

## SECTION 123553 - ADAPTABLE LABORATORY FURNITURE SYSTEM

## PART 1 - GENERAL

## 1.1 DESCRIPTION

- A Furnish and install all Lab Crafters I-FLEX adaptable laboratory furniture systems as specified herein complete and ready for intended use.

## 1.2 REFERENCES

- A Scientific Equipment and Furniture Association, SEFA 8-M-2016 Laboratory Grade Metal Casework
- B Scientific Equipment and Furniture Association, SEFA 2-2018 Installation of Scientific Equipment and Furniture
- C Scientific Equipment and Furniture Association, SEFA 10-2013 Adaptable Casework Systems
- D Underwriters Laboratories, UL 962 Household and Commercial Furnishings, Third Edition, 2008
- E ANSI/BIFMA X5.9 Storage Units - Tests

## 1.3 SUBMITTALS

- A Product Data: Submit complete product data, including a chart of manufacturer's standard finishes for all materials, equipment, and products for work in this section.
- B Shop Drawings: Submit complete shop fabrication and installation drawings, including plans, elevations, sections, details, and schedules. Show relationship to adjoining materials and construction. Shop drawings shall not exceed 11 inches x 17 inches in size.

## 1.4 PRODUCT HANDLING

- A Protection: Take necessary precautions to protect the work of this section before, during and after installation.
- B Coordination: Coordinate delivery and installation of laboratory casework with that of the fume hoods, plumbing, and electrical work.
- C Project Conditions: Delivery shall take place when site conditions meet the guidelines outlined in SEFA 2.

## 1.5 QUALITY ASSURANCE

- A Contractor for work in this section shall have an established organization and production facilities including all tools, equipment, and special machinery necessary for specializing in the fabrication and installation of the type of products specified with skilled personnel, factory trained workmen and an experienced engineering department. Each shall have the demonstrated knowledge, ability, and proven capability to produce the specified equipment of the required quality and the proven capacity to complete an installation of the size and scope of this project within the required time limits. A minimum of 10 years experience in the manufacture of laboratory casework is required.

Contractor must manufacture and assemble all products in a factory located in the United States of America.

- B Product Standard (General): Comply with SEFA 8M.
- C Product Standard (General): The furniture system must be manufactured in compliance with UL 962 and the bench must be shipped from the manufacturer with the UL 962 LISTED label affixed to the bench system complete and ready for use, with all plumbing services factory installed and pre-plumbed and all electrical services factory installed and pre-wired. Wiring and plumbing within the furniture system that is performed in the field is not acceptable as it is not covered by the UL Listing.

## PART 2 - PRODUCTS

### 2.1 I-FLEX ADAPTABLE LABORATORY FURNITURE SYSTEM

- A Manufacturers: Subject to compliance with specified requirements, provide products by one of the following:
  - 1 Lab Crafters, Inc. ([www.lab-crafters.com](http://www.lab-crafters.com))  
Ronkonkoma, NY  
Phone: 631.471.7755  
Email: [info@lab-crafters.com](mailto:info@lab-crafters.com)
  - 2 Owner/Architect Approved Equal
- B Materials:
  - 1 All materials shall be of the highest quality and appropriate for intended use.
- C Construction Features:
  - 1 All I-FLEX adaptable laboratory benches shall be of modern design and constructed in accordance with the highest standards and practices in the metal casework industry.
  - 2 All I-FLEX adaptable laboratory benches shall be a modular table system and shall be adjustable in height for the work surface to measure from 31.5" to 39" AFF.
  - 3 Height adjustable options include tube-in-tube mechanical adjustment with positive hardware securement, hydraulic pump adjustment actuated by a hand crank or electric drive adjustment actuated by a push button.
  - 4 The I-FLEX table shall support up to two utility poles. The utility poles shall incorporate a chase for plumbing or wiring of services and shall be removable and interchangeable between different I-FLEX tables at any point after installation.
  - 5 The utility poles shall be slotted to accept adjustable height shelving and/or hook-on utility raceways.
  - 6 The I-FLEX table frame shall be a welded rectangular tube frame, capable of supporting a minimum load of 150# per linear foot, evenly distributed across the work surface with less than 0.125" deflection at the center point of the frame.
  - 7 The I-FLEX table frame shall include 4 casters and 4 independent leveling legs. Leveling legs shall be adjustable via handles and not require the use of tools.

