

SECTION 11 53 13

LABORATORY FUME HOODS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes ADA fume hoods and accessories.
- B. Related Sections:
 - 1. Division 22 - Plumbing Fixtures: Final connection of laboratory sinks.
 - 2. Division 23 - Ductwork: Final connections to fume hoods.

1.2 SUBMITTALS

- A. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- B. Shop Drawings: Include component dimensions, configurations, elevations, cross sections, construction details, and connections to countertops.
- C. Product Data: Submit information type, size, finish, accessories for each fume hood specified.
- D. Provide validation of all required certification and testing as listed in Part 2.
- E. Manufacturer's Installation Instructions: Submit special precautions for installation.

1.3 SUSTAINABLE DESIGN SUBMITTALS

- A. Section 01 81 13 - Sustainable Design Requirements: Requirements for sustainable design submittals.
- B. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.
 - 1. Materials Resources Certificates:
 - a. Certify recycled material content for recycled content products.
 - b. Certify source for local and regional materials and distance from Project site.
- C. Product Cost Data: Submit cost of products to verify compliance with Project sustainable design requirements. Exclude cost of labor and equipment to install products.
 - 1. Provide cost data for the following products:
 - a. Products with recycled material content.
 - b. Local and regional products.

1.4 QUALITY ASSURANCE

- A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and indicated.

- B. Sustainable Design Requirements:
 - 1. Recycled Content Materials: Furnish materials with recycled content.
 - 2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum three years documented experience.
- B. Installer: Company specializing in installing the work of this Section with three years documented experience and approved by the Manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Store units in protected area.

1.7 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate the Work with plumbing, mechanical, and electrical connections.

PART 2 PRODUCTS

2.1 FUME HOODS

- A. Manufacturers:
 - 1. CampbellRhea LabShield double faced metal fume hood, model #6725GLCM, modified to be 48" wide.Other acceptable manufacturers offering equivalent products:
 - a. Collegedale Casework, Inc.
 - b. Fisher Hamilton
 - c. Kewaunee Scientific Equipment Corporation
 - d. Sheldon Laboratory Systems- 2. Substitutions: Section 01 60 00 - Product Requirements.

2.2 COMPONENTS

- A. Bench-Type ADA Hoods: Conforming to the following:
 - 1. Type: Constant volume/bypass air flow system.
 - 2. Construction: Double wall steel with back panel.
 - 3. Length: 4'-0"
 - 4. Face area: 10 square feet
 - 5. Exhaust: 900 cfm
 - 6. Finish:
 - a. Exterior: Baked enamel.

7. Sash Type: Sashes on two sides. The hood is equipped with an audible sash alarm which sounds to prevent simultaneous opening of both sashes. The alarm sounds continuously until one sash is completely closed.
 8. Baffle: Fixed type.
 9. Electrical Characteristics: 115 volt AC, 60 Hz.
 10. Accessories: UL listed, Two tube fluorescent light fixture and two duplex 120 volt AC receptacles.
 11. Services: Cold water faucet. Service fixtures shall be laboratory grade, polished chrome finish with color coded identification and remote access.
 12. Accessories:
 - a. Base Cabinets: Manufacturer's standard type to support hood.
 - b. Countertops: Molded modified epoxy resin with marine edge and molded 3 x 6 cup sink to include drainage system.
- B. Fume hoods shall function as ventilated, enclosed workspaces, designed to capture, confine and exhaust fumes, vapors and particulate matter produced or generated within the enclosure.
 - C. Design fume hoods for consistent and safe air flow through the hood face. Negative variations of face velocity shall not exceed 20% of the average face velocity at any designated measuring point as defined in this section.
 - D. Average illumination of work area: Minimum 80 footcandles. Work area shall be defined as the area inside the superstructure from side to side and from face of baffle to the inside face of the sash, and from the working surface to a height of 28 inches.
 - E. Fume hood shall be designed to minimize static pressure loss with adequate slot area and bell shaped exhaust collar configuration. Maximum average static pressure loss readings taken three diameters above the hood outlet from four points, 90 degrees apart, shall not exceed the following maximums:
 - F. Fume hood shall maintain essentially constant exhaust volume at any baffle position for safety. Maximum variation in exhaust CFM, static pressure and average face velocity as a result of baffle adjustment shall not exceed 5% for any baffle position at the specified face velocity.
 - G. Fume Hoods are to be Certified and Labeled as a unit with the following:
 1. UL 1805
 2. SEFA 1-02
 3. ASHRAE 110 - 95
 4. ANSI Z9.5-93
 - H. Fume Hoods are designed to meet the requirements of ADA and be ergonomically correct.
 - I. Fume hoods must not be assembled using exposed screws or fasteners inside holding the liner or outside holding the louvers or grilles.

- J. Fume hood liner: Polyresin: Reinforced polyester panel; smooth finish and bright white color in final appearance. Flexural strength: 14,000 psi. Flame spread: 15 or less per U.L. 723 and ASTM E84-80. Fume hood liner is non-brittle and easily cleaned. The liner is held into place without any metal or exposed fasteners.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify dimensions, tolerances, and methods of attachment with other Work.
- C. Verify Casework bases are ready to receive Work of this Section.

3.2 INSTALLATION

- A. Install fume hoods in accordance with manufacturer's instructions.
- B. Install units plumb and level.
- C. Install accessories within fume hood, ready for final connections by other trades.

3.3 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Adjust hardware and other moving parts to function smoothly.
- C. Adjust sashes for smooth and balanced movement.

3.4 CLEANING

- A. Section 01 70 00 - Execution Requirements: Final cleaning.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 70 00 - Execution Requirements: Protecting installed construction.
- B. Protect units until Substantial Completion.

END OF SECTION