin tumbler, brass with chrome-plated finish; complying with BHMA A156.11, Type E07281, Type E07111, or Type E07021.

Provide a minimum of two keys per lock and two master keys.

Retain one of two options in first subparagraph below or revise to suit Project.

Provide where indicated.

Keying: Key locks as directed.

Revise "Master Key System" Subparagraph below to provide grand master key system, if required, after verifying availability with manufacturers.

Master Key System: Key all locks to be operable by master key.

* + - 1. COUNTERTOPS, TABLETOPS , SHELVES , TROUGHS, AND SINKS
         1. Countertops, General: Provide units with smooth surfaces in uniform plane, free of defects. Make exposed edges and corners straight and uniformly beveled. Provide front and end overhang of 1 inch (25 mm), with continuous drip groove on underside 1/2 inch (13 mm) from edge.
         2. Sinks, General: Provide sizes indicated or laboratory casework manufacturer's closest standard size of equal or greater volume, as approved by Architect.

Outlets: Provide with strainers and tailpieces, NPS 1-1/2 (DN 40), unless otherwise indicated.

Overflows: For each sink except cup sinks, provide overflow of standard beehive or open-top design with separate strainer. Height 2 inches (50 mm) less than sink depth. Provide in same material as strainer.

* + - * 1. Epoxy Countertops, Tabletops and Sinks:

Countertop Fabrication: Fabricate with factory cutouts for sinks, holes for service fittings and accessories, and butt joints assembled with epoxy adhesive and concealed metal splines.

Retain one of three "Countertop Configuration" subparagraphs below; if retaining third, indicate configurations, including thicknesses, on Drawings.

Countertop Configuration: Raised (marine) edge, 1-inch (25-mm) minimum thickness, with integral or applied raised edge having rounded edge and corners, and with applied backsplash.

Countertop Construction: Uniform throughout full thickness.

Retain "Product Option" Subparagraph below for maximum competition if phenolic-composite countertops are acceptable.

Retain "Product Option" Subparagraph below for maximum competition if phenolic-composite tabletops are acceptable.

Sink Fabrication: Molded in one piece with smooth surfaces, coved corners, and bottom sloped to outlet; 1/2-inch (13-mm) minimum thickness.

Provide with polypropylene strainers and tailpieces.

Retain first subparagraph below for sinks installed in phenolic-composite countertops unless using underside mounting.

Provide integral sinks in epoxy countertops, bonded to countertops with invisible joint line.

Delete subparagraph below if all sinks are supported on countertops. Usually retain for epoxy sinks installed in epoxy or phenolic-composite countertops.

Provide manufacturer's recommended adjustable support system for table- and cabinet-type installations.

Phenolic composite has pigmented surface film that can be scratched with sharp knife to reveal black core. See Evaluations.

Coordinate three paragraphs below with Drawings. Generally use epoxy or polypropylene cup sinks and epoxy troughs with epoxy tops, stainless-steel cup sinks and troughs with stainless-steel tops, and either epoxy or stainless-steel cup sinks and troughs with plastic-laminate tops, depending on requirements for abrasion resistance, chemical resistance, sanitation, etc.

Some sink manufacturers use the term "polyolefin," which applies to polyethylene as well as to polypropylene. Polyethylene is an extremely inexpensive material that, although having good chemical resistance, has poor UV resistance. Both polyethylene and polypropylene scratch very easily and soften when heated but have excellent chemical resistance.

* + - * 1. Cup Sinks: Epoxy, 3-by-6-inch (75-by-150-mm) oval.

Provide with polypropylene strainers and integral tailpieces.

* + - 1. LABORATORY ACCESSORIES

Paragraphs in this article are examples only; revise to suit Project. Indicate sizes, configurations, and locations on Drawings.

* + - * 1. Reagent Shelves: Provide as indicated, fabricated from same material as adjacent countertop unless otherwise indicated.
        2. Pegboards: Epoxy pegboards with removable polypropylene pegs and stainless-steel drip troughs with drain outlet.

1. **EXECUTION**
   * + 1. EXAMINATION
          1. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of the Work.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION OF CABINETS
          1. Comply with installation requirements in SEFA 2.3. Install level, plumb, and true; shim as required, using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical. Do not exceed the following tolerances:

Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet (1.5 mm in 3 m).