- 8 The I-FLEX shall include a wire management tray mounted to the rear legs of the table frame.
- D Utility Poles and Raceways
- 1 Utility poles and raceways shall be used to provide point-of-use services at the I-FLEX laboratory bench.
  - 2 Plumbing utility poles shall include panel mount laboratory plumbing service fixtures from WaterSaver Faucet Co.
    - a. Standard plumbing services shall use WaterSaver model L4880-225WSA model fixture with 5/8" O.D. Reinforced PVC hose. The hose shall connect directly to the valve and on the other end include a male quick connect fitting to connect to the building service via a ceiling service panel.
    - b. High Purity plumbing services shall use WaterSaver model L4880-225WSA model fixture that has been factory oxygen cleaned. The hose shall be stainless steel braid over a PTFE core that has been factory oxygen cleaned. The hose shall connect directly to the valve and on the other end include a male quick connect fitting to connect to the building service via a ceiling service panel.
    - c. Burning gas plumbing services shall use WaterSaver model L4260-158WSA model fixture. The valve shall be piped with black iron or stainless steel pipe within the utility pole. The internal pipe shall be connected to a stainless steel hose with corrugated stainless steel core. The hose shall include a male quick connect fitting to connect to the building service via a ceiling service panel.
    - d. The male end of the quick connect shall be color coded to match the service. The quick connects shall be keyed differently to prevent connecting hose designated for one media to the female quick connect of a different media.
    - e. The plumbing utility pole shall accommodate up to five unique plumbing services.
    - f. Should a blank utility pole be required to support adjustable shelving or other accessories, the blank pole shall be a plumbing pole with the holes for mounting plumbing fixtures capped.
  - 3 Electrical power and data services shall be distributed to the I-FLEX bench through either a power pole and/or a horizontal hook-on power raceway, as depicted in the drawing package.
    - a. Receptacles shall be 20-amp, 125 volt, NEMA 5-20R straight blade commercial grade, self-grounding devices unless otherwise noted. Device color as noted on the drawings. If no color indicated the device shall be white. Receptacles shall be UL listed.
    - b. Receptacles shall be mounted to the pole and/or raceway from the rear through double-d cut outs in the sheet metal and do not require a faceplate.
    - c. Receptacles shall be wired to a 12/3 White SO cord with L5-20P twist lock plugs for connection to the ceiling service panels. No more than 4 duplexes or 8 individual devices shall be wired to a single circuit.
    - d. Data receptacles shall be furnished and installed in the same pole and/or raceway as line voltage electrical devices. Data devices and wiring shall be sufficiently spaced, routed away from and/or physically partitioned from electrical line voltage wiring to prevent signal interference.

- e. Unless otherwise noted, data devices shall be Hubbell C6ESRW CAT 6E UTP cable with a Hubbell HXJ6W jack on one end and a Hubbell RJ45 plug for connection into a mating jack the ceiling service panel (mating jack furnished and installed by others in the ceiling service panel).

#### E Work Surfaces:

- 1 [Option 1] Phenolic Resin: Phenolic Resin board material shall consist of layers of phenolic impregnated kraft papers that are compressed in a flat press at pressures exceeding 100 psi (685.9kPa) and at 300 deg. F (149 deg. C). The top surface layer shall contain the required color pigmentation. Tabletops shall be 1" thick, with drip grooves provided on the underside at front edge. Color shall be Black, White, or Gray, all with a black edge.
- 2 [Option 2] Epoxy Resin: 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 tabletop. Tops 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 shall be non-glaring. Tabletops shall be 1" thick, with drip grooves provided on the underside at front edge. Color shall be Black.
- 3 Work surface shall have the appropriate cut outs for mounting utility poles. Cut outs shall have a routed perimeter to accept a flush cap when the pole is not installed.

