SECTION 123553 - BasikBench– Free Standing Laboratory Workstation System

PART 1: DESCRIPTION OF WORK

1.00 SUMMARY AND SCOPE

A. Section Includes:
   1. Kewaunee Scientific Corporation's, **BasikBench Free Standing Laboratory Workstation System**, a modular component system used to create workspace and storage assemblies. Furnish all cabinets and casework, including tops, supporting structures, free standing tables 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. Pre-plumbing **BasikBench Workstations** where called for in these specifications, equipment schedules or shown on drawings. When pre-plumbed with flexible hoses the service hoses shall terminate at the top of the vertical support member as specified or as shown on drawings.

   3. 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, not specified as pre-plumbed or pre-wired, shall be furnished only. The above-defined items shall be furnished with necessary hardware, loose in boxes and properly marked. These plumbing and electrical fittings will be packaged separately and properly marked for delivery to the appropriate contractor.

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

B. Related Divisions:
   1. Division 15: Plumbing
   2. Division 16: Electrical Fittings and Connections

C. Related Publications:
   1. SEFA 3 – Scientific Equipment and Furniture Association
   2. SEFA 10 – 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 D522 – Bending Test

1.01 BASIS OF WORK

A. It is the intent of this specification to use **BasikBench Free Standing Laboratory Workstation System** as the standard of construction for laboratory furniture. The construction standards of this product line shall provide the basis for quality and function.

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 casework, work tops and fume hoods **all manufactured or shipped from the same geographic location** to assure proper quality assurances, staging, shipment, and single source responsibility.

B. General Performance: Provide certification that furniture shall meet the performance requirements described in SEFA 3 and SEFA 10.

1.03 SUBMITTALS

A. Manufacturer's Data: Submit manufacturer's data and installation instructions for each type of bench. Provide data indicating compliance with SEFA 10.

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. Complete table structure with shelves and accessories.
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.

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 West Front Street, Statesville, North Carolina. The specified design is **BasikBench**. All laboratory equipment covered by the specification shall be the product of one manufacturer and be fabricated at one geographic location in the United States 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 engineering and manufacturing personnel
   2. Proof of financial ability to fulfill the contract
   3. List of a minimum of ten (10) installations over the last five (5) years of comparable scope
   4. Proof of project management and installation capabilities

B. The selected manufacturer must warrant for a period of one-year stating (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 Section 1.03. B.

D. The above samples of the successful manufacturer will be impounded by the architect or owner to ensure 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 and moveable casework system designed for the laboratory environment. Major structural components are made from 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. Plumbing Fixtures, Hoses & Quick Connects:
   Fixtures shall be needle valves as manufactured by Watersaver Faucet Company, pre-plumbed to a reinforced PVC hose with 3/8" female quick-connect fittings, hose to be of a length of 46", 96", or 168" as required to easily reach an overhead service panel/carrier. For flammable gasses, a braided stainless-steel hose shall be used.

D. Power Bar:
   Electrical outlets shall be 20-amp 120V single or dual circuit 3-wire duplex design integrated into the horizontal assembly, painted to match the bench for an integral appearance, to be nested and attached to the back of the rear posts. Single circuit shall have one power switch and dual circuit shall have two power switches. Outlets shall be pre-wired with a cord and twist-lock style plug, cord to be 10' length forming a UL approved assembly. Data outlets, one per rear post, shall be RJ45, to be wired in the field by others.

2.02 CONSTRUCTION

A. BasikBench Freestanding Workstation system shall be comprised of two leg support assemblies with adjustable leg inserts, frame front rail, frame back rail, top back rail, and bottom back rail. Work Surface Frames adjustable from 24” to 37” AFF. The rear vertical supports shall incorporate individual slots for adjustable shelving and accessories. The vertical support shall incorporate a chase for plumbing and data services.

1. Worksurface Support Frame:
   a. Leg support assemblies shall be a welded four-sided assembly consisting of 14-gauge steel top side rail, bottom side rail, and front and rear adjustable height legs. Nominal depths are 28” and 34”.
   b. Front and rear leg members shall be 14-gauge steel 2”x2” square tubes and have 1.75” inner telescoping legs capable of vertical adjustment in 1” increments.
   c. Rear Legs shall be full height, mechanically fastened with a horizontal framing assembly that incorporates a top back rail and bottom back rail. The top back rail shall provide a utility trough the full length of the table.
   d. Legs shall include non-marring, nominal 1-3/4” diameter, levelers.
   e. Adjustable height shall be 25” to 38” AFF including 1” work surface.
   f. Frame Front Rail and Frame Back Rail shall be fabricated from 12-gauge powder coated steel and shall be attached to leg support assemblies using threaded fasteners.
   g. Workstations shall be available in lengths from 36" to 72" in 6" increments.
   h. Load rating shall be SEFA 10 Class 7 Cat 3, 1000lbs. With uniformly distributed load, the maximum allowable deflection shall be .25” measured at the center of the front rail.