Variation of Bottoms of Upper Cabinets from Level: 1/8 inch in 10 feet (3 mm in 3 m).

Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet (3 mm in 3 m).

Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch (0.8 mm).

Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch (1.5 mm).

* + - * 1. Utility-Space Framing: Secure to floor with two fasteners at each frame. Fasten to partition framing, wood blocking, or metal reinforcements in partitions and to base cabinets.
        2. Base Cabinets: Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions, with fasteners spaced not more than 16 inches (400 mm) o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform.

Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 24 inches (600 mm) o.c. and at sides of cabinets with not less than two fasteners per side.

* + - * 1. Wall Cabinets: Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 16 inches (400 mm) o.c.
        2. Install hardware uniformly and precisely. Set hinges snug and flat in mortises.
        3. Adjust laboratory casework and hardware so doors and drawers align and operate smoothly without warp or bind and contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.
      1. INSTALLATION OF COUNTERTOPS
         1. Comply with installation requirements in SEFA 2.3. Abut top and edge surfaces in one true plane with flush hairline joints and with internal supports placed to prevent deflection. Locate joints only where indicated on Shop Drawings.
         2. Field Jointing: Where possible, make in same manner as shop-made joints, using dowels, splines, fasteners, adhesives, and sealants recommended by manufacturer. Shop prepare edges for field-made joints.

Use concealed clamping devices for field-made joints in plastic-laminate countertops. Locate clamping devices within 6 inches (150 mm) of front and back edges and at intervals not exceeding 24 inches (600 mm). Tighten according to manufacturer's written instructions to exert a uniform heavy pressure at joints.

* + - * 1. Fastening:

Secure countertops, except for epoxy countertops, to cabinets with Z-type fasteners or equivalent, using two or more fasteners at each cabinet front, end, and back.

Secure epoxy countertops to cabinets with epoxy cement, applied at each corner and along perimeter edges at not more than 48 inches (1200 mm) o.c.

Where necessary to penetrate countertops with fasteners, countersink heads approximately 1/8 inch (3 mm), and plug hole flush with material equal to countertop in chemical resistance, hardness, and appearance.

* + - * 1. Provide required holes and cutouts for service fittings.
        2. Seal unfinished edges and cutouts in plastic-laminate countertops with heavy coat of polyurethane varnish.
        3. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.
        4. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
      1. INSTALLATION OF SINKS

Delete this article if all sinks are integral with countertops.

* + - * 1. Comply with installation requirements in SEFA 2.3.

Delete "Underside Installation of Epoxy Sinks" Paragraph below if all sinks are supported on countertops. Usually retain below for epoxy sinks installed in epoxy or phenolic-composite countertops.

* + - * 1. Underside Installation of Epoxy Sinks: Use laboratory casework manufacturer's recommended adjustable support system for table- and cabinet-type installations. Set top edge of sink unit in sink and countertop manufacturers' recommended chemical-resistant sealing compound or adhesive, and firmly secure to produce a tight and fully leakproof joint. Adjust sink and securely support to prevent movement. Remove excess sealant or adhesive while still wet and finish joint for neat appearance.

Retain "Semiflush Installation of Stainless-Steel Sinks" Paragraph below for stainless-steel sinks, including cup sinks, installed in plastic-laminate countertops.

Retain "Drop-in Installation of (Epoxy) (and) (Polypropylene) Cup Sinks" Paragraph below if required.

* + - * 1. Drop-in Installation of Epoxy Cup Sinks: Rout groove in countertop to receive sink rim if not shop prepared. Set sink in adhesive and fill remainder of groove with sealant or adhesive. Use procedures and products recommended by sink and countertop manufacturers. Remove excess adhesive and sealant while still wet and finish joint for neat appearance.

Retain "Surface Installation of (Epoxy) (and) (Polypropylene) Cup Sinks" Paragraph below for epoxy or polypropylene cup sinks installed in plastic-laminate countertops.

