

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

1. This section specifies the HEPA Fan Filter Unit. The HEPA Fan Filter Unit shall provide ISO 5 clean air conditions on the downstream side of the unit. The Fan Filter Units in the specification include standard equipment and components that are necessary for the complete installation and proper operation of the units.

**1.2 RELATED SECTIONS**

1. Division 11 "Laboratory Equipment"
2. Division 12 "Laboratory Casework"
3. Division 13 "Cleanrooms"
4. Division 23 "HVAC "
5. Division 26 "Electrical"

**1.3 DESIGN REQUIREMENTS**

1. The self powered HEPA Fan Filter Unit shall be of modular design allowing fit into a standard 2-foot by 4-foot T-bar ceiling grid system. (2-foot x 2-foot and 2-foot x 3-foot units also available)

Model HA22-01-01 – 2' x 2' Airflow range 210cfm to 380cfm

Model HA23-01-01 – 2' x 3' Airflow range 300cfm to 675cfm

Model HA24-01-01 – 2' x 4' Airflow range 425cfm to 800cfm

**1.4 SHOP DRAWINGS**

1. The HEPA Fan Filter Unit 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 HEPA Fan Filter Unit. Include: component dimensions, construction details and configurations.
3. Shop Drawings: Provide scalable drawing(s) of each unit, 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,)

**1.5 QUALITY ASSURANCE**

1. HEPA Fan Filter Unit 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: HEPA Fan Filter Units shall be designed to meet or exceed IES "RP-CC002 Latest Revision
6. The HEPA Fan Filter unit shall operate at a noise level not exceeding 60dBA when measured 30" below the filter face at a flow rate of 500cfm

**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 is responsible for removing waste resulting from the installation of HEPA Fan Filter Units. Trash container to be provided by others

**1.7 REFERENCES**

1. IEST-RP-CC001 Latest Revision
2. IEST-RP-CC0034 Section 9
3. UL 900 Air Filter Units
4. ISO standard 14644.7

**1.8 PROJECT SITE CONDITIONS**

Do not deliver until the following conditions have been met:

1. Windows and doors are installed, and building is secure and weather tight
2. Ceiling overhead ductwork and lighting are installed
3. All painting is completed, and floor finish is installed
4. Protective packaging should be left in place while handling and the removed only when pieces are being installed in place.

**1.9 WARRANTY**

1. HEPAire Fan Filter Unit 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:
  1. Motor or speed control failure

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

In order to define minimum acceptable standards of quality, this specification names whose published products are acceptable

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

### 2.2 MATERIALS

1. The housing shall be manufactured from 16-gauge mill finished aluminum (.051", 1.3mm) and sealed air-tight (powder coated or stainless-steel finish available as options). The housing shall not exceed 4" in height.
2. All edges shall be de-burred and shaved to provide a smooth finish
3. Total weight of a standard 2' x 4' HEPA unit shall not exceed 46lbs
4. Air flow shall be delivered by capacitor type backward curved motorized impeller (s) with permanently lubricated ball bearings, furnished with thermal overload protection.
5. Each impeller will be capable of delivering 315cfm of air at a filter pressure drop of 0.35 to 0.70 in w.g. and be set into a removable 16-gauge mill finish aluminum drop in panel with protective screen on upstream side.
6. The Fan Filter unit shall be furnished with 14" x 20" x 1" pleated pre-filters rated MERV 8. Pre-filters are classified UL Class 2 according to UL standard 900
7. The HEPA fan unit shall be pre-wired by the manufacturer and come complete with a 9-foot 5-15p NEMA electrical cord
8. The HEPA fan unit shall come with a standard variable speed controller with on/off switch located on the top of the filter housing
9. The HEPA filter will be factory tested and rated minimum 99.99% efficient at 0.3 microns and larger  
In accordance with IEST-RP-CC-034 (optional ULPA filter and PTFE filter available)
  1. Filter frame will be manufactured from a 6063-T5 clear anodized aluminum
  2. Filter media will be Micro-Glass fiber with thermos plastic resin separators
  3. Sealant material will be a UL classified polyurethane
  4. Downstream protective screen to be 24-ga white powder coated screen

10. The pleated disposable pre-filter shall be MERV 8 standard capacity configuration when tested in accordance with ASHRAE 52.2 Test Standard and have a final resistance of 1.0" w.g. and be classified as UL 900 and ULC-S11-07.

### **PART 3 EXECUTION**

#### **3.1 INSTALLATION**

1. Install in accordance with manufacturers recommendations
2. Install equipment so as to not damage other work

#### **3.2 CLEANING**

1. Remove all protective plastic
2. Remove or repair damaged or defective units

#### **3.3 PROTECTION**

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