

**SECTION 23 34 00  
HVAC FANS**

**PART 1 – GENERAL**

**1. DEFINITIONS:**

- A. Exposed: Piping, ductwork, and equipment exposed to view in finished rooms.
- B. Option or optional: Contractor's choice of an alternate material or method.

**2. DESCRIPTION**

- A. Fans for heating, ventilating and air conditioning.
- B. Product Definitions: All relevant AMCA and ASHRAE publications.

**3. QUALITY ASSURANCE**

- A. Fans and power ventilators shall be listed in the current edition of AMCA 26l, and shall bear the AMCA performance seal.
- B. Fans and power ventilators shall comply with the following standards all applicable AMCA Standards.
- C. Performance Criteria: The fan schedule shall show the design air volume and static pressure. Select the fan motor HP by increasing the fan BHP by 10 percent to account for the drive losses and field conditions. Submit fan performance curves with submittals.
- D. All fan housings mounted external to the building shall be designed to meet the wind load rating criteria as required by the codes in effect at the time of permit. Fan housings must remain intact and securely fastened to curd during design wind velocities.

**PART 2 - PRODUCTS**

**1. IN-LINE CENTRIFUGAL FANS**

- A. Provide minimum 18 Gauge galvanized steel housing with inlet and outlet flanges, backward inclined aluminum centrifugal fan wheel, bolted access door and supports as required. Motors shall be factory pre-wired to an external junction box. Provide factory wired disconnect switch. Fans shall be provided with integral speed controller mounted in a box adjacent to the fan and an integral backdraft damper.

**2. ROOF VENTILATORS**

- A. Type: Centrifugal fan, backward inclined blades. Provide down-blast or up-blast type as indicated.
- B. Construction: Aluminum, completely weatherproof, for curb mounting, exhaust cowl or entire drive assembly readily removable for servicing, aluminum bird screen on discharge, UL approved safety disconnect switch, conduit for wiring,

vibration isolators for wheel, motor and drive assembly. Provide self acting back draft damper. Provide electric motor operated damper where indicated. Provide electronic speed controller for all roof ventilators.

- C. Bearings shall be pillow block ball type with a minimum L-50 life of 200,000 hours. Motor shall be located out of air stream.
- D. Prefabricated Roof Curb: Provide with pre-fabricated roof curb capable of supporting equipment and constructed in accordance with other sections of this specification. Curbs shall be constructed and mounted as coordinated with the roofing system and as required to meet the required wind velocities required by code.
- E. Up-blast Type: Top discharge exhauster, motor out of air stream. For kitchen hood exhaust applications, provide grease trough on base and threaded drain. The mounting height of the kitchen up-blast exhaust fan shall be in compliance with NFPA 96. Provide vented curb extension if required to maintain required clearances.

### **3. CEILING MOUNTED FANS**

- A. Type: Energy Star rated, ceiling mounted exhaust fans shall be of the centrifugal direct drive type.
- B. Construction: The fan housing shall be constructed of galvanized steel. The polypropylene duct collar shall be 6 inches in diameter and shall include a backdraft damper. The designer grille shall be constructed of non-yellowing high-impact polystyrene and attached to the housing with hidden attachment screws. The access for wiring shall be external. The motor disconnect shall be internal and of the plug-in type. The motor shall be mounted on vibration isolators. The fan wheel shall be of the forward-curved centrifugal type, constructed of calcium carbonate filled polypropylene and dynamically balanced. All fans shall bear the AMCA Certified Ratings program AMCA Sound and Air Performance seal and shall be UL/cUL Listed.

### **4. PACKAGED KITCHEN HOOD MAKE-UP AIR UNITS**

- A. Curb mounted air supply unit complete with centrifugal blower and filters.
- B. Housing: Galvanized steel with baffled air intake for weather protection and with duct adapter.
- C. Blower: Ball bearing utility type with vibration mounts to isolate blower, motor, and drive.
- D. Provide with prefabricated roof curb.

- E. Filters: Provide four 2" MERV 8 disposable filters.
- F. Provide access to motor and drive for maintenance.
- G. Provide unit mounted disconnect switches and single point power connection for fan system.
- H. Provide make-up air system with exhaust fan mounting on same curb as make-up fan. Provide with single point power connection and required controls at hood location. Provide all control interlocking and fire alarm coordination as required.
- I. Provide heating coil for temper of make-up air.

**PART 3 – EXECUTION**

**1. INSTALLATION**

- A. Install fan, motor and drive in accordance with manufacturer's instructions.
- B. Align fan and motor sheaves to allow belts to run true and straight.
- C. Bolt equipment to curbs with galvanized lag bolts.
- D. Lubricate bearings, pulleys, belts and other moving parts with manufacturer recommended lubricants.
- E. Clean fan interiors to remove foreign material and construction dirt and dust.
- F. Verify operation of motor, drive system and fan wheel according to the drawings and specifications.
- G. Check vibration and correct as necessary for air balance work.
- H. After air balancing is complete and permanent sheaves are in place perform necessary field mechanical balancing to meet vibration tolerance.
- I. Provide belt and sheave changes as required to achieve design air flow rates.

**END OF SECTION 23 34 00**