* + - 1. INSTALLATION OF LABORATORY ACCESSORIES
         1. Install accessories according to Shop Drawings, installation requirements in SEFA 2.3, and manufacturer's written instructions.
         2. Securely fasten adjustable shelving supports, stainless-steel shelves, and pegboards to partition framing, wood blocking, or reinforcements in partitions.
         3. Install shelf standards plumb and at heights to align shelf brackets for level shelves. Install shelving level and straight, closely fitted to other work where indicated.
         4. Securely fasten pegboards to partition framing, wood blocking, or reinforcements in partitions.
      2. CLEANING AND PROTECTING
         1. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
         2. Protect countertop surfaces during construction with 6-mil (0.15-mm) plastic or other suitable water-resistant covering. Tape to underside of countertop at a minimum of 48 inches (1200 mm) o.c.

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**SECTION 12 35 60 – LABORATORY FURNITURE SYSTEM**

**Revise this Section by deleting and inserting text to meet Project-specific requirements.**

**This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.**

**Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.**

1. **GENERAL**
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      1. SUMMARY
         1. Section Includes:

Mobile Bench Frame

Mobile Instrument Carts

Suspended Base / Upper Cabinets

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 06 10 00 "Rough Carpentry" for blocking for anchoring laboratory casework.

Section 12 35 53 “Metal Laboratory Casework” for fixed laboratory casework.

* + - 1. COORDINATION

Usually delete first paragraph below and show reinforcements on Drawings. Delete if cabinets are installed directly on masonry or on continuous hanging strips, or if using support framing system.

* + - * 1. Coordinate layout and installation of framing and reinforcements for support of laboratory casework.
        2. Coordinate installation of laboratory furniture with installation of laboratory casework, fume hoods and other laboratory equipment.
        3. Coordinate locations for power and data in upper carrier of mobile carts
      1. ACTION SUBMITTALS
         1. Product Data: For each type of product.
         2. Shop Drawings:

For laboratory furniture. Include plans, elevations, sections, and attachment details.

Indicate the type and location of all service fittings and associated supply connections.

Indicate locations of hardware and keying of locks.

Indicate locations and types of service fittings.

Indicate locations of blocking and reinforcements required for installing laboratory casework.

Include details of support framing system.

Include details of utility spaces showing supports for conduits and piping.

Include details of exposed conduits, if required, for service fittings.

Indicate locations of and clearances from adjacent walls, doors, windows, other building components, and other laboratory equipment.

Include coordinated dimensions for laboratory equipment specified in other Sections.

Preparation instructions and recommendations.

Storage and handling requirements and recommendations.

Installation Methods

* + - * 1. Samples for Initial Selection: For cabinet finishes and other materials requiring color selection.

Delete "Samples for Initial Selection" Paragraph above if preselecting and specifying and scheduling colors and other characteristics. Retain one of two "Samples for Verification" paragraphs below with or without above.

* + - * 1. Samples for Verification: For each type of cabinet finish and each type of countertop material, in manufacturer's standard sizes.

Usually retain "Samples for Verification" Paragraph above and delete "Samples for Verification" Paragraph below; retain below if full-size Samples are required. Insert or delete Samples below to suit Project. Below may add cost to Project and may be unnecessary if restricting manufacturers to a list of those known to be acceptable.

Retain "Delegated-Design Submittal" Paragraph below if design services have been delegated to Contractor.

* + - 1. INFORMATIONAL SUBMITTALS

Coordinate "Qualification Data" Paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

* + - * 1. Qualification Data: For manufacturer.
        2. Product Test Reports for Casework: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory casework with requirements of specified product standard.
        3. Product Test Reports for Countertop Surface Material: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance of laboratory countertop surface materials with requirements specified for chemical and physical resistance.
      1. MAINTENANCE MATERIAL SUBMITTALS
         1. Furnish complete touchup kit for each type and color of metal laboratory casework provided. Include scratch fillers, stains, finishes, and other materials necessary to perform permanent repairs to damaged laboratory casework finish.
         2. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

"Cabinet Mounting Clips and Related Hardware" Subparagraph below is an example only; revise to suit Project.

Cabinet Mounting Clips and Related Hardware: Quantity equal to 5 percent of amount installed, but no fewer than 20 of each type.

"Modular Countertop Units" Subparagraph below is an example only; revise to suit Project.

