SECTION 12345 - LABORATORY CASEWORK AND RELATED PRODUCTS (ALPHA SYSTEM)

PART 1: DESCRIPTION OF WORK

1.00 SUMMARY AND SCOPE

A. Section Includes:
   1. Using Kewaunee Scientific Corporation, ALPHA SYSTEM Laboratory Furniture as a modular component system used to create work space and storage assemblies. Furnish all cabinets and casework, including tops, ledges, supporting structures, and miscellaneous items equipment as listed in these specifications, or equipment schedules, including delivery to the building, setting in place, leveling, scribing to walls and floors as required. Furnishing and installing all filler panels, knee space panels and scribes as shown on drawings.

   2. Furnishing and delivering all utility service outlet accessory fittings, electrical receptacles and switches, as listed in these specifications, equipment schedules or as shown on drawings as mounted on the laboratory furniture. The above-defined items shall be furnished with supply tank nipples and lock nuts, loose in boxes and properly marked. All plumbing and electrical fittings will be packaged separately and properly marked for delivery to the appropriate contractor.

   3. Furnishing and delivering, packed in boxes for installation by the mechanical contractor, all laboratory sinks, cup sinks or drains, drain troughs, overflows and sink outlets with integral tailpieces, which occur above the floor, and where these items are part of the equipment or listed in the specifications, equipment schedules or shown on the drawings. Integral tailpieces when required shall be in accordance with the manufacturer's standards. All tailpieces shall be furnished less the couplings required to connect them to the drain piping system.

   4. Furnishing service strip supports where specified, and setting in place service tunnels, service turrets, supporting structures and reagent racks of the type shown on the details.

   5. Removal of all debris, dirt and rubbish accumulated as a result of the installation of the laboratory furniture to an onsite container provided by others, leaving the premises clean and orderly.

B. Related Divisions:
   1. Divisions 5 & 6: Behind-the-Wall Blocking and Studs
   2. Division 9: Base Molding
   3. Division 11: Chemical Fume Hoods
   4. Division 15: Plumbing
   5. Division 16: Electrical Fittings and Connections

C. Related Publications:
   1. SEFA 3 – Scientific Equipment and Furniture Association
   2. SEFA 8 - Scientific Equipment and Furniture Association
   3. NFPA 30 - National Fire Protection Association
   4. NFPA-45 - National Fire Protection Association
   5. UL - Underwriters Laboratories
   6. ASTM D552 - Bending Test

1.01 BASIS OF WORK

A. It is the intent of this specification to use **Kewaunee Scientific Corporation , ALPHA SYSTEM Laboratory Furniture** as the standard of construction for laboratory furniture. The construction standards of this product line shall provide the basis for quality and functional

installation.

B. Supply all equipment in accordance with this specification. The offering of a product differing in materials and construction from this specification requires written approval from the owner/architect. This approval must be obtained seven (7) days before the quotation deadline. Procedures for obtaining approval for an alternate manufacturer are defined in section 2.00.C in this specification.

C. General Contractors should secure a list of approved laboratory furniture manufacturers from the architect as a protection against non-conformance to these specifications.

D. Participants in the quotation process have the option of clarifying deviations to the specified design, construction, or materials. Without such clarifications, sealed quotations to the owner or owner representative will be construed as being in total conformance to the requirements of the specification.

E. The owner / owner representative reserves the right to reject qualified or alternate proposals and to award based on product value where such action assures the owner greater integrity of product.

1.02 QUALITY ASSURANCE

A. The modular component system laboratory furniture contractor shall also provide work tops and fume hoods **all manufactured or shipped from the same geographic location** to assure proper staging, shipment and single source responsibility.

B. General Performance: Provide certification that furniture shall meet the performance requirements described in SEFA 8.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's data and installation instructions for each type of casework. Provide data indicating compliance with SEFA Standard#8.

