Microzone Corporation
MFH Series Fume Hood Specification

PART 1 GENERAL
PART 1.01 GENERAL INFORMATION

This Section specifies all requirements necessary to furnish and install metal fume hoods including, but not limited to the following:

1. This specification covers the requirements for metal fume hoods and must comply with all applicable trade standards, ordinances, building codes and regulations and those standards and references listed (where applicable)

2. Nominal widths are covered by this specification.

3. This specification sets the intent for quality, performance and appearance.

4. Supply and install as scheduled in laboratory schedule and drawings.

5. Coordinate installation with other trades to avoid onsite conflicts.

6. Reference related sections within the specification document in conjunction with the following specifications to insure total requirements for the referenced materials are provided.

   Division 6: Wood backing in walls for laboratory fume hoods/casework and accessory anchorage.
   Division 9: Metal backing in walls for laboratory fume hoods/casework and accessory anchorage.
   Division 15: Mechanical
   Division 16: Electrical

1.02 QUALITY ASSURANCE

1. The manufacturer shall maintain a testing facility at their place of business for the performance testing of fume hoods. Both fume hood supply and installation shall be in conformance to good construction practice and approved by the owner/user. The manufacturing facility must be available for owner/user inspection and its quality control procedures.
   A single source responsibility for fume hoods and accessories shall be included in this section.
   The manufacturers shall have production facilities including all tools, equipment and machinery necessary for the fabrication and installation of work specified, complete with skilled personnel, factory trained workmen and an experienced engineering and design department.
   All manufacturers shall have the demonstrated knowledge, ability and the proven capability to complete an installation of this size and type within the required time limits of five years or more experience in the manufacture of fume hoods and equipment of type specified.

1.03 REFERENCES

1. Submit documentation stating that items in this section are installed per applicable referenced codes, standards, specifications and are complete and ready for the intended laboratory function.

1.04 SUBMITTALS

1. **Product Data**: submit manufacturer's data for each item of furnishings and equipment. Include component dimensions, configurations, construction details, and included accessories. Indicate location, size and service requirement for each utility connection. See Specification Division 1 for additional general requirements.

2. **Shop Drawings**: provide drawing(s) of each case, illustrating front, side and top views. Drawings shall include all options, special features, component dimensions, construction details and tolerances. Particular attention shall be given to installation interfaces as required by other trades (plumbing fixtures, exhaust connections, electrical requirements, etc.). Drawings shall be available on electronic format for viewing.

3. **Samples**: confirm construction requirements.

4. **Technical**: Submit detailed information where required including seismic anchorage and attachment drawings and calculations complying with all Building Code requirements and regulations for seismic restraint (where applicable).

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5. **Related Publications**:
    1. ASHRAE Standard 110.1995 - Method of Testing Performance of Laboratory Fume Hoods
    2. SEFA
    3. NFPA-45 – National Fire Protection Association

1.05 DELIVERY AND STORAGE

1. All fume hoods shall be delivered in unopened crated packages adequately protected from damage during shipment.

2. Exercise extreme care in handling all fume hoods to prevent any damage.

3. Store materials within the building in the space designated for storage. Store materials in such manner as to prevent any damage or intrusion of foreign matter. Any damaged materials must be noted and scheduled with the job site installation foreman for removal and replacement from the job-site prior to installation. When ambient temperatures are below –20 degreeF, careful handling is recommended.

1.06 WARRANTY

1. Manufacturer's warranty against defects in material or workmanship for 1 year from date of shipping, shall include replacement of parts and labor. The supplier shall not be responsible for or liable for any modifications, alterations, misapplication or repairs made to the products in the field after product final installation.
   Stipulate that defects that develop within the warranty period shall be removed, repaired and replaced at no additional cost to the Owner. Defects include, but are not limited to:
   Weld or structural failure, shifts or failures of connected components, defective cabinet hardware, warping or deflection of case surfaces

PART 2 – PRODUCTS

2.01 PRODUCT NAME

All MFH series type, model numbers as described below:
Balanced Air Type
The hoods shall be of the balanced air type. The fume hood design shall allow for automatic air bypass above the sash opening. The bypass shall limit the maximum air velocity through the face of the hood and provide for a constant volume of air through the hood regardless of sash position. The bypass shall control the increase in face velocity as the sash is lowered.

Balanced Air Type Model numbers:
MFH-48-BA-x Balanced Air Type, Glastic (G) or Stainless Steel (S) lined
MFH-60-BA-x Balanced Air Type, Glastic (G) or Stainless Steel (S) lined
MFH-72-BA-x Balanced Air Type, Glastic (G) or Stainless Steel (S) lined
MFH-96-BA-x Balanced Air Type, Glastic (G) or Stainless Steel (S) lined

Air Injection Type
Air injection canopy is mounted directly on the front head section of the hood only. The design of the canopy shall be such that the air shall enter through the hood face when the sash is in the open position, and through the bypass section with the sash closed. The canopy shall be of modular design such that it may be added to an existing hood without dismantling the exhaust duct or other fume hood components. The connected to a supply air system, shall direct air down the exterior front of the hood. The auxiliary air source should be tempered accordingly.