* + - 1. QUALITY ASSURANCE
         1. Single source responsibility: Laboratory furniture system, casework, work surfaces, and accessories shall be manufactured or furnished by a single casework furniture company.

Usually retain first option in "Manufacturer Qualifications" Paragraph below for wood laboratory casework to help ensure that all bidders can comply with requirements. Retain last option if required for LEED. Before retaining, verify that manufacturers comply. See www.certifiedwood.org for a list of cabinet manufacturers that are certified for FSC chain of custody.

* + - * 1. Manufacturer Qualifications: A qualified manufacturer that produces casework of types indicated for this Project that has been tested for compliance with SEFA 8.
        2. Manufacturer to provide on request, load test results certified by and independent testing laboratory for drawers, doors, suspension slides and unit shelving.
      1. DELIVERY, STORAGE, AND HANDLING
         1. Protect finished surfaces during handling and installation with protective covering of polyethylene film or other suitable material.
         2. The supplier of the laboratory casework is responsible for removing any waste or refuse resulting from the installation of, or work pertaining to laboratory casework; thereby leaving the project site clean and free of debris. Trash container(s) to be provided by others.
      2. FIELD CONDITIONS
         1. Environmental Limitations: Do not deliver or install laboratory casework until building is enclosed, utility roughing-in and wet work are complete and dry, and temporary HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
         2. Locate concealed framing, blocking, and reinforcements that support casework by field measurements before being enclosed, and indicate measurements on Shop Drawings.
      3. WARRANTY

1. Furnish a written warranty that Work performed under this Section shall remain free from defects as to materials and workmanship for a period of two (2) years from date of shipment. Defects in materials and workmanship that may develop within this time are to be replaced without cost or expense to the Owner.
2. PRODUCTS

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products. For an explanation of options and Contractor's product selection procedures, see Section 016000 "Product Requirements."

* + - 1. MANUFACTURERS

Retain "Manufacturers" Paragraph and list of manufacturers below to require products from manufacturers listed or a comparable product from other manufacturers.

* + - * 1. Basis of Design: Sigma Cart

Mott Manufacturing Ltd.; 452 Hardy Rd. Brantford, ON, Canada N3T 5L8. Tel: (519) 752-7825. Fax: (519) 752-2895. Email: inquire@mott.ca, www.mott.ca.

* + - * 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Lab Crafters, Inc.

[Kewaunee Scientific Corporation; Laboratory Products Group](http://www.specagent.com/LookUp/?uid=123456838660&mf=04&src=wd).

[Mott Manufacturing Ltd](http://www.specagent.com/LookUp/?uid=123456838662&mf=04&src=wd).

Bedcolab – Addendum 004

Hamilton Lab Solutions – Addendum 004

Institutional Casework Inc. (ICI) – Addendum 004

Or equal if and as specifically approved by Architect by Addendum during the bidding process.

Retain "Product Designations" Paragraph below if using manufacturer's catalog numbers to designate cabinet types. Revise to suit office practice. Below may not be allowed for public projects.

* + - * 1. Product Designations: Drawings indicate sizes and configurations of laboratory casework. Other manufacturers' laboratory casework of similar sizes and similar door and drawer configurations and complying with Specifications may be considered. See Section 01 60 00 "Product Requirements."
      1. MATERIALS

1. Sheet Steel: Mild steel, cold rolled furniture grade to requirements of ASTM A1008/A1008M, Grade C or higher, with smooth surfaces to furniture quality.
2. Galvanized Sheet Steel: Commercial quality galvanised sheet steel to ASTM 653, Designation Z275.
3. Stainless Steel:
   1. Sheet: ASTM A240, Type 304 AND 316 alloy.
   2. Finish: Unless otherwise indicated, AISI No. 4 Brushed finish.
4. Glass: Clear Float, 6 mm and 3 mm thick, conforming to CAN2 12.3-M76, Glazing Quality. Laminated Glass: CAN/CGSB-12.1-M90, Type 1 with clear PVB interlayer. Total nominal thickness of laminated glass: 6 mm.
5. Sealant: One component, clear silicone base sealant, chemical curing conforming to CAN/CGSB-19.18-M87, anti -fungus composition. Acceptable types: “DC-786” by Dow Corning, and “Sanitary 1700” by CGE.
   * + 1. DESIGN REQUIREMENTS
          1. Support systems shall be a core and panel style support structure.
          2. Core structure can be supported by anchoring to suitable flooring material or may be supported by structural end gables (outrigger legs).
          3. Modular components shall be suitable for single faced wall cores or double-faced peninsula or island configuration.
          4. Core assemblies shall have removable panels on all sides.
       2. CONSTRUCTION
          1. Mobile Bench Frame

Rear island frame support structures:

Vertical uprights shall allow for plumbing, electrical and data cabling.

