SECTION 23 4000
HVAC AIR CLEANING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Disposable, extended area panel filters.
B. Disposable panel filters.
C. Extended surface high efficiency media filters.
D. High efficiency particulate air (HEPA) filters.
E. Filter frames and housings.
F. Filter gages.

1.02 RELATED REQUIREMENTS
A. Section 01 5000 - Temporary Facilities and Controls: Filters for temporary heating and ventilating.

1.03 REFERENCE STANDARDS
E. UL 900 - Standard for Air Filter Units; Current Edition, Including All Revisions.

1.04 PERFORMANCE REQUIREMENTS
A. Conform to AHRI 850 Section 7.4.
   1. Dust Spot Efficiency: Plus or minus 5 percent.

1.05 SUBMITTALS
A. See Section 01 3000 - Administrative Requirements for submittal procedures.
B. Product Data: Provide data on filter media, filter performance data, filter assembly and filter frames, dimensions, motor locations and electrical characteristics and connection requirements.
C. Shop Drawings: Indicate filter assembly and filter frames, dimensions, motor locations, and electrical characteristics and connection requirements.
D. Manufacturer's Installation Instructions: Indicate assembly and change-out procedures.
E. Operation and Maintenance Data: Include instructions for operation, changing, and periodic cleaning.

PART 2 PRODUCTS

2.01 FILTER MANUFACTURERS
A. American Filtration Inc; ______: www.americanfiltration.com.

2.02 DISPOSABLE, EXTENDED AREA PANEL FILTERS
A. Media: UL 900 Class 1, pleated, lofted, non-woven, reinforced cotton fabric; supported and bonded to welded wire grid by corrugated aluminum separators.
   1. Frame: Non-flammable.
   2. Nominal size: 24 by 24 inches.
   3. Nominal thickness: 1 inch.
B. Minimum Efficiency Reporting Value (MERV): 8, when tested in accordance with ASHRAE Std 52.2.

C. Rating, per ASHRAE Std 52.2:
1. Weight arrestance: 85 percent.
2. Initial resistance at 500 FPM face velocity: 0.20 inch WG.
3. Recommended final resistance: 0.9 inch WG.

2.03 EXTENDED SURFACE HIGH EFFICIENCY MEDIA FILTERS
A. Media: Pleated, water-resistant glass fiber with aluminum separators; in 16 gage, 0.0598 inch steel holding frame with corrosion resistant coating.
   1. Nominal Size: 24 by 24 by 6 inches deep.
B. Minimum Efficiency Reporting Value (MERV): 15, when tested in accordance with ASHRAE Std 52.2.
C. Performance Rating, per ASHRAE Std 52.2:
   1. MIL-STD-282 Test 0.3 Micron Dioctyl Phthalate Smoke (DOP) Efficiency: 99 percent.
   2. Initial Resistance at 150 fpm Face Velocity: 0.35 inch WG.
   3. Recommended Final Resistance: 1.5 inch WG.

2.04 HIGH EFFICIENCY PARTICULATE AIR (HEPA) FILTERS
A. Media: UL 586, pleated, water-resistant glass fiber with separators of aluminum:
   3. Face Gasket: Silicone.
B. Minimum Efficiency Reporting Value (MERV): 15, when tested in accordance with ASHRAE Std 52.2.
C. Performance Rating:
   1. MIL-STD-282 Test 0.3 Micron Dioctyl Phthalate Smoke (DOP) Efficiency: 99.97 percent.
   2. Rated Air Flow Capacity at 1.0 inch WG: 1150 CFM.
   3. Recommended Final Resistance: 3.0 inch WG.

2.05 FILTER FRAMES AND HOUSINGS
A. General: Fabricate filter frames and supporting structures of 16 gage, 0.0598 inch galvanized steel or extruded aluminum T-section construction with necessary gasketing between frames and walls.
B. Standard Sizes: Provide for interchangeability of filter media of other manufacturers; for panel filters, size for 24 by 24 inches filter media, minimum 2 inches thick; for extended surface and high efficiency particulate air filters, provide for upstream mounting of panel filters.
C. Side Servicing Housings: Flanged for insertion into ductwork, of reinforced 16 gage, 0.0598 inch galvanized steel; access doors with continuous gasketing and positive locking devices on both sides; extruded aluminum tracks or channels for primary secondary filters with positive sealing gaskets.

2.06 FILTER GAGES
A. Manufacturers:
B. Direct Reading Dial: 3-1/2 inch diameter diaphragm actuated dial in metal case, vent valves, black figures on white background, front recalibration adjustment, range 0-0.5 inch WG, 2 percent of full scale accuracy.
C. Inclined Manometer: One piece molded plastic with epoxy coated aluminum scale, inclined-vertical indicating tube and built-in spirit level, range 0-3 inch WG, 3 percent of full scale accuracy.

D. Accessories: Static pressure tips with integral compression fittings, 1/4 inch aluminum tubing, 2-way or 3-way vent valves.

PART 3  EXECUTION

3.01  INSTALLATION

A. Install air cleaning devices in accordance with manufacturer's instructions.
B. Prevent passage of unfiltered air around filters with felt, rubber, or neoprene gaskets.
C. Install filter gage static pressure tips upstream and downstream of filters. Mount filter gages on outside of filter housing or filter plenum, in accessible position. Adjust and level.
D. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction and testing, with clean set.

END OF SECTION 23 4000