Air Injection Type Model numbers:
MFH-48-AI-x Air Injection Type, Glastic (G) or Stainless Steel (S) lined
MFH-60-AI-x Air Injection Type, Glastic (G) or Stainless Steel (S) lined
MFH-72-AI-x Air Injection Type, Glastic (G) or Stainless Steel (S) lined
MFH-96-AI-x Air Injection Type, Glastic (G) or Stainless Steel (S) lined

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2.02 ACCEPTABLE MANUFACTURER

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2.03 FABRICATION & MATERIALS OF CONSTRUCTION

1. Fume hoods shall be manufactured to a dimensional tolerance and shall be square in any dimension. Each shall be self-supporting and accurately mate with adjoining hoods.

2. Exterior removable panels shall be constructed from metal.

3. All component parts cleaned, prime coated then electrostatic applied powder coat two tone finish. All components shall be individually painted, insuring that no area be vulnerable to corrosion due to lack of paint coverage. The coating shall then be cured by baking at elevated temperatures to provide maximum properties of corrosion and wear resistance.

4. Fume Hood superstructure frame shall be a free-standing rigid frame structure of steel angle which will provide support for exterior panels and interior liner and baffle panels. Maintenance and replacements, of the interior liner panels shall be removable without disassembly of frame structure and outer steel panels.

5. Fume Hood Interior Walls shall consist of double wall ends, not more than 4" wide, shall be provided to maximize interior working area. The area between the double wall ends shall be closed to house the remote control valves. The front vertical side air foils shall be angled at the front leading edge to provide a streamlined section and insure smooth flow of air into the hood. The vertical air foils shall also contain the required pre-punched service controls, electrical switches and receptacles.
The interior end liner panels shall be furnished with an opening that provides access to the service piping and valves to facilitate installation and maintenance. The openings shall be covered with a removable panel with rounded corners. Panels that require tools to remove are not acceptable. The panel shall provide an overlapping seal on all edges.

6. Fume Hood Baffles shall consist of upper and lower horizontal slots and shall be provided with adjustable baffles that allow the slots to be opened or closed.

7. Interior liner panels shall be made from a compression molded reinforced resin core with integrally cured white surfaces. Interior liner panels shall be fastened using stainless steel screws with plastic covered heads.

8. The top front panel shall be of the same material as the exterior construction. It shall have an integral grille stamped into the upper portion.

9. A two-tube fluorescent light fixture shall be provided at the top of the hood to give maximum light in the hood working area. The light fixtures shall be isolated from the hood interior by a 1/4" thick tempered glass panel sealed from the hood cavity.

10. A vertical rising sash of 1/4" laminated safety float glass shall be provided. The sash shall have a full length metal handle at the bottom. The sash shall be counterbalanced with a single weight to prevent tilting and binding during operation. The sash track shall be set flush with the interior liner panels to minimize turbulence.

11. A streamlined stainless steel airfoil shall be integral at the bottom of the hood opening. This foil shall provide a open space between the foil and the top front edge of the work surface to direct an air stream across the work surface to prevent back flow of air. The airfoil shall extend back under the sash, so that the sash does not close the opening. The foil shall be removable to allow large equipment into the hood.

12. Plumbing services shall consist of remote control valves as selected located within the end panels, controlled by extension rods projecting through the control panels of the hood, with color coded plastic handles. All plumbing fittings shall be factory installed and piped between the valve and the outlet. Inlet piping shall have a single-point connection for each valve provided. Points of final service connection by other trades shall be at the stub provided by the fume hood manufacturer.

13. Fume hoods shall be pre-wired and contain a CSA label certifying acceptable wire gauge, connections, fixtures and wire color coding. Wiring electrical services shall consist of two duplex receptacles and a light switch. Wiring shall terminate in one service junction box located on the fume hood roof. Final wiring and circuit dedication shall be by others.

14. Fume hood integral work surface shall be molded epoxy resin made in the form of a watertight pan, with a contain spillage safety ledge across the front edge. The work surface shall be available in either black or grey.

15. A stainless steel formed duct collar shall be located in the top of the hood.

16. Interior liner panels shall be made from a compression molded reinforced resin core with integrally cured white surfaces. Interior liner panels shall be fastened using stainless steel screws with plastic covered heads.

17. Supply and install as scheduled in laboratory schedule and drawings all optional service accessories.

PART 3 - EXECUTION

3.01 INSPECTION

1. Carefully check the contents of the carton for damage that might have occurred in transit.

3.02 PREPARATION

1. Verify equipment rough in before proceeding with work.

2. Coordinate with other trades for the proper and correct installation of plumbing and electrical rough in and for rough opening dimensions required for the installation of the hood.

3.03 INSTALLATION

1. Install according to manufacturer's instructions.

2. Install according to standards required by authority having jurisdiction.

3. Install equipment plumb, square and straight with no distortion and securely anchor as required.

4. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

5. Touch up minor damaged surfaces caused by installation. Replace damaged components as directed by Architect.

3.04 FIELD QUALITY CONTROL

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

1. Windows and doors are installed and the building is secure and weather tight. Space heated to at least 40 degree F.

2. Ceiling, overhead ductwork, and lighting are installed.

3. All painting is completed and floor finish is installed.

4. Insure the interior building temperature not to exceed 90 degree F to avoid undue structural fatigue and damage.

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3.05 CLEANING

1. Clean equipment surfaces as recommended by the manufacturer, rendering all work in a new and unused appearance.

2. Clean adjacent construction and surfaces, which may have been soiled in the course of installation of work in this section.

3.06 PROTECTION

1. Provide all necessary protective measures to prevent exposure of equipment and surfaces from exposure to other construction activity.

2. Advise contractor of procedures and precautions for protection of material from damage by work of other trades.

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