Microzone Corporation Vertical Laminar Flow Fully Exhausted
All Polypropylene Type Technical Specification

PART 1 GENERAL

PART 1.01 GENERAL INFORMATION

This Section specifies all requirements necessary to furnish and install a vertical laminar flow fully exhausted work station including, but not limited to the following:

1. This specification covers the requirements for a Class 10 (ISO Class 4) as per federal standard 209, vertical laminar flow fully exhausted work station.

2. Nominal 4,5,6 and 8-foot 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 vertical laminar flow fully exhausted all polypropylene work stations are provided.

1.02 QUALITY ASSURANCE

1. The manufacturer shall maintain a testing facility at their place of business for the performance testing of laminar flow work stations. Both laminar flow work stations and installation shall be in conformance to good construction practice and approved by the owner/user. The test facility as well as the manufacturing facility must be available for owner/user inspection and its quality control procedures. All work stations to be wired for 115 volts, 60 Hz shall be built to meet or exceed the minimum requirements of federal standard 209, CLASS 10(ISO Class 4)

1.03 REFERENCES

1. The vertical laminar flow fully exhausted work stations shall conform to the following regulations and standards:
   Federal Standard 209 and ISO 14644-1

1.04 SUBMITTALS

1. Vertical laminar flow fully exhausted work station specification sheets and product manuals shall be submitted by the manufacturer upon request. The work station supplier shall submit shop drawings when necessary for clarification.

2. Provide a detailed copy of the test results conducted prior to shipping to ensure compliance with Federal Standard 209 shall be shipped with each cabinet.

1.05 DELIVERY AND STORAGE

1. Vertical laminar flow work stations shall be delivered in unopened crated packages adequately protected from damage during shipment.

2. Exercise extreme care in handling all work stations 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.

1.06 WARRANTY

1. Manufacturer's warranty against defects in material or workmanship on its work stations for 1 year from date of shipping, shall include replacement of parts (except prefilters, HEPA or ULPA filters and lamps) and labor. The cabinet 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.

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PART 2 - PRODUCTS

2.01 PRODUCT NAME

Vertical Laminar Flow Fully Exhausted All Polypropylene Type, model numbers as described below:
4 Foot Models: VPFX-4, 5 Foot Models: VPFX-5, 6 Foot Models: VPFX-6,
8 Foot Models: VPFX-8

2.02 ACCEPTABLE MANUFACTURER

Microzone Corporation,
Laboratory Equipment Group,
86 Harry Douglas Drive,
Ottawa, Ontario, Canada, K2S 2C7
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2.03 MATERIALS OF CONSTRUCTION

1. Interior construction shall include walls constructed from white polypropylene. The sectional work surface with integral perforated front air intake airfoil shall also be constructed from white polypropylene.

2. Exterior panels shall be constructed from white polypropylene without exposed bolts or nuts.

3. Exhaust plenum shall be integral and constructed from white polypropylene, terminating in a duct collar connection flange.

4. ULPA filters shall be a minimum of 99.9995% efficient on all particles 0.12µm. ULPA filters shall be industry-standard size metal-free separatorless type.

5. Fluorescent lighting shall provide 80 to 100 foot-candles on work surface sealed in a clear P.V.C. shroud.

6. The recessed vertical sliding sash shall include thick clear P.V.C. face shield enclosed in a white polypropylene frame. All cables and counterbalancing mechanisms shall be none-metal and located in a vertical front easy access service chase.

7. All natural polypropylene 10" X 10" X 10" integral drop-in sink module with bottom drain and polypropylene D.I. water gooseneck faucet with remote operator.

8. Speed control shall be solid state and load rated for motor voltage and shall be set and adjusted electronically.

9. Electronic "SPM" constant pressure gauge shall monitor system pressure. This system reports the static condition of the integral filter systems both visual and audible with an alarm feature in the event of drop in static, motor failure or increased pressure.

10. Motor shall be maintenance free, permanently lubricated ball bearing armature motor with single inlet centrifugal fan.

