

**BMC/FUME HOOD SPECIFICATION
SECTION 11610**

1.01 GENERAL:

- A. Fume hoods shall be of a "picture frame" airfoil design and construction. Each fume hood superstructure shall provide for safe efficient removal of all fumes, both heavy and light, with the least amount of turbulence as the air enters the hood.
- B. Standard airfoil bench hood superstructures shall be tested in accordance with the ASHRAE 110-1995 Test Procedure and perform well within the American Conference of Governmental Industrial Hygienists recommendations.

1.02 MATERIAL:

- A. Metal: Prime furniture steel, free of scales, buckles, or other defects; ASTM A366.
- B. Stainless Steel: Type 304 or 316, as noted, commercial grade, No. 4 Finish, ASTM A167.
- C. Safety Glass: 1/4" Laminated; conforming to ANSI 297.1 for 400-foot-pound impact, and to CPSC 16 CFR 1201 for Category II Safety Glazing.
- D. PVC: Extruded Polyvinyl Chloride
- E. Resin-Chem: White chemical resistant, fiberglass reinforced thermostat resin sheet. Flame spread rating; 25.

1.03 CONSTRUCTION:

- A. Fume hood superstructures shall have a double wall construction consisting of an outer shell of sheet steel and an inner liner of corrosion resistant material as specified. Attachment of the interior lining material to the steel framing members shall be made with non-metallic fasteners. The double wall shall house and conceal steel framing members, attaching brackets and remote operating service fixture valves.
- B. The exterior side panels of the superstructure shall be constructed of 18 gauge steel and shall be removable for access into the interior housing. Access shall also be gained through removable panels in the interior liner. These interior removable panels shall be held in place by a PVC gasket.

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- C. Each superstructure shall have an internal baffle system of the same material as the interior liner. This baffle system shall provide for safe efficient removal of fumes when the superstructure is connected to a properly installed exhaust system. A manual adjustment shall be provided on the upper part of the baffle to allow the operator to set the hood for heavy or light fumes. All baffles shall be removable for cleaning.
- D. Unless specified for use in a variable air volume (VAV) system, the superstructures shall be provided with an air by pass feature. The by-pass, located at the upper front interior of the hood, shall open as the sash is lowered, providing for a relatively constant exhaust volume of the fume hood superstructure.
- E. When shown, the upper front exterior panel of the superstructure shall be furnished with louvers. The louvers provide for proper operation of the by-pass feature when the top of the superstructure is closed off to the ceiling. The upper front exterior panel of the superstructure shall also be removable for access.
- F. A two tube, rapid start, vapor sealed fluorescent light fixture of maximum length shall be provided on each superstructure. Each fixture shall include two soft white tubes providing 80 candle power at the work surface. Light fixtures shall be re-lamped from the top front of the superstructure.
- G. Exhaust outlets shall be rectangular, 18 gauge type 304 stainless steel. Galvanized or painted outlets are not acceptable.
- H. Fume hoods shall have a full view, vertical rising, laminated safety glass sash framed with a solid black, PVC extrusion. The sash shall have a full width extruded PVC finger lift. The finger lift shall have a 16 gauge steel tube inserted the full width of the finger lift and shall be fully enclosed by PVC. Sashes with stainless steel or coated steel finger lifts are not acceptable. The sash shall not required the use of a center mullion. Sash guides shall be extruded, black PVC.

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- I. The sash shall be counter balanced with a single weight located in the center rear of the superstructure. Two 1/8" diameter stainless steel cables shall connect the sash to the weight. The use of two cables shall act as a safety mechanism keeping the sash from falling in the event that one cable would fail. The cables shall ride on 2" diameter nylon ball bearing pulleys. The cable/pulley assembly shall have an adjustment located on the top of the superstructure for proper alignment of the sash. A cable keeper clip shall be installed on each pulley to prevent the cable from coming off the pulley.
- J. A lower airfoil of 14 gauge steel, coated with a black baked on chemical resistant finish, shall act as the sash stop. In addition, the airfoil shall provide a 1" space between the bottom of the sash, in the closed position, and the work surface. This 1" space shall provide for a continuous sweep of fumes from the work surface.

1.04 AIRFOIL BY-PASS FUME HOODS:

- A. Constructed as specified above. The airfoil bypass fume hood superstructure shall have a white Resin-Chem interior lining.

1.05 AIRFOIL ADD AIR FUME HOODS:

- A. The add air superstructure shall have an 18 gauge painted steel add air plenum. The plenum shall be capable of properly distributing up to 70% of the air requirements of the hood. The add air plenum shall be of standard size and have the ability to be added to any of the standard Airfoil Fume Hoods.
- B. The interior lining of the airfoil add air fume hood superstructure shall be white Resin-Chem.

1.06 AIRFOIL RADIOISOTOPE HOODS:

- A. The interior lining and work surface of the Radioisotope Superstructure shall be type 304 stainless steel. Seams and joints present in the interior and work surface shall be welded to eliminate pockets, cracks and crevices that would permit a build up of radioactive materials.
- B. The work surface shall be an integral welded part of the superstructure. It shall be water tight and furnished with raised edge to contain spills. It shall be properly reinforced to support 200 lbs. per square foot up to a total weight of 1,000 lbs. per hood or base cabinet section.

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- C. An 18 gauge type 304 stainless steel frame shall encase the laminated safety glass sash. The vertical sliding sash shall ride in type 304 stainless steel sash guides.
- D. Interior removable access panels shall be provided with stainless steel fasteners for access to the interior housing.
- E. All other features of the hood are as specified under "Construction".

1.07 AIRFOIL PERCHLORIC ACID FUME HOODS:

- A. Perchloric acid fume hood superstructures shall be identified by a label indicating suitability for use with perchloric acid procedures. All exposed parts of the superstructure interior shall be seamless welded coved cornered, type 316, stainless steel.
- B. The work surface shall be an integral welded part of the superstructure. It shall be watertight and furnished with a raised edge to contain spills and wash down water. A full width drain through shall be located below the baffle.
- C. A water spray (wash down system) consisting of a perforated, stainless steel tube shall be located behind the baffle for rinsing the area behind the baffle. Service fitting control for the wash down system shall be external to the hood, clearly identified and within easy reach.
- D. An 18 gauge, type 316 stainless steel frame shall encase the laminated safety glass sash. The vertical sliding sash shall ride in type 316, stainless steel sash guides.
- E. Interior removable access panels shall not be provided on perchloric acid superstructures.
- F. All other features of the hood are as specified under "Construction".

1.08 LOW BENCH HOODS:

- A. Low bench fume hood superstructures shall have a white Resin-Chem interior lining. The sash shall consist of four horizontal sliding, laminated safety glass panels, with a stainless steel edge trim. The panels shall be top hung and ride in an extruded aluminum track which is mounted to a structural stainless steel beam, above the hood opening.

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- B. Two removable interior access panels shall be located on each side of the fume hood superstructure.
- C. All other features of the low bench fume hood superstructure are specified under "Construction".

1.09 WALK-IN FUME HOODS:

- A. Walk-In fume hood superstructures shall have a white Resin-Chem interior lining. The sash shall consist of two vertical sliding laminated safety glass panel as specified under "Construction". Each sash shall have an independent weight cable and pulley system as specified under "Construction".
- B. Two removable interior access panels shall be located on each side of the fume hood superstructure.
- D. All other features of the walk-in fume hood superstructure are as specified under "Construction".