2. Rear Vertical Supports:
   a. The rear vertical supports shall be 2”x2” 14-gauge steel square tube, nominal 72” in height.
   b. The 2”x2” vertical members shall be able to accommodate up to two plumbing services and one data port each located above the worksurface.
   c. The vertical members shall have shelf slots on 1” increments starting at 18-3/4” above the worksurface to top of upright.

3. BasikBench Four Leg Adjustable Table
   a. The BasikBench four leg table shall consist of a worksurface support frame as described above in A.1. Nominal depths are 22”, 28”, and 34”. Two rear legs shall match, in size, the front two legs to produce a self-supporting table frame, adjustable in height from 25” to 38” AFF including 1” work surface.
   Front and rear leg members shall be 14-gauge steel 2”x2” square tube and 1.75” inner telescoping leg capable of vertical adjustment in 1” increments
   b. Legs shall include non-marring, nominal 1-3/4” diameter, levelers.
   c. Load rating shall be SEFA 10 Class 6 Cat 3, 1000lbs. With uniformly distributed load, the maximum allowable deflection shall be .25” measured at the center of the front rail.

4. Overhead Service Panel
   a. Overhead service panels shall provide a means to mount and connect, electrical, data, and service fitting in a standard overhead ceiling grid.
   b. Panels shall be 12-gauge powder coated steel, with cutouts to accept devices and fittings, installed, wired, and piped in the field, as specified, and shown on the drawings.

B. Work Surfaces:
Counter tops 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. Kemresin:
   Kemresin molded epoxy resin work surface 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 work surface. 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. Work surface and curbs shall be Black, Grey, Putty or Slate in color. Work surface shall be 1" thick, with drip grooves provided on the underside at all exposed edges.

C. Adjustable Shelving

1. Adjustable Shelves for BasikBench tables shall be supported by 12-gauge brackets which mount to the slots in the rear frame support structure. They shall be adjustable in height on 1" increments.
2. Shelves shall be available in depths of 12" and 15” and nominal lengths of 31-1/2" to 67-1/2" in 6" increments to match the slots on the rear frame support structure.
3. Steel Shelf:
   a. Steel shelves shall be 18-gauge steel, formed down 1" then returned back into a 90° formation. They shall attach to the shelf brackets without additional hardware or adhesive and shall be installable without tools.
   b. Load rating shall be SEFA 10 Class 7 Cat 3, 40 lbs. per square foot maximum 200 lbs. uniformly distributed.

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.

   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.

a. 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.

b. 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.

c. 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.

d. 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.

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

f. 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".

g. 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.

2.05 FITTINGS

A. Materials
   1. Chrome-plated red brass

B. Construction (Choose one or more and import information from SERVICE FITTINGS AND ACCESSORIES spec):
   1. Needle Valves:
      a. Air
      b. Nitrogen
      c. Vacuum
      d. Gas

Accessories

A. Stabilizing Caster:
   Casters must have an adjustable stabilizer and support a minimum of 550 lbs. each. Casters shall not extend past work surface overhang, allowing adjacent work surfaces to touch when positioned side by side.

B. Monitor Arm:
   Rotates 360 degrees at two points with an adjustable head and universal monitor mount. Must support a minimum weight of 15 lbs. and clamp to the work surface and frame rail.

C. Lower Shelf:
   Shelves shall be available in depths of 9”, 12”, and 15” and nominal lengths of 35-1/2” to 71-1/2” on 6” increments. Shelves shall be 18-guage steel, formed down 1” then returned back into a 90° formation. They shall attach to the bottom side rails using mechanically fastened clips.

D. CPU Holder:
   Heavy duty CPU holder mounts to underside of work surface and is adjustable in height from 12” to 20” and 3.5” to 9” in depth.

E. LED Task Light
   Shall be a thin profile LED strip 9.5 mm high x 33mm wide with a touch dimmer switch and are available in lengths of 20” and 40”. Task light must be UL listed and furnished with a 120 VAC to 24 VDC power supply with a 10’ power cord. Task lights include a separate housing for power supply and cable management and magnetic mounting strip for attaching to steel shelving.

F. Bin Rail:
   Allows for easy installation of bins via a slotted rail. Maximum weight for bins is 5 lbs. Bin rail fastens to rear of uprights using mechanical fasteners.

G. Suspended Cabinet Hanging Rail:
   Hanging rail for suspended cabinets is to be mounted to upper side rails, under worksurface, using mechanical fasteners and must be adjustable to accommodate both inset and full overlay cabinets with a maximum load of 250 lbs.

H. Cable Management:
   14-gauge steel slotted and formed in a “J” shape trough to hold power and data cables - painted to match work bench. Cable management tray to be attached to rear back rail just beneath the worksurface and not to extend past the overhang.

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

2. Clean shop finished workstations; touch up as required.

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

4. Workstations to be left broom clean and orderly.

D. Protection:
1. Provide reasonable protective measures to prevent workstations 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 workstations and fixtures from damage by work of other trades.