

## SECTION 11611

### SELF-CONTAINED FILTERED LABORATORY ENCLOSURES

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Bench-mounted self-contained carbon-filtered laboratory enclosures.

##### 1.2 RELATED SECTIONS

- A. Section 11600 - Laboratory Equipment.
- B. Section 12351 - Laboratory Casework.
- C. Section 15400 - Plumbing.
- D. Section 16200 - Electrical.

##### 1.3 REFERENCES

- A. ANSI Z 9.5 - Laboratory Ventilation.
- B. ASHRAE 110 - Method of Testing Performance of Laboratory Fume Hoods.
- C. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- D. NFPA 45 - Fire Protection for Laboratories Using Chemicals.
- E. SEFA 1 - Laboratory Fume Hoods.
- F. UL 3101-1.
- G. CAN/CSA - C22.2 No. 1010.1.
- H. European Community - Electrical Safety Standard: 1010.1.
- I. European Community - Electromagnetic Compatibility Directive: 89/336/EEC.

##### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's catalog data, specification sheets, and product manuals.

- C. Shop Drawings: Prepared specifically for this project; show dimensions and interface with other products.
- D. Selection Samples: Enclosure cabinet wall material, baffle, air foil, front panel color chips, and work surface material.

#### 1.5 QUALITY ASSURANCE

- A. Maintain testing facility at manufacturer's place of business for testing and evaluating self-contained carbon-filtered laboratory enclosures under both ideal and adverse conditions, in accordance with ASHRAE Standard 110.
- B. Make manufacturing facility, testing facility, and quality control procedures available for owner inspection.
- C. Provide computer-based carbon filter modeling program to determine appropriateness of using carbon-filtered enclosures for this project.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver self-contained filtered laboratory enclosures and accessories fully assembled, free of damage.
- B. Store and handle in a manner to prevent damage to self-contained filtered laboratory enclosures, accessories, or adjacent work.

#### 1.7 WARRANTY

- A. Warrant against defects in materials and workmanship on self-contained filtered laboratory enclosures and accessories; include labor and replacement parts (except filters and lamps).
- B. Warranty Period: One year from date of installation or two years from date of purchase, whichever is sooner.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Provide products made by Labconco Corporation, 8811 Prospect, Kansas City, MO 64132. ASD. Tel: (816) 333-8811 or (800) 821-5525. Fax: (816) 363-0130.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.
- D. Provide all self-contained filtered laboratory enclosures from a single manufacturer.

## 2.2 MANUFACTURED UNITS

- A. Bench-mounted self-contained carbon-filtered laboratory enclosures:
  - 1. Size: 36 inches wide, 53-1/2 inches high, 29 inches deep (0.91 x 1.36 x 0.74 m).
  - 2. 115 volts, 60 Hz models.
  - 3. 230 volts, 50 Hz models.
  - 4. Organic vapor sensors.

## 2.3 MATERIALS

- A. Aluminum:
- B. Safety Glass: 1/4 inch (6 mm) tempered.

## 2.4 FINISHES

- A. Exposed Aluminum: Epoxy-coated, glacier white.

## 2.5 COMPONENTS

- A. Frame, Back, Upper Cabinet, Baffle, and Air Foil: Epoxy-coated aluminum.
- B. Sash and Side Panels: Safety glass.
- C. Roughing Pre-Filters: \_\_\_\_\_.
- D. Light Fixtures: 20-watt fluorescent fixtures (tubes included); two per enclosure.
- E. Motor/Blowers: Non-sparking, variable speed, with polypropylene impeller.

- F. Accessory Carbon Filters: Minimum 52 pounds (23.6 kg) of activated or treated carbon.
- G. Carbon Filter Clamping Mechanisms: Gas-assist type.
- H. Event Timers: One-second increments, eight hour duration.
- I. Audible/Visual Alarms: Programmable.
- J. Organic Vapor Sensors: Electronic; able to detect organic vapor concentrations in filter bed exceeding 50 parts per million and, upon detection, to activate audible/visual alarm.
  - 1. Locate second electronic sensor in exhaust airflow to, activate audible/visual alarm upon detection of organic vapor concentrations exceeding 50 parts per million.
- K. Mobile Base Stands: Tubular steel frame, epoxy coated, with 5 inch (125 mm) diameter toe-locking casters and solid epoxy dished work surface.
- L. Base Cabinets: Steel, epoxy coated, with epoxy dished work surface.

## 2.6 FABRICATION

- A. Fabricate self-contained filtered laboratory enclosures to include baffle, air foil, filter clamping mechanism, roughing pre-filters, and utility ports with plastic plugs.
- B. Fully assemble and pre-wire enclosures before delivery.
- C. Provide proper airflow into enclosures with air foils; provide proper airflow and air/containment mixing with slotted baffles.
- D. Provide LCD on front panel for alternate display of filter saturation level and filter time elapsed.
- E. Provide detector tube port accessible from front of enclosure for filter testing.
- F. Provide two user-programmable event timers to alarm as follows:
  - 1. At user-determined intervals that filter should be checked.

2. At user-determined time that filter should be changed.
- G. Provide SET FILTER TIME, UP/DOWN, and ENTER programming switches to allow operator to reset elapsed time display and alarm time when a new filter is installed.
  1. Security code shall be required to change filter alarm time.
- H. Provide angled sash, adjustable to 10-3/4 inches (275 mm) and 12-3/4 inches (325 mm) opening positions, pivoting to a 22 inch (560 mm) opening for loading and cleaning.
- I. Locate motor/blower behind front panel, serviceable from outside enclosure.
  1. Face velocity with sash open 10-3/4 inches (275 mm): 100 feet per minute (0.51 m/sec); face velocity with sash open 12-3/4 inches (325 mm): 80 feet per minute (0.41 m/sec).
- J. Provide light fixtures controlled by switch separate from motor/blower switch, tubes replaceable from front of enclosure.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify equipment rough-in before proceeding with work, including rough opening dimensions required for self-contained filtered laboratory enclosures installation.
- B. Coordinate with other trades for proper installation of plumbing and electrical services.

### 3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions; comply with standards required by authorities having jurisdiction.
- B. Install equipment plumb, square, and straight, without distortion; securely anchor.
- C. Schedule installation to ensure that utility connections are achieved in an orderly and expeditious manner.

- D. Demonstrate self-contained filtered laboratory enclosure operations and functions to Owner at completion of installation.

### 3.3 ADJUSTING AND CLEANING

- A. Adjust operating equipment to provide efficient operation for its intended use and as required by manufacturer.
  - 1. Sashes: Operate smoothly without binding.
- B. Clean equipment, casework, countertops, and other surfaces as recommended by manufacturer, rendering work in new and unused appearance.
- C. Clean adjacent construction and surfaces soiled in the course of installation of this work.
- D. Touch up minor damaged surfaces caused by installation. Replace damaged components as directed by Architect.

### 3.4 PROTECTION

- A. Provide protective measures to prevent equipment and surfaces from exposure to other construction activity.

END OF SECTION