

# SECTION 23 34 00 HVLS FANS

**\*\* NOTE TO SPECIFIER \*\*** Jazz Ceiling Fans by Envira-North Systems; HVLS Fans.

This section is based on the products of Jazz Ceiling Fans from Envira-North Systems Ltd., which is located at:

92 Railway Street,

Seaforth, Ontario, Canada, N0K 1W0

Tel: 519-527-2198

Email: request info ([bigair@enviranorth.com](mailto:bigair@enviranorth.com))

Web: [www.enviranorth.com](http://www.enviranorth.com)

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

A. High volume low speed fans.

### 1.2 RELATED SECTIONS

**\*\* NOTE TO SPECIFIER \*\*** Delete any sections below not relevant to this project; add others as required.

A. Section 26 05 00 - Common Work Results for Electrical.

### 1.3 REFERENCES

**\*\* NOTE TO SPECIFIER \*\*** Delete references from the list below that are not actually required by the text of the edited section.

A. American National Standards Institute/Air Movement and Control Association (ANSI/AMCA): Standard 230 - Laboratory Methods of Testing Air Circulating Fans for Rating.

B. National Fire Protection Association (NFPA): 13 - National Fire Code for Sprinklers.

### 1.4 SYSTEM DESCRIPTION

A. General: Fans shall be designed to circulate and/or de-stratify the air envelope. The fans shall be strategically placed to maximize the efficiency of the space. Each fan shall be designed to move the maximum amount of air within a given space while consuming minimal electrical power.

B. Design:

1. Each fan shall be complete with five blades, with zinc coated steel mounting plates, surrounded by injection mold fibre filled polypropylene airfoils, painted to color.
2. The fan ships pre-balanced. No stabilization (guy wires) are required/necessary

### C. Performance:

1. Main Power Supply for the Motor: any voltage in the range 104-277V, 1Ph, 50 or 60Hz
2. All controls (for fan and light) shall be located within the fan assembly and all connections are to be pre-wired. No variable frequency drives required.
3. Dimmable LED Light to provide 1980 lumens with twenty different pre-programmed brightness set points.
4. Each control shall be complete 100' of Cat5 cable and be capable of controlling fan on/off, fan speed up/down, fan rotation forward/reverse, light on/off and light brightness up/down.

### D. Fire Suppression:

1. The fan shall be capable of receiving a stop command from the fire panel, or any number of smoke, flame or heat detectors.
2. The fan shall meet the requirements of NFPA 13 (National Fire Code for Sprinklers) in regards to blocking obstructions below sprinkler heads.
3. The fan shall meet the air velocity requirements of FM Global 2.0 data sheet for ESFR sprinklers.
4. If required by the local fire prevention authority, the fans shall be tied into the building's fire suppression system so that the fans shut off as soon as a fire detected. The fan's control box shall include a built-in Modbus 485 signal that facilitates this.
5. When the fan is shut off upon fire detection as described above, the fans shall come to a complete stop in less than 45 seconds.

## 1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

## 1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Providing sole source for design, engineering, manufacturing and warranty claims handling.

B. Installer Qualifications: Trained by manufacturer.

**\*\* NOTE TO SPECIFIER \*\*** Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Install fan in area designated by Architect.
2. Do not proceed with remaining work until workmanship is approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

#### 1.7 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

#### 1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Handling: Handle materials to avoid damage.

#### 1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

#### 1.10 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

#### 1.11 WARRANTY

A. Manufacture shall provide material and labor warranty for manufacturer and operation for the following warranty periods from date of substantial completion.

1. Jazz Fan: Pro-Rated Fifteen Year Warranty.
2. Labour: One Year Warranty.

### **PART 2 PRODUCTS**

## 2.1 MANUFACTURERS

A. Acceptable Manufacturer: Jazz Ceiling Fans by Envira-North Systems Ltd, which is located at: 92 Railway Street, Seaforth, Ontario, Canada, N0K 1W0; Tel: (519) 527-2198; Email: bigair@enviranorth.com; Web: www.enviranorth.com

**\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.**

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

## 2.2 FAN CONSTRUCTION

A. Blades: Each Jazz Ceiling Fan shall be complete with five airfoils (blades), with zinc coated steel mounting plates, surrounded by injection mold fibre filled polypropylene airfoils, painted to color. Four fasteners shall attach each airfoil.

B. Motor: The fan shall utilize a transverse flux brushless DC motor specifically designed for low speed high torque applications. The motor shall contain 60 poles and continuously produce 52lbf of torque with zero backlash.

C. Controls: The fan shall contain the controls within the fan assembly and come pre-wired from the manufacturer. The controls shall accept any single-phase voltage in the range of 104-277V, either 50 or 60 Hz.

D. HMI (Human Machine Interface): Each fan shall be provided with one low voltage keypad HMI and shall be complete with 100' of Cat5 cable. The HMI shall be capable of controlling fan on/off, fan speed up/down, fan rotation forward/reverse, light on/off and light brightness up/down.

E. Light: The fan shall contain an integrated dimmable LED light and provide 1980 lumens with twenty pre-programmed brightness set points.

F. Mount: 360° adjustable mounting system that is designed to mount to prevent vibration and movement while supporting the weight of the fan. A 3/32 inch braided stainless steel safety cable shall run the entire length of the fan assembly and secured to the main building structure.

G. Guy Wire/Cable: not allowed.

## 2.3 - 10'0" (3m) FAN

A. HVLS Fan Model: Jazz Ceiling Fan supplied by Envira-North Systems Ltd.