

SECTION 233413 - AXIAL HVAC FANS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Propeller fans.
- B. Motors and drives.
- C. Accessories.

1.2 RELATED REQUIREMENTS

- A. Section 230513 - Common Motor Requirements for HVAC Equipment.
- B. Section 230548 - Vibration and Seismic Controls for HVAC Piping and Equipment.
- C. Section 233300 - Air Duct Accessories: Backdraft dampers.
- D. Section 230913 - Instrumentation and Control Devices for HVAC.

1.3 REFERENCE STANDARDS

- A. ABMA STD 9 - Load Ratings and Fatigue Life for Ball Bearings; American Bearing Manufacturers Association, Inc.; 1990 (Reapproved 2000).
- B. ABMA STD 11 - Load Ratings and Fatigue Life for Roller Bearings; American Bearing Manufacturers Association, Inc.; 1990 (Reapproved 1999).
- C. AMCA 99 - Standards Handbook; Air Movement and Control Association International, Inc.; 2003.
- D. AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Ratings; Air Movement and Control Association International, Inc.; 2007 (ANSI/AMCA 210, same as ANSI/ASHRAE 51).
- E. AMCA (DIR) - [Directory of] Products Licensed Under AMCA International Certified Ratings Program; Air Movement and Control Association International, Inc.; <http://www.amca.org/licenses/search.aspx>.
- F. AMCA 300 - Reverberant Room Method for Sound Testing of Fans; Air Movement and Control Association International, Inc.; 2008.
- G. AMCA 301 - Methods for Calculating Fan Sound Ratings From Laboratory Test Data; Air Movement and Control Association International, Inc.; 2006.
- H. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 2007.

- I. SMACNA (DCS) - HVAC Duct Construction Standards - Metal and Flexible; Sheet Metal and Air Conditioning Contractors' National Association; 2005.

1.4 SUBMITTALS

- A. See Section 013300 - Submittal Procedures, for submittal procedures.
- B. Product Data: Provide data on axial fans and accessories including fan curves with specified operating point clearly plotted, power, RPM, sound power levels for both fan inlet and outlet at rated capacity, and electrical characteristics and connection requirements.
- C. Shop Drawings: Indicate assembly of axial fans and accessories including fan curves with specified operating point clearly plotted, sound power levels for both fan inlet and outlet at rated capacity, and electrical characteristics and connection requirements.
- D. Test Reports: Indicate performance data for adjustable axial fan blades for at least five blade settings, including maximum.
- E. Manufacturer's Instructions: Indicate installation instructions.
- F. Maintenance Data: Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 1. See Section 016000 - Product Requirements, for additional provisions.
 2. Extra Fan Belts: One set for each individual fan.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect motors, shafts, and bearings from weather and construction dust.

1.7 FIELD CONDITIONS

- A. Permanent fans may not be used for ventilation during construction.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Loren Cook Company: www.lorencook.com.
- B. PennBarry: www.pennbarry.com.
- C. Greenheck.
- D. Substitutions: See Section 016000 - Product Requirements.

2.2 PROPELLER FANS

- A. Performance: See schedule on plans
- B. Impeller: Shaped steel or steel reinforced aluminum blade with heavy hubs, statically and dynamically balanced, keyed and locked to shaft, directly connected to motor or provided with V-belt drive.
- C. Frame: One piece, square steel with die formed venturi orifice, mounting flanges and supports, with baked enamel finish.
- D. Accessories:
 - 1. Backdraft Damper: Multiple blade with offset hinge pin, blades linked.
 - 2. Outlet Damper: Multiple blade with offset hinge pin, blades linked, line voltage motor drive, power open, spring return.
 - 3. Safety Screens: Expanded galvanized metal over inlet, motor, drive; to comply with OSHA regulations.
 - 4. Controller: Solid-state speed controller.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install with resilient mountings and with flexible electrical leads; refer to Section 230548.
- C. Provide fixed sheaves required for final air balance.
- D. Provide safety screen where inlet or outlet is exposed.
- E. Provide backdraft dampers on discharge of exhaust fans and as indicated.

END OF SECTION