B. Samples:
Samples from non-specified manufacturers will be required and reviewed per specification. Samples shall be delivered, at no cost to the architect or owner to a destination set forth by the architect or owner. This must be done seven (7) days before quotation deadline as a condition of approval of each bidder. Samples shall be full size, production type samples. Miniature, or "Show Room" type samples are not acceptable. Furnish the following:
1. Support structure, suspended cabinet and required hardware.
2. One sample of all top materials shown or called for, of sufficient size to perform finish requirement tests.
3. Sample of all mechanical service fittings, locks, door pulls, hinges, and interior hardware.

C. Shop Drawings:
Submit shop drawings for furniture assemblies showing plans, elevations, ends, cross-sections, service run spaces, location and type of service fittings.
1. Coordinate shop drawings with other work involved.
2. Provide roughing-in drawings for mechanical and electrical services when required.

PART 2 – PRODUCTS

2.00 MANUFACTURERS

A. The basis of this specification is a modular component system manufactured according to the standards used by **Kewaunee Scientific Corporation**, 2700 Front Street, Statesville, North Carolina. The specified design is Alpha System. All laboratory equipment covered by the

specification shall be the product of one manufacturer and be fabricated at one geographic location to assure shipping continuity and single-source responsibility. All quotations from a manufacturer other than Kewaunee Scientific Corporation shall contain a review of the following capabilities:

1. List of shop facilities
2. List of engineering and manufacturing personnel
3. Proof of financial ability to fulfill the contract
4. List of a minimum of ten (10) installations over the last five (5) years of comparable scope
5. Proof of project management and installation capabilities

B. The selected manufacturer must warrant for a period of one-year starting (date of acceptance or occupancy, whichever comes first) that all products sold under the contract referenced above shall be free from defects in material and workmanship. Purchaser shall notify the manufacturer's representative immediately of any defective product. The manufacturer shall have a reasonable opportunity to inspect the goods. The purchaser shall return no product until receipt by purchaser of written shipping instructions from the manufacturer.

C. All manufacturers other than those mentioned in section 2.00.A. must submit samples made in accordance with this specification. Samples shall be delivered at no cost to the architect or owner to a destination set forth by the architect or owner. Sample delivery must be done seven (7) days before the quotation deadline. Samples shall be full size, production type samples. Miniature, or "Show Room" type samples are not acceptable.

1. One full support module with specified shelving, support frame, countertop and hardware.
2. One 48" base cabinet with two doors and drawers.

D. The above samples of the successful manufacturer will be impounded by the architect or owner to insure that material delivered to jobsite conforms in every respect to the samples submitted.

2.01 MATERIALS

A. General Requirements:
It is the intent of this specification to provide a high quality adjustable casework system designed for the laboratory environment. Major structural components are made from a combination of extruded aluminum and high quality cold rolled steel.

B. Sheet Steel:
Cold rolled sheet steel shall be prime grade; roller leveled, and shall be treated at the mill to be free of scale, ragged edges, deep scratches or other injurious effects. All gauges shall be U.S. Standard.

C. Glass:
Glass used for framed sliding and swinging doors shall be 1/8" float glass. Glass used for unframed sliding doors, shall be 1/4" float glass. Glass used in fume hoods or other hazardous locations shall be 7/32" laminated safety float glass, except the glass shielding fluorescent lights in fume hoods shall be tempered glass to provide greater resistance to heat and impact.

2.02 CONSTRUCTION

A. Structural Modules:
The Structural Module is the primary support structure for the Adjustable Worksurface Frames, Shelving, and Suspended Casework. It can also be used as a chase and support structure for electrical and plumbing services.

1. 3" Wall Structural Modules:
   a. 3" Wall Structural Modules are designed to mount directly to the wall. They accommodate optional moveable access panels and provide support for Adjustable Worksurface Support Frames, Shelving, and Suspended Casework. Vertical

adjustment is on 1" increments.

b. Module uprights are extruded aluminum with a double slotted steel insert for Shelving and Adjustable Worksurfaces on 1" increments. On 84" high modules, the upright is split at either the 36" or 46" height to allow for future removal or relocation of the upper portion.

c. Module frames are manufactured of 16 gauge CRS steel and lock into uprights to form a rigid connection. These frames are designed to accommodate the removable access panels, and are provided with electrical cutouts when indicated by model number or shown on the drawings.

d. Removable access panels are 18 gauge CRS steel, and are removable without the use of tools.

e. 3" Wall Structural Modules are available in heights of 36", 48", and 84", and are available in lengths from 24" to 72" in 6" increments.