11. HEPAIRE patented internal air plenum.

12. Integral vented polypropylene storage section complete with horizontal sliding access doors and single adjustable shelf.

13. All services factory plumbed and wired for single point field connection.

14. Digital "DMC" soft start circuit motor control panel with on/off feature for blower/white and ultraviolet light switch and interior duplex outlet. Integral circuitry provides constant monitoring of voltage to the motor, current motor draw, line voltage frequency and on-board diagnostics. In the event of a system fault, the system features flash codes on LED display indicating area of failure.

15. Electronic "AFI-X2" airflow alarm gauge shall monitor system exhaust airflow. This system reports the static condition of the unit's exhaust airflow providing both visual and audible alarms signaling a problem with the building exhaust fan or increased static pressure.

2.04 FABRICATION

1. Overall exterior dimensional information on Vertical Laminar Flow Fully Exhausted All Polypropylene Work Stations is as described in the table.
   Nominal Dimensions
   4 ft. Model: 52" w x 31" d x 89.5" h, 5 ft. Model: 64" w x 31" d x 89.5" h
   6 ft. Model: 76" w x 31" d x 89.5" h, 8 ft. Model: 100" w x 31" d x 89.5" h

2. The exterior shell shall be constructed from white polypropylene, with continuous seam welded construction complete with a removable front access panel with sufficient structural reinforcement to provide a rigid, stable unit.

3. The interior shell shall be constructed from white polypropylene, with dual removable side access service panels to access all cables and counterbalancing mechanisms.

4. Provide a full width and depth sectional work surface with integral perforated front air intake airfoil constructed from white polypropylene covering a secondary containment plenum. The secondary containment plenum shall be effectively exhausted and drained via a sloped bottom towards drain with no valves or traps. The containment plenum shall have a leak tight continuous seam welded design with rounded corners.

5. Provide full width integral exhaust plenum from the rear, exhausting the rear of the work surface and the secondary containment plenum. The air intake airflow slots, located in front of the airfoil's inflow grille, shall draw air directly into the cabinet through the secondary containment plenum directly to rear exhaust plenum.

6. Cabinet assembly shall be constructed such that all positive pressure contaminated plenums shall be surrounded by negative pressure plenums. Cabinet shall be designed such that all major service operations can be performed from the front of the cabinet.

7. Cabinet shall have true laminar (uniform) downflow.

8. Nominal downflow shall be 65 ± fpm and nominal inflow shall be 110 ± fpm.

9. Supply metal free ULPA filters rated 99.9995% efficient on all particles 0.12µm shall be secured in the upper cabinet assembly by filter hold down frame clamped. ULPA filters shall be removable from the front of the cabinet.

10. Sash shall be recessed and vertical sliding, capable of moving to a fully opened position when cabinet is not in operation. Sash shall not require removal for routine filter or motor/blower service.

11. All major electronic components (speed control, ballasts, starters, switches, motor capacitors, circuit breakers) shall be housed in a removable module for service or testing, located in the front valence of the cabinet.

12. The fully electronic soft touch "DMC" digital motor control keypad with on/off indicators on all switches and feature dual processor controls, LVS(Low Voltage Stabilization) circuitry and calibrated linear static pressure display (LED's) complete with high/low audio and visual alarm feature and mute function shall be mounted on the front face of the cabinet.

13. The "SPM" static pressure gauge complete with audio/visual and mute functions shall be mounted on the front face of the cabinet for easy visibility and shall be connected to a positive pressure duct.

14. Motor mounting system shall be a permanent part of the motor housing.

15. The cabinet shall be pre-wired terminating in an electrical service outlet located on the rear base section ready for connection to a suitable 115 volt service.

16. An optional manual mode mechanical operation with standard on/off switching shall be available.

PART 3 - EXECUTION

3.01 INSPECTION

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

3.02 PREPERATION

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

1. A qualified independent certifier should certify the cabinet before use. The certifier should perform tests as recommended in the manual.

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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