

**PART 1 GENERAL****1.1 SECTION INCLUDES**

1. Vertical Laminar Flow Clean Bench

**1.2 RELATED SECTIONS**

1. Division 9 "Resilient Base and Accessories"
2. Division 11 "Laboratory Equipment"
3. Division 12 "Laboratory Casework"
4. Division 13 "Cleanrooms"
5. Division 26 "Electrical"

**1.3 DESIGN REQUIREMENTS**

1. All cabinets of size and type as specified in the hood schedule shall be laminar flow type. The vertical laminar flow clean bench shall come with HEPA filtered intake air and provide ISO 5 (CLASS 100) clean air conditions within the work zone

Model VVF-3-01 38.5" wide x 28.5" deep x 40" high

Model VVF-4-01 50.5" wide x 28.5" deep x 40" high

Model VVF-5-01 63.5" wide x 28.5" deep x 40" high

Model VVF-5-01 75.5" wide x 28.5" deep x 40" high

**1.4 SUBMITTALS**

1. The vertical laminar flow clean bench manufacturer shall furnish shop drawings of all components showing layout, placement, elevations, sections and details
2. Product Data: Submit manufacturer's data sheet on each product to be used in the manufacture of vertical laminar flow clean bench. Include: component dimensions, construction details and configurations. Indicate location size and service requirements for each utility connection.
3. Shop Drawings: Provide scalable drawing(s) of each hood, 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.

**1.5 QUALITY ASSURANCE**

1. Vertical laminar flow clean benches and accessories shall be manufactured or furnished by a single manufacturer
2. 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.
3. Manufacturer Qualifications: Not less than 10 years experience in the actual production of specified products
4. A list of five (5) installations of comparable stature completed in the past 5 years

5. Performance: Vertical laminar flow clean bench shall be designed to meet or exceed the factory testing in accordance with ISO-14644-1 and IES-RP-CC-002-86

#### **1.6 DELIVERY, STORAGE AND HANDLING**

1. Packaging: Products shall have adequate packaging to protect the finished surfaces from soiling or damage during shipping
2. Delivery: Deliver materials in manufacturer's original, unopened containers with identification labels intact
3. Storage: Store materials in such a manner as to prevent any damage or intrusion of foreign matter. Store within the building in space designated for storage. Items not properly stored will not be warranted against damage due to unsatisfactory conditions.
4. Handling: Care shall be used at all times to prevent any damage.
5. Waste disposal: Installer of vertical laminar flow clean bench is responsible for removing waste resulting from the installation of total exhaust laminar flow hood. Trash container(s) to be provided by others

#### **1.7 REFERENCES**

1. ISO-14644-1 and IES-RP-CC-002-86

#### **1.8 PROJECT SITE CONDITIONS**

1. Heating and air conditioning systems providing temperature and humidity at occupancy levels
2. Flooring, required to be finished under and behind total exhaust laminar flow hood and equipment
3. Ceiling, overhead ductwork and lighting must be installed
4. Wet operations must be complete prior to installation

#### **1.9 WARRANTY**

1. Vertical Laminar Flow Clean Bench Warranty: 2-years from date of shipment. Defects in material and workmanship within this time are to be replaced or repair at no additional charge to the owner
2. Defects include, but are not limited to:
  - a. Shift or failures of connected components
  - b. Failure of cabinet hardware
  - c. Warping or deflection of unloaded case surfaces

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURER**

1. Acceptable Manufacturer: HEPAire Products Corp. 120 Terence Matthews Cres. Unit F1 Ottawa, ON  
Tel: 613-366-4984 Email: [info@hepaireproducts.com](mailto:info@hepaireproducts.com)

#### **2.2 MATERIALS**

1. The work zone structural support members and shall be constructed from a 6063 T5 aluminum with clear anodizing.

2. Side inlay panels shall be ¼" clear acrylic, back inlay panel shall be ¼" aluminum composite material. Optional 304, #4 finish panels shall be available
3. Head section to contain HEPAire Fan Filter units with HEPA Filters rated minimum 99.99% efficient at 0.3 microns and larger.
4. Air flow shall be delivered by capacitor type backward curved motorized impellers with permanently lubricated ball bearings, furnished with thermal overload protection and variable speed controller. The motorized impellers shall be capable of maintaining 80-100fpm in hood work zone.
5. The optional work surface shall be phenolic resin and be ½" thick
6. LED lighting to provide minimum 100ft candles to interior work zone and come complete with on/off switch located on front panel of hood
7. Electrical shall be pre-wired by the manufacturer and come complete with 9-foot 5-15p NEMA electrical cord
8. Optional base frames shall be manufactured from a 2" 6063 T5 anodized aluminum frame system complete with insert panel holding clip.
9. A range of optional accessories are available. Refer to laboratory schedule and drawings for types and locations

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

1. Set clean benches in place, level and square using hood leg levellers
2. Install accessories in accordance with manufacturers recommendations

### **3.2 CLEANING**

1. Clean vertical laminar flow clean bench as recommended by manufacturer.
2. Remove all protective plastic masking from hood surfaces
3. Remove or repair damaged or defective units

### **3.3 PROTECTION**

1. Provide all necessary protective measures to prevent exposure of hood from exposure to other construction activity
2. Advise contractor of procedures and precautions for protection of hood from damage by work of other trades.