SECTION 233423 - HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Centrifugal wall ventilators.
2. In-line centrifugal fans.

1.2 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated and include the following:

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

C. Field quality-control test reports.

D. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

C. UL Standard: Power ventilators shall comply with UL 705.

PART 2 - PRODUCTS

2.1 CENTRIFUGAL WALL VENTILATORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Acme Engineering & Mfg. Corp.
2. Broan Mfg. Co., Inc.
3. Carnes Company HVAC.
4. Dayton Electric Manufacturing Co.; a division of W. W. Grainger, Inc.
5. Greenheck.
6. Loren Cook Company.

7. Penn Ventilation.

B. Description: Belt-driven centrifugal fans consisting of housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, and accessories.

C. Housing: Heavy-gage, removable, spun-aluminum, dome top and outlet baffle; venturi inlet cone.

D. Fan Wheel: Aluminum hub and wheel with backward-inclined blades.

E. Accessories as specified on schedules.

1. Disconnect Switch: Nonfusible type, with thermal-overload protection mounted inside fan housing, factory wired through internal aluminum conduit.
2. Bird Screens: Removable, 1/2-inch (13-mm) mesh, aluminum or brass wire.
3. Wall Grille: Ring type for flush mounting.
4. Dampers: Counterbalanced, parallel-blade, backdraft dampers mounted in wall sleeve; factory set to close when fan stops.

2.2 IN-LINE CENTRIFUGAL FANS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Plastec.
2. Acme Engineering & Mfg. Corp.
3. Greenheck.
4. Hartzell Fan, Inc.
5. Loren Cook Company.
6. Madison Manufacturing.
7. Penn Ventilation.
8. Quietaire Corporation.

B. Description: In-line, centrifugal, utility-type fans consisting of housing, wheel, outlet guide vanes, fan shaft, bearings, motor and disconnect switch, drive assembly, mounting brackets, and accessories.

C. Housing: Polypropylene housing (rotatable), inlet and outlet flanges, and support bracket for suspended mounting.

D. Direct-Driven Units: Motor mounted outside of the airstream, factory wired to disconnect switch located on outside of fan housing.

E. Fan Wheels: Polypropylene, electronically and dynamically balanced.

F. Accessories:

1. Companion Flanges: For inlet and outlet duct connections.
2. Motor support stand and suspended mounting kit.

2.3 MOTORS

A. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."

B. Enclosure Type: Explosion proof.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install power ventilators level and plumb.

B. Support wall mounted fans with factory fabricated wall collar.

C. Secure in-line fans to mounting frame with stainless steel hardware.

D. Support suspended units from structure using threaded stainless steel rods and elastomeric hangers.

E. Install units with clearances for service and maintenance.

F. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories.

G. Install ducts adjacent to power ventilators to allow service and maintenance.

H. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

I. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.2 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Verify that shipping, blocking, and bracing are removed.
2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
3. Verify that cleaning and adjusting are complete.
4. Adjust damper linkages for proper damper operation.
5. Verify lubrication for bearings and other moving parts.
6. Adjust fan to indicated rpm, and measure and record motor voltage and amperage.
7. Remove and replace malfunctioning units and retest as specified above.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

END OF SECTION 233423