2. 9" Wall Structural Modules:
   a. Shall be as described under 3" Wall Structural Modules, but be designed with the module upright set 6" off the wall to create pipe space for unrestricted horizontal plumbing and electrical lines, and ledge space for deck mounted fittings and cupsinks.

3. 12" Island Structural Modules:
   a. 12" Island Structural Modules areas described under 9" Wall Structural Modules, but with two sets of opposite facing module uprights, 6" apart. The double sided module is capable of supporting shelving, adjustable worksurface support frames, and suspended casework on each side. Adjustable inner core shelving is supported from the inside of the uprights and all vertical adjustments are on 1" increments.

4. Corner and Peninsula Modules and Columns:
   a. Corner and Peninsula Modules are designed using the same components as the 3", 9", and 12" Structural Modules, and are designed to provide spacing and structural support when Structural Modules intersect.

   b. 9" and 12" Corner and Peninsula Modules can be used as pipe drop umbilical columns when fully enclosed with upper panels.

5. Upper Carriers:
   a. Add-on Fixed Furniture Upper Carriers are constructed similar to Support modules, but are designed to attach to the working surface of fixed casework installations to provide adjustable overhead shelving support.

B. Adjustable Worksurface Frames and Tables:
Adjustable Worksurface Frames and Tables provide support for the worksurface, and suspended casework. Cantilevered Worksurface Frames get their support from the Structural Modules and are adjustable in height in 1" increments. Free Standing Table Frames are floor mounted, with the option of being attached to a Structural Module.

1. Adjustable Height Cantilevered Worksurface Frame:
   a. The frame is a 3 sided welded assembly of 1 5/8" x 1 1/4" x 12 gauge CRS channel. A 12 gauge U channel is welded to the front channel for suspended cabinet support.

   b. The support leg is an 11 gauge rectangular shaped assembly with an 18 gauge inner support filler. The 11 gauge support legs are part of the final assembly that engage into the outside row of standards for support on 1" increments.

2. Adjustable Height Free Standing Table Frame:

a. The upper frame is the same as 2.02 B.1. above.

b. The Lower support leg is an 11 gauge rectangular shaped assembly with an 18 gauge inner support filler and structural modesty panel. The lower leg is welded to an 11 gauge horizontal bottom support member with leveling feet.

c. The upper leg is an 11 gauge telescoping member, which marries into the lower leg section, providing height adjustability in 1" increments.

d. The Adjustable Height Free Standing Table Frame can be attached (optional) to a Structural Module by use of attachment kit.

3. Adjustable Height Mobile Table Frame:
   a. This table is the same as 2.02 B.1., above, but includes 4" heavy duty rubber tired castors mounted to bottom support member.

C. Work Top and Ledge Materials:
Counter tops and ledges shall be as indicated on the drawings or as indicated by model number, and all clips, screws and parts for fastening top to table frame and/or cabinet shall be included.

1. Molded Epoxy Resin Tops Black and White (KEMRESIN):
Molded Epoxy Resin tops shall be molded from a modified epoxy resin that has been especially compounded and cured to provide the optimum physical and chemical resistance properties required of a heavy-duty laboratory table top. Tops and curbs shall be a uniform mixture throughout their full thickness, and shall not depend upon a surface coating that is readily removed by chemical and/or physical abuse. Tops and curbs shall be non-glaring. Table tops shall be 1" thick, with drip grooves provided on the underside at all exposed edges.

2. Phenolic Resin:
Phenolic Resin tops are available in black, white, silver gray and sand beige. Tops are 1" thick, composed of a cellulose fiber reinforced phenolic resin core with a highly crosslinked polyurethane copolymer surface.