Single frame uprights, when detailed, shall be 11 ga. tubular steel 2” outside diameter. When detailed, gas piping and high/low voltage cabling shall be separated in opposite and separate vertical members.

Shared rear frame uprights, when detailed, shall be 11 ga. cold-rolled steel formed to a 2”x6” structural support with a full-height removable side cover. When detailed, gas piping shall be in the opposite and separate vertical upright from cabling. Cabled vertical upright shall have two channels to separate low voltage from high voltage cabling.

Levelers are 3/8”-16 nc x 2.5” long. (1 leveler per single frame upright, 2 levelers per shared frame upright). Provide heavy duty leveling casters at all mobile carts. Footmaster model AC600F.

Single and shared rear frames in wider widths (60”, 66”, 72”) will not have a center support and will have continuous shelving, not split shelving.

Uprights have slots punched on 1” increments starting at nominal 55” above the floor to the top of the upright.

Upper and lower horizontal cross rails shall be 11 gauge steel for single frames and 14 gauge for shared frames. Lower horizontal rail shall occur below the worksurface when set at lowest height.

Vertical uprights to serve as utility chase for mounting plumbing, data, and electrical fixtures, as detailed. Services to be pre-plumbed and pre-wired within upright design, equipped with hoses, cords, and cabling to connect to Overhead Distribution Panel. Design upright to provide metal separation between electrical wiring and data/telecom cabling. All electrical work is to be performed in a UL approved shop.

Nominal dimensions:

Width: 24”, 30”, 36”, 42”, 48”, 54”, 60”, 66”, 72”

Height: 84”

* + - * 1. Mobile Instrument Carts:

1. Nominal Dimensions:
2. Width: 24”, 36”, 48”, 60”, 72”
3. Depth: 29”, 35”
4. Height: 78”
5. Casters: Four per cart assembly. wheels with grey non-marking tire. Each caster shall have a 300 pound min. load rating. Casters shall be equipped with a total lock (locks both wheel rotation and caster swivel). Casters shall be attached to extreme corners of the cart base by threading into welded inserts. Casters shall be heavy duty locking and levelling casters. Simlar to Footmaster model AC600F.
6. Cart base assembly: Cart base assembly shall be fabricated from 1.5” x 3” rectangular tube steel of 16 gage wall thickness. Base shall be welded together with neat, professional MIG weld fillets. For maximum strength, fillets shall be left unground. Mobile cart base shall be in a “C” shape with two members across the back and one member at each end. Cart base shall be open at front to allow knee space for seated users. Vertical upright attachment members of 24” in length shall be welded to each end of the “C” shaped base. All open tube ends shall be plugged with black plastic plugs.
7. Slotted vertical uprights shall be the same construction and hole pattern as all other furniture in the same series. Slotted uprights shall be bolted to vertical upright attachment members using four 5/16” socket head cap screws. Screws shall be concealed beneath snap in plugs.
8. All hanging components attached to vertical uprights shall be adjustable in 1” increments.
9. Mobile Instrument Cart shall accept all shelves, cantilevered work surfaces suspended casework and upper storage cabinets designed for other furniture in the same series.
10. Fully assembled 78” high instrument cart shall support the following components. Each component has an individual maximum load, but total load shall not exceed 1000 pounds.
11. Shelves - 6”, 8”, 12” - 180 lbs.;18” - 130 Lbs.; 24” - 100 lbs.
12. Wall cases - 300 Lbs
13. One cantilever work surfaces - 600 Lbs each (includes weight of work surface and suspended cabinets (if any)
    * + - 1. Suspended Base / Wall Cabinets

Design and construction shall be as in section 12 35 53 - Laboratory Metal Casework.