#### F Adjustable Shelves

- 1 Adjustable Shelves for I-FLEX tables shall be supported by steel brackets which mount to the slots in the utility poles. They shall be adjustable in height on 1" increments.
- 2 Shelves shall be available in depths of 9", 12", 15" and 18".
- 3 Shelf Materials: Steel shelves shall be 1" thick with return bends on all sides and integrally formed shelf lips on the front and back of the shelf. They shall attach to the shelf brackets with screws. Shelves shall have a continuous hat channel support spot welded to the underside of the shelf.
- 4 [OPTION] Bottom shelf shall feature magnetic LED task light. The on/off switch and occupancy sensor (if required) shall be located within the task light housing. Task light shall be mounted flush within steel shelves. LED shall plug into a receptacle on an adjacent power pole or raceway.

#### G Ceiling Service Panels

- 1 Ceiling service panels shall be fabricated from 18g steel formed for a depth of 1.75" with return flanges on all four sides. The panel shall be sized according to the project drawings with cutouts for utilities as shown.
- 2 The finish shall be powder-coat, with color selected from manufacturer's standard offering.
- 3 The plumbing quick connects required for the ceiling service panels shall be factory mounted.

- 4 The electrical receptacles and face plates required for the ceiling service panels shall ship loose for field installation by others. Back boxes shall be factory mounted.
  - 5 The data services shall be furnished and installed in the field by others.
  - 6 The ceiling service panels shall be set into the existing grid (grid by others) and secured to the grid with screws. Any other overhead support shall be by others.
  - 7 The connection of building service feeds to the ceiling panel is by others.
- H Casework: The I-FLEX adaptable bench system shall integrate with floor mounted, mobile, and/or suspended styles of casework.
- 1 Mobile casework shall be laboratory grade in accordance with SEFA 8M with casters.
  - 2 Mobile cabinet bodies are fully welded with a finished metal top and back.
  - 3 Casters shall be 3" double wheel, swivel, with front two casters having brakes.
  - 4 Mobile cabinets with more than one drawer shall have interlocking drawer tracks that prevent more than one drawer from being opened simultaneously.
  - 5 Mobile cabinets shall include a counterweight to prevent tipping over if required when tested to the ANSI/BIFMA X5.9 standard.
  - 6 Cabinet Hinges shall be stainless steel pivot hinges meeting requirements of SEFA 8M.
  - 7 Cabinet pulls shall be 4" wide raised bar pulls.
  - 8 Cabinet drawer tracks shall be full extension rated for 200#, except for 3" drawers which shall be rated for 100#.
  - 9 All cabinets drawer bodies shall be type 304 stainless steel with a 2B finish.
- I Metal Finishes
- 1 All metal components shall be finished with a laboratory grade powder coat finish. Color shall be selected by the architect from the manufacturer's standard offering.
  - 2 Performance Requirements: Cabinets' chemical resistance shall be "Laboratory Grade" as defined by SEFA 8M.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

1. Preparation: Prior to beginning installation of casework, check and verify that no irregularities exist that would affect quality of execution of work specified.
2. 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 regarding mechanical and electrical connections to and in the fume hoods and the general construction work.
3. Casework installation:
  - a. Set casework components plumb, square, and straight with no distortion.
4. Work surface installation:
  - a. Secure work surfaces to countertop support frame with material and procedures recommended by the manufacturer.

5. Accessory installation: Install accessories and fittings in accordance with manufacturer's recommendations.
6. Plumbing fixtures and fittings: Plumbing fittings that are integral to the I-FLEX adaptable furniture system are to be provided factory installed and pre-plumbed. The UL 962 Listing must cover the factory plumbing.
7. Electrical fixtures and fittings: Electrical fittings that are integral to the I-FLEX adaptable furniture system are to be provided factory installed and pre-wired. The UL 962 Listing must cover the factory wiring.

### 3.02 ADJUSTING

- A. Repair or remove and replace defective work, as directed by Architect upon completion of installation.
- B. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly.

### 3.03 CLEANING

- A. Clean finished casework touch up as required.

### 3.04 PROTECTION OF FINISHED WORK

- A. Provide all necessary protective measures to prevent exposure of casework and equipment from exposure to other construction activity.

END OF SECTION