3. High Pressure Laminate Tops:
High pressure laminate tops and back-splash shall be built up to a 1/16" thick plastic surface (of the color and pattern selected), attached to the sub-top with a water resistant adhesive. Substrate shall be of 40-45 lbs. medium density particle board to make a finished top thickness of 1". All exposed edges shall be self-edge banded unless otherwise specified. Self edges shall be applied prior to the application of the top sheet and overlapped by the top sheet. All particle board edges and underside of top shall be sealed.

D. Adjustable Module Shelving:
Adjustable Module Shelving attaches to the structural module upright, with height adjustability on 1' increments.

1. Upper Carrier Module Core Shelving:
   a. Upper Carrier Module Core Shelves are 16 gauge steel formed down 1", then returned back and up into a channel formation. Shelves over 48" long shall be further reinforced with a 20 gauge steel hat channel welded to the underside of the shelf.

   b. Shelves are adjustable in height on 1" increments using a spring style pin mechanism which automatically locks in place to adjustment holes on the rear face of the Support Module uprights. Adjustment is accomplished without the use of tools.

   c. Shelves are 9" and 12" deep, and are available in lengths from 24" to 72" on 6"increments, to match the length of the Structural Module.

2. Adjustable Module Shelving:
   a. Adjustable Module Shelves are supported by 11 gauge brackets which mount to the inner slot of the double slotted Support Module Upright. They are adjustable in height on 1" increments.

   b. Shelves are available in depths of 6", 8", 12", 18", and 24". Shelves are available in lengths from 24" to 72" on 6" increments, to match the Support Module length.

   c. Steel shelves are 16 gauge steel, formed down 1" then returned back and up into a channel formation. Shelves of 12" depth and greater are further reinforced with a 20 gauge hat channel welded to the underside. Steel shelves are available with a steel front edge seismic lip when specified by model number or indicated on the drawings.

   d. Wood shelves are 1" thick hardwood plywood with Red Oak veneer on all exposed surfaces. A front edge seismic lip of 1/4" plexiglass is available when specified by model number or when indicated on the drawings.

   e. Trespa (Toplab) shelves are 1" thick phenolic resin. A 1/4" plexiglass front edge seismic lip is available when specified by model number or when indicated on the drawings.

E. Casework:
Casework for the Alpha System consists of both suspended and floor mounted styles, and includes base units, wall cases, tall cases, and apron assemblies. Refer to the Kewaunee Scientific Master Specifications for complete specification information for each casework option.

1. Steel Casework Options (Research Collection):
   a. Trademark Style-01. Trademark style casework is flush face construction, with doors and drawers in the same plane as the cabinet face frame, without overlap. The doors and drawers are 3/4" thick, square edged, with an attached aluminum pull. A 5-knuckle stainless steel hinge is used for swinging doors. The drawer has a one piece body, and a 150# self closing drawer guide.

      Door and Drawers are available in plain steel or textured steel.(select one)

   b. Advantage Style-02. Advantage style casework is flush face construction, with doors and drawers in the same plane as the cabinet face frame, without overlap. The doors and drawers are 3/4" thick, square edged, with a satin finished recessed aluminum pull. A 5-knuckle stainless steel hinge is used for swinging doors. The drawer has a one piece body, and a 150# self closing drawer guide.

      Door and Drawers are available in plain or textured steel.(select one)

   c. Explorer Style-04. Explorer style casework is flush face construction, with doors and drawers in the same plane as the cabinet face frame, without overlap. The doors and drawers have a 2" radius shape on the top and bottom horizontal edges. The pull is a 3/8" thick stainless steel wire type. The hinge is 5 knuckle stainless steel. The drawer body is one piece construction with a 150# self closing guide.

   d. Discovery Style-05. Discovery style casework is flush face construction, with doors and drawers in the same plane as the cabinet face frame, without overlap. The doors and drawers have a 2" radius shape on the top and bottom horizontal edges. The pull is a satin finished aluminum recessed style. The hinge is 5 knuckle stainless steel. The drawer body is one piece construction with a 150# self closing guide.

