

JAMESTOWN METAL PRODUCTS DISCOVERY FUME HOOD SPECIFICATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Fume hoods.

1.02 FUME HOOD GENERAL DESIGN REQUIREMENTS

- A. All fume hoods are *K-12* types with a top and bottom airfoil and aerodynamically shaped fascia posts to minimize turbulence. The design incorporates an automatic air bypass system so that the exhaust air volume is constant. Bypass is achieved through louvers located in the top airfoil with face velocities not to exceed 3.8 times the full-open face velocity.
- B. Design fume hood 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.
- C. Average illumination of work area: minimum 80 foot-candles. 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 48 inches.
- D. Fume hood shall be designed to minimize static pressure loss with stainless steel round duct 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:

Face Velocity at sash full open - measured S.P.L. (W.G.)

75 F.P.M.	.30 inches
100 F.P.M.	.50 inches
125 F.P.M.	.80 inches
150 F.P.M.	1.16 inches

- E. 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.

1.03 SUBMITTALS

- A. Submit manufacturers test data and installation instructions for each type of fume hood. Provide data indicating compliance with ANSI/ASHRAE Standard 110-1995.
- B. Provide samples of the following:
 - 1. 6" x 6" section of the interior fume hood liner material.
 - 2. 12" x 12" section of countertops with dish formation.
 - 3. Color samples of manufacturer's finish.
 - 4. Hardware and accessories including sample sash handle and/or pulls, cables, and pulleys.

Samples of the approved manufacturer will be kept at the job site or the office of the architect until completion of the project.

- C. Provide submittal drawings for fume hoods showing plans, elevations, sections and service run spaces.

Details shall include notation of all specified items.

1. Provide location and type of service fittings as related to the fume hood when required.
2. Provide roughing-in drawings for mechanical and electrical services as related to the fume hood when required.
3. Provide face opening; air volume and static pressure drop data.

1.04 QUALITY ASSURANCE

- A. All fume hoods specified herein will be the product of one manufacturer and will be based on the specifications of the product line described in Part 2. All manufacturers other than those of the specified products will provide evidence of expertise in the manufacture of fume hoods and be willing to have their manufacturing facility scrutinized by the customer.
- B. All manufacturers desiring approval for this project must maintain a fume hood test facility at their factory location. This facility must provide for variable exhaust and make-up air control. In addition, any facility that provides for fume hood make-up air by using floor-to-ceiling wall diffusers is unacceptable. All qualified test facilities must contain, as part of their permanent equipment, ANSI/ASHRAE 110-1995 testing hardware as specified in that standard. In addition, all data readings shall be computer-recorded and the raw data submitted in disc format.
- C. The manufacturer shall, for a period of three years from date of shipment, warrant that furnished products shall be free from defects in material and workmanship. The manufacturer shall also warrant the products to be as represented and will repair or replace any part, under normal use, if examination discloses it to have been defective within the warranty period.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Coordinate delivery of fume hoods with delivery of other casework components and with work of other trades.
- B. Deliver, store, and handle fume hoods in a manner designed to prevent damage and disfigurement to the product.
- C. Protect all surfaces from damage during transit.

1.06 PROJECT CONDITIONS

Do not deliver or install equipment until the following conditions have been met:

- A. Windows and doors are installed and the building is secure and weather tight.
- B. Ceiling, overhead ductwork and lighting are installed.
- C. All painting is completed and floor tile located below casework is installed.

PART 2 - PRODUCTS

2.01 MANUFACTURER

Designs of fume hoods are based on products manufactured by Jamestown Metal Products, 178 Blackstone Avenue, Jamestown, New York 14701. All fume hoods shall be the products of one manufacturer.

2.02 FUME HOOD MATERIALS

- A. Steel: High quality, cold rolled, mild steel meeting requirements of ASTM A366; 16 and 18 gauge U.S. Standard.
- B. Stainless steel: Type 304; 16, 18 and 20 gauge U.S. Standard. Stainless steel shall be supplied with a #4 finish free of burrs, weld marks, or other imperfections.
- C. Galvanized steel: 18 gauge, G90 finish.
- D. Sash Glass: 1/4" (6 mm) clear tempered glass.
- E. Sash tracks: Corrosion-resistant polyvinyl chloride (PVC).
- F. Fastenings:
 - 1. Interior fastening devices: Nylon bolts, PVC-capped 410 stainless screws.
 - 2. Exterior structural members' attachments: 410 stainless screws.
 - 3. Exterior panel member fastening devices: 410 stainless screws.
- G. Interior Liners:

The liner consists of all interior surfaces, including sides, top, back and baffles. Material is white fiberglass reinforced polyester material (polyglass).

2.03 CONSTRUCTION - BENCH HOODS

- A. Superstructure

Superstructure shall consist of 18 gauge galvanized steel side pans and back pans, maximum 4-3/4" thick, holding side and rear liner panels, and fastened together with screws so that the entire structure is secure and rigid. Any framing system not providing structural support is unacceptable.

Front and both sides of the superstructure are aligned and precision fit, eliminating the need for exterior gaskets.
- B. Hood roof shall be fabricated from the same liner material as the rest of the containment cavity.
- C. Airfoil Construction

Bottom airfoil shall be constructed of painted 16 gauge cold rolled steel with a minimum clearance of 3/4" from the work surface to insure maximum operating efficiency and minimum eddy effects.

Top airfoil shall be constructed of 18 gauge painted cold rolled steel.
- D. Sash is a frameless vertical sash containing a 1/4" (6 mm) tempered glass panel and a full width painted cold rolled steel sash handle connected to a steel rear-hung counterweight system, and non-creeping sash performance. Rear-mounted counterweight shall be connected to stainless steel aircraft quality cable engaging a pulley system with positive connection points both front and rear.

- E. Baffles providing controlled air vectors into and through the fume hood shall be fabricated of the same material as the liner. Provide three fixed baffles and one bottom adjustable baffle.
 - F. Bypass system shall consist of a louvered top airfoil.
 - G. Duct collar will be 12" round exhaust outlet collar and be fabricated of 20 gauge type 304 stainless steel. Coated steel collars are not acceptable.
 - H. All bench type fume hoods are designed to have an interior vertical clearance of not less than 48" in the front twelve inches of the hood depth.
 - I. Fume hood fascia posts shall be painted 18 gauge cold rolled steel
Exterior end panels shall be painted 18 gauge cold rolled steel.
 - J. Interior fluorescent lighting configured for T-12 lamp tubes shall be provided and installed on the exterior of the fume hood roof. A tempered glass panel is provided and has a vapor-tight seal to isolate the fluorescent fixture from the hood interior. The largest possible double tube UL approved fixture is provided for each hood. Fluorescent lamp tubes are not included with hood.

Standard configurations for fluorescent light fixtures are 48" hood (1-36" fixture), 60" hood (1-48" fixture), 72" hood (1-48" fixture).
 - K. Instruction Plate

Corrosion resistant or plastic plate attached to the fume hood exterior with condensed information covering recommended locations for apparatus and accessories, use of sash and recommended safe operating procedures.
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