Suspended cabinets shall be supported using hook shaped rails attached near the front and rear of the cabinets. It shall be possible to remove and relocate a fully loaded cabinet to any position between legs.

Suspended wall cases: Provide a system of cold-rolled steel hanger rails attached to the casework frames, to be vertically adjustable on one inch increments. Installation and removal to be accomplished without the use of tools.

Reagent Shelving: Provide front and side safety edge material.

* + - * 1. Suspended CPU Holder:

The CPU holder shall be suspended from standard system furniture using compatible hanging rails. It shall consist of a 14 gauge steel "U" shaped channel connected to a 14 gauge steel inverted "U" shape top channel. The main portion which supports the computer shall slide outward on full extension runners for access. The clear interior dimensions shall be: 9" wide x 21" high x 22" deep.

* + - 1. METAL FINISH
         1. General: Prepare, treat, and finish welded assemblies after assembling. Prepare, treat, and finish components that are to be assembled with mechanical fasteners before assembling. Prepare, treat, and finish concealed surfaces same as exposed surfaces.
         2. Preparation: After assembly, clean surfaces of mill scale, rust, oil, and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it.
         3. Chemical-Resistant Finish: Immediately after cleaning and pretreating, apply laboratory casework manufacturer's standard two-coat, chemical-resistant, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.05 mm).

Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8 M. Acceptance level for chemical spot test shall be no more than four Level 3 conditions.

Insert other chemical-resistance requirements based on specific chemicals to be used in Project's laboratories if required.

Retain one of three options in "Colors for Metal Laboratory Casework Finish" Subparagraph below. If retaining first, indicate colors in a separate schedule.

Colors for Metal Laboratory Casework Finish: As selected by Architect from manufacturer's full range.

Retain one option in "Design" Paragraph below. Verify availability with manufacturers.

Grades for MDF changed with the 2002 edition of ANSI A208.2. Grade 130 is approximately equivalent to previous Grade MD. Retain third option if required for LEED-NC or LEED-CI Credit IEQ 4.4. Retain fourth option if required for LEED for Schools Credit IEQ 4.4.

* + - 1. TABLETOP MATERIALS
         1. A. Refer to Section 12 35 53 “Metal Laboratory Casework”

1. **EXECUTION**
   * + 1. EXAMINATION
          1. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of the Work.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION OF CABINETS
          1. Comply with installation requirements in SEFA 2.3. Install level, plumb, and true; shim as required, using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
          2. Install hardware uniformly and precisely. Set hinges snug and flat in mortises.
          3. Adjust laboratory casework and hardware so doors and drawers align and operate smoothly without warp or bind and contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.
       3. INSTALLATION OF COUNTERTOPS
          1. Comply with installation requirements in SEFA 2.3. Abut top and edge surfaces in one true plane with flush hairline joints and with internal supports placed to prevent deflection. Locate joints only where indicated on Shop Drawings.
          2. Field Jointing: Where possible, make in same manner as shop-made joints using dowels, splines, fasteners, adhesives, and sealants recommended by manufacturer. Shop prepare edges for field-made joints.

Use concealed clamping devices for field-made joints in plastic-laminate countertops. Locate clamping devices within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a uniform heavy pressure at joints.

* + - * 1. Fastening:

Secure countertops, except for epoxy countertops, to cabinets with Z-type fasteners or equivalent, using two or more fasteners at each cabinet front, end, and back.

Secure epoxy countertops to cabinets with epoxy cement, applied at each corner and along perimeter edges at not more than 48 inches o.c.

Where necessary to penetrate countertops with fasteners, countersink heads approximately 1/8 inch and plug hole flush with material equal to countertop in chemical resistance, hardness, and appearance.

* + - * 1. Provide required holes and cutouts for service fittings.
        2. Seal unfinished edges and cutouts in plastic-laminate countertops with heavy coat of polyurethane varnish.
        3. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.
        4. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
      1. CLEANING AND PROTECTING
         1. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
         2. Protect countertop surfaces during construction with 6-mil plastic or other suitable water-resistant covering. Tape to underside of countertop at a minimum of 48 inches o.c.