2. Wood Casework Options (Signature Series):
   a. Conventional Radius Lip Style -01. Conventional Radius Lip construction is a semi-overlay construction where the door and drawers are routed to partially overlap the

cabinet face frame with a radius shape. The pull is an attached aluminum style. The hinge is a 5 knuckle stainless steel. The drawer uses a dovetail birch plywood construction with an epoxy coated metal self closing slide.

b. Silhouette-Style 03. Silhouette construction is full overlay with 3/4" thick door and drawer fronts overlapping the cabinet face. The door and drawer fronts have a radius shape on all four edges. The drawer fronts are solid oak. The pull is created by a full length horizontal shape routed into the door and drawer front. The hinge is 5 knuckle stainless steel. The drawer uses a dovetail birch plywood construction with epoxy coated metal self closing slides.

c. Full Radius Edge-Style 04. Full Radius Edge construction is full overlay with 3/4" thick door and drawer fronts overlapping the cabinet face. The door and drawer fronts have a radius shape on all 4 edges. The drawer fronts are solid oak. The pull is 3/8" stainless steel, wire style. The hinge is 5 knuckle stainless steel. The drawer uses a dovetail birch plywood construction with an epoxy coated metal self closing slide.

d. Contemporary Full Overlay-Style 05. Contemporary Full Overlay style is full overlay construction with minimal reveal. The 3/4" square edged door and drawer fronts overlap the cabinet face frame creating nominal 1/8" reveals between doors and drawers, and at cabinet ends. Grain is horizontal on drawers and vertical on doors. The pull is 3/8" stainless steel wire style. The hinge is 5 knuckle stainless steel. The drawer is dovetailed birch plywood construction with an epoxy coated metal self closing slide.

2.03 Finish and Performance Requirements

A. Steel Paint System Finish and Performance Specification:

1. Steel Paint System Finish:
After the component parts have been completely welded together and before finishing, they shall be given a pre-paint treatment to provide excellent adhesion of the finish system to the steel and to aid in the prevention of corrosion. Physical and chemical cleaning of the steel shall be accomplished by washing with an alkaline cleaner, followed by a spray treatment with a complex metallic phosphate solution to provide a uniform fine grained crystalline phosphate surface that shall provide both an excellent bond for the finish and enhance the protection provided by the finish against humidity and corrosive chemicals.

After the phosphate treatment, the steel shall be dried and all steel surfaces shall be coated with a chemical and corrosion-resistant, environmentally friendly, electrostatically applied powder coat finish. All components shall be individually painted, insuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance.

The completed finish system in standard colors shall meet the performance test requirements specified under PERFORMANCE TEST RESULTS.

2. Performance Test Results (Chemical Spot Tests):

a. Testing Procedure:
Chemical spot tests for non-volatile chemicals shall be made by applying 5 drops of each reagent to the surface to be tested and covering with a 1-1/4" dia. watch glass, convex side down to confine the reagent. Spot tests of volatile chemicals shall be tested by placing a cotton ball saturated with reagent on the surface to be tested and covering with an inverted 2-ounce wide mouth bottle to retard evaporation. All spot tests shall be conducted in such a manner that the test surface is kept wet throughout the entire test period, and at a temperature of 77° ±3° F. For both methods, leave the

reagents on the panel for a period of one hour. At the end of the test period, the reagents shall be flushed from the surface with water, and the surface scrubbed with a soft bristle brush under running water, rinsed and dried. Volatile solvent test areas shall be cleaned with a cotton swab soaked in the solvent used on the test area. Immediately prior to evaluation, 16 to 24 hours after the reagents are removed, the test surface shall be scrubbed with a damp paper towel and dried with paper towels.

b. Test Evaluation:
Evaluation shall be based on 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.

After testing, panel shall show no more than three (3) Level 3 conditions.

c. Test Reagents

Test No.	Chemical Reagent	Test Method
1.	Acetate, Amyl	Cotton ball & bottle
2.	Acetate, Ethyl	Cotton ball & bottle
3.	Acetic Acid, 98%	Watch glass
4.	Acetone	Cotton ball & bottle
5.	Acid Dichromate, 5%	Watch glass
6.	Alcohol, Butyl	Cotton ball & bottle
7.	Alcohol, Ethyl	Cotton ball & bottle
8.	Alcohol, Methyl	Cotton ball & bottle
9.	Ammonium Hydroxide, 28%	Watch glass
10.	Benzene	Cotton ball & bottle
11.	Carbon Tetrachloride	Cotton ball & bottle
12.	Chloroform	Cotton ball & bottle
13.	Chromic Acid, 60%	Watch glass
14.	Cresol	Cotton ball & bottle
15.	Dichlor Acetic Acid	Cotton ball & bottle
16.	Dimethylformanide	Cotton ball & bottle
17.	Dioxane	Cotton ball & bottle
18.	Ethyl Ether	Cotton ball & bottle
19.	Formaldehyde, 37%	Cotton ball & bottle
20.	Formic Acid, 90%	Watch glass
21.	Furfural	Cotton ball & bottle
22.	Gasoline	Cotton ball & bottle
23.	Hydrochloric Acid, 37%	Watch glass
24.	Hydrofluoric Acid, 48%	Watch glass
25.	Hydrogen Peroxide, 3%	Watch glass
26.	Iodine, Tincture of	Watch glass
27.	Methyl Ethyl Ketone	Cotton ball & bottle
28.	Methylene Cloride	Cotton ball & bottle
29.	Mono Chlorobenzene	Cotton ball & bottle
30.	Naphthalene	Cotton ball & bottle
31.	Nitric Acid, 20%	Watch glass
32.	Nitric Acid, 30%	Watch glass
33.	Nitric Acid, 70%	Watch glass
34.	Phenol, 90%	Cotton ball & bottle
35.	Phosphoric Acid, 85%	Watch glass
36.	Silver Nitrate, Saturated	Watch glass
37.	Sodium Hydroxide, 10%	Watch glass
38.	Sodium Hydroxide, 20%	Watch glass

39.	Sodium Hydroxide, 40%	Watch glass
40.	Sodium Hydroxide, Flake	Watch glass
41.	Sodium Sulfide, Saturated	Watch glass
42.	Sulfuric Acid, 33%	Watch glass
43.	Sulfuric Acid, 77%	Watch glass
44.	Sulfuric Acid, 96%	Watch glass
45.	Sulfuric Acid, 77% and Nitric Acid, 70%, equal parts	Watch glass
46.	Toluene	Cotton ball & bottle
47.	Trichloroethylene	Cotton ball & bottle
48.	Xylene	Cotton ball & bottle
49.	Zinc Chloride, Saturated	Watch glass

* Where concentrations are indicated, percentages are by weight.

3. Performance Test Results (Heat Resistance):
   Hot water (190° F - 205° F) shall be allowed to trickle (with a steady stream at a rate not less than 6 ounces per minute) on the finished surface, which shall be set at an angle of 45° from horizontal, for a period of five minutes. After cooling and wiping dry, the finish shall show no visible effect from the hot water treatment.

4. Performance Test Results (Impact Resistance):
   A one-pound ball (approximately 2" diameter) shall be dropped from a distance of 12 inches onto the finished surface of steel panel supported underneath by a solid surface. There shall be no evidence of cracks or checks in the finish due to impact upon close eye-ball examination.

5. Performance Test Results (Bending Test):
   An 18 gauge steel strip, finished as specified, when bent 180^{o} over a 1/2" diameter mandrel, shall show no peeling or flaking off of the finish.

6. Performance Test Results (Adhesion):
   Ninety or more squares of the test sample shall remain coated after the scratch adhesion test. Two sets of eleven parallel lines 1/16" apart shall be cut with a razor blade to intersect at right angle thus forming a grid of 100 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush. Examine under 100 foot-candles of illumination. Note: This test is based on ASTM D2197-68, "Standard Method of Test for Adhesion of Organic Coatings".

7. Performance Test Results (Hardness):
   The test sample shall have a hardness of 4-H using the pencil hardness test. Pencils, regardless of their brand are valued in this way: 8-H is the hardest, and next in order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which is the softest).

