**SECTION** **12 35 53.23 -** **LABORATORY BENCHES**

1. **GENERAL**
   * + 1. SUMMARY
          1. Section includes freestanding, metal, laboratory workstation benches.
       2. SUBMITTALS
          1. Product Data: For each type of product.
          2. Shop Drawings: Show plans, elevations, ends, cross-sections, service run spaces, location and type of service fittings, and relationship to adjacent construction.
          3. Samples: For color of exposed metal surfaces and countertops for [initial selection] [ and ] [verification].
          4. Certificate of Compliance: Certification that workstation benches meet SEFA 10 – Adaptable Systems, Configuration 3 - Single Sided - Simply Supported performance requirements.
          5. Qualification Data: For manufacturer.
       3. DELIVERY, STORAGE, AND HANDLING
          1. Deliver benches [knocked down for field assembly] [fully assembled].
          2. Protect finished surfaces during handling and installation. For metal surfaces, use polyethylene film or other suitable material standard with the manufacturer.
       4. field CONDITIONS
          1. [Only special requirements]
       5. WARRANTY
          1. Standard Warranty: Furnish manufacturer's standard [one] [<insert term required>] year warranty providing coverage against defects and failures in materials or workmanship.
2. **PRODUCTS**
   * + 1. MANUFACTURERS
          1. Basis of Design Product: Element® by Kewaunee Scientific Corp., 2700 West Front Street, Statesville, North Carolina; [www.kewaunee.com](http://www.kewaunee.com/)

Comparable products by other manufacturers [will] [will not] be considered.

Substitutions [will] [will not] be considered.[ Comply with provisions of Div. 01 Section ["SUBSTITUTION PROCEDURES"] ["PRICE AND PAYMENT PROCEDURES"].

* + - * 1. Project Source Limitations: Obtain each variety of laboratory casework including benches, whether specified in this Section or in other Sections, through one source from a single manufacturer who is capable of showing prior successful production of units similar to those required for entire Project [, unless otherwise acceptable to Architect].
      1. Description
         1. Laboratory Bench Assemblies: Freestanding, four leg, height-adjustable laboratory workstation system consists of a modular bench system used to create workspace and storage assemblies. Unit includes free standing tables, work tops, [supporting structures,] [adjustable shelving units,] and miscellaneous items of equipment as specified and as indicated on equipment schedules on Drawings.

NOTE TO SPECIFIER: Benches are available in lengths from 36 to 72 in 6 inch increments.

Bench Length: [<insert as required>].

Legs: 2 by 2 inch front legs; 2 by 3 inch rear legs housing electrical and data wiring and outlets.

Worktop Height: Adjustable from 24 to 37 inches AFF via telescoping leg assemblies.

* + - * 1. Regulatory Requirements:.

Accessibility Requirements: Comply with applicable provisions in [ADA Accessibility Guidelines (ADAAG)] [ABA Accessibility Standards] [Uniform Federal Accessibility Standards (UFAS)] [ and ] [ICC A117.1].

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.

Bench system: Listed and labeled as defined in UL962 by a qualified testing agency.

* + - * 1. Performance Requirements: Comply with weight loading requirements of SEFA 10.
      1. MATERIALS
         1. Sheet Steel: Cold-rolled, commercial steel (CS) sheet, complying with ASTM A1008/A1008M; matte finish; suitable for exposed applications.
      2. BENCH TOP MATERIAL
         1. Table Top [and Shelf] Material: Factory-molded, modified epoxy-resin formulation, one inch thick, with smooth, nonspecular finish; with drip grooves on underside exposed edges.

Physical Properties:

Flexural Strength: Not less than 10,000 psi.

Modulus of Elasticity: Not less than 2,000,000 psi.

Hardness (Rockwell E): Not less than 100.

Water Absorption (24 Hours): Not more than 0.04 percent.

Heat Distortion Point: Not less than 200 deg F.

Chemical Resistance: Epoxy-resin material shall have the following ratings when tested with indicated reagents according to SEFA 3 Worksurfaces 2.1.1 Chemical Stain Resistance Test:

No Effect: Acetic acid (98 percent), , ammonium hydroxide (28 percent), benzene, carbon tetrachloride, , ethyl acetate, ethyl alcohol, methyl alcohol, sulfuric acid (60 percent), and sodium hydroxide (50 percent).

Slight Effect: Acetone, Chromic acid (60 percent), dimethyl formamide, ethyl ether, nitric acid (70 percent), phenol, and toluene.

Color: [Black] [Gray] [Putty] [Slate] [As selected by Architect from manufacturer's full range].

* + - 1. ACCESSORIES
         1. Provide the following in finish to match bench supports:

NOTE TO SPECIFIER: Top shelves can be installed at several heights via varied slots in the uprights of this bench. Shelves are available in three depths in lengths from 36 to 72 in 6 inch increments.