   The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one-that is, the hardest pencil that will not rupture the film-is then used to express or designate the hardness.

2.04 WORKSURFACES

A. Materials (Choose one or more and import information from WORKSURFACES spec.):
   1. Kemresin Epoxy Resin Tops
   2. Plastic Laminate
   3. Stainless Steel
   4. Hard Wood / Natural Finish

5.

B. Performance Requirements (Choose one or more and import information from WORKSURFACES spec.):

2.05 SINKS CUPSINKS, AND DRAINS

A. Sinks (Choose one or more and import information from SINKS, CUPSINKS, and DRAIN spec.):
   1. Molded Epoxy Resin Sinks
   2. Stainless Steel Sinks

B. Cupsinks (Choose one or more and import information from SINKS, CUPSINKS, and DRAIN spec.):
   1. Black
   2. Grey

C. Drain Troughs (Import information from SINKS, CUPSINKS, and DRAIN spec.):

2.06 FITTINGS

A. Materials (Choose one or more and import information from SERVICE FITTINGS AND ACCESSORIES spec):
   1. Chrome-plated red brass or bronze
   2. Plastic-coated red brass or bronze

B. Construction (Choose one or more and import information from SERVICE FITTINGS AND ACCESSORIES spec):
   1. Valves:
      a. Water
      b. Steam
      c. Distilled Water
      d. Ground key dry service
      e. Needle valve dry service

   2. Outlets
      a. Goosenecks
      b. Aerator outlets
      c. Tank nipples
      d. Sink outlets

   3. Electrical Fittings

   4. Miscellaneous
      a. Crumb cup strainers
      b. Vacuum breakers

C. Performance (Choose one or more and import information from SERVICE FITTINGS AND ACCESSORIES spec):
   1. Maximum line pressures
      c. Laboratory ball valves
      d. Needle point cocks
      e. Vacuum valve
      f. Water (H&C) valve
      g. Steam valve

   2. Sepia bronze finish performance

PART 3 - EXECUTION - LABORATORY CASEWORK AND RELATED PRODUCTS

3.00 SITE EXAMINATION

A. The owner and/or his representative shall assure all building conditions conducive to the installation of a finished goods product; all critical dimensions and conditions previously checked have been adhered to by other contractors (general, mechanical, electrical, etc.) to assure a quality installation.

3.01 INSTALLATION

A. Preparation:
Prior to beginning installation of casework, check and verify that no irregularities exist that would affect quality of execution of work specified.

B. Coordination:
Coordinate the work of the Section with the schedule and other requirements of other work being prepared in the area at the same time both with regard to mechanical and electrical connections to and in the fume hoods and the general construction work.

C. Performance:
1. Casework:
   a. Set casework components plumb, square, and straight with no distortion and securely anchor to building structure. Shim as required using concealed shims.

   b. Bolt continuous cabinets together with joints flush, tight and uniform, and with alignment of adjacent units within 1/16" tolerance.

   c. Secure wall cabinets to solid supporting material, not to plaster, lath or gypsum board.

   d. Abut top edge surfaces in one true plane. Provide flush joints not to exceed 1/8" between top units.

2. Worksurfaces:
   a. Where required due to field conditions, scribe to abutting surfaces.

   b. Only factory prepared field joints, located per approved shop drawings, shall be permitted. Secure the joints in the field, where practical, in the same manner as in the factory.

   c. Secure worksurfaces to casework and equipment components with materials and procedures recommended by the manufacturer.

D. Adjust and Clean:
1. Repair or remove and replace defective work, as directed by owner and/or his representative upon completion of installation.

2. Adjust doors, drawers and other moving or operating parts to function smoothly.

3. Clean shop finished casework; touch up as required.

4. Clean worksurfaces and leave them free of all grease and streaks.

5. Casework to be left broom clean and orderly.

E. Protection:

1. Provide reasonable protective measures to prevent casework and equipment from being exposed to other construction activity.

2. Advise owner and/or his representative of procedures and precautions for protection of material, installed laboratory casework and fixtures from damage by work of other trades.