[<insert number of shelves required>] top [shelf] [shelves] supported on upright rear vertical support posts; [9] [12] [15] inch deep by [<insert length as required>] long.

NOTE TO SPECIFIER: Lower shelf is installed across the bench’s lower support. Shelves are available in three depths in lengths from 36 to 72 in 6 inch increments.

Lower shelf below top; [9] [12] [15] inch deep by [<insert length as required>] long.

NOTE TO SPECIFIER: Cable management organizes power and data cables for an organized lab. Available in lengths from 36 to 72 in 6 inch increments.

Cable management for power and data cables; [<insert length as required>] long.

NOTE TO SPECIFIER: The hanging rail allows for the install of suspended cabinets. Available in lengths from 36 to 72 in 6 inch increments.

Hanging rail for suspending cabinet[s] from upright rear vertical support posts; [<insert length as required>] long.

NOTE TO SPECIFIER: The bin rail allows for easy installation of bins via a slotted rail. Bins can easily be moved and reorganized. Available in lengths from 36 to 72 in 6 inch increments.

Bin rail, slotted for mounting on upright rear vertical support posts; [<insert length as required>] long.

Table Leg [Glides] [Wheeled Casters]: Height adjustable for leveling.

NOTE TO SPECIFIER: The following items are available as optional accessories.

The monitor arm rotates 360 degrees at two points. With an adjustable head with universal monitor mount, this arm easily clamps onto bench.

[Monitor arm capable of rotating 360 degrees with worktop clamp.]

NOTE TO SPECIFIER: The CPU holder attaches via a bracket mount and swivels side to side. The heavy duty holder is adjusted 12″ to 20″ high and 3.5″ to 9″ depth.

[CPU holder adjustable from 12 to 20 inches high and 3-1/2 to 9 inches wide.]

[Seismic rods.]

[Keyboard tray mounted under table top.]

* + - 1. ELECTRICAL AND DATA OUTLETS
         1. Provide the following:

Electrical Receptacles: Located in rear legs utilizing snap-in plastic bezels with no visible hardware.

Data Outlets: Provide two RJ45 outlet in each rear service fixture post for connection in the field by others.

NOTE TO SPECIFIER: LED Task Lighting consists of a thin-profile, white, LED strip, 9.5 mm high by 33mm deep with a touch dimmer switch. It is UL listed and furnished with a 120 VAC to 24 VDC power supply with ten foot power cord. The light includes a magnetic mounting strip for mounting to steel shelving.

LED Task Lighting: Thin-profile, white, LED strip, 9.5 mm high by 33mm deep with a touch dimmer switch; 120 VAC to 24 VDC power supply with power cord; [20] [40] inch long. Provide magnetic mounting strip for mounting to underside of steel shelving.

* + - 1. Plumbing Fixtures, Hoses & Quick Connects
         1. Needle Valves: Provide units with renewable, self-centering, floating cones and renewable seats of stainless steel or Monel metal, with removable serrated outlets.

Finish: Chrome-plated red brass.

NOTE TO SPECIFIER: Retain one of three options in subparagraph below, or delete subparagraph and indicate working pressure on Drawings or in schedules.

Provide units designed for working pressure up to [60 psig] [100 psig] [125 psig].

Provide valves for [air] [nitrogen] [vacuum] [natural gas] [<insert additional as required>].

NOTE TO SPECIFIER: Retain braided stainless-steel option for flammable gases.

* + - * 1. Hoses: [PVC] [Braided stainless-steel] with 3/8 inch female quick-connect fittings; [46] [96] [168] inches long.
      1. FABRICATION
         1. Fabricate units [fully assembled in shop] [for field assembly]. Complete fabrication, including assembly and finishing, to maximum extent possible, before shipment to Project site.
      2. FINISHES
         1. [Pigmented Organic Finish]: Manufacturer's standard powder coat meeting SEFA 8 Cabinet Surface Finish Test Requirements.

Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

Colors are optional. For exact finish, insert names of coating manufacturers and products.

Color: [As [indicated] [ or, if not indicated, as ]selected from manufacturer's full range.] [Match Architect's sample.]

1. **EXECUTION**
   * + 1. EXAMINATION and PREPARATION
          1. Examine areas for compliance with requirements for installation olerances, operational clearances, [accurate locations of connections to building utility systems,] and other conditions affecting performance of the Work.
       2. INSTALLATION
          1. Comply with manufacturer's written installation instructions and recommendations [ and approved submittals].
       3. FIELD QUALITY CONTROL
          1. Test and ensure each utility item included is functioning properly.
       4. CLEANING
          1. Clean work surfaces and leave them free of contaminants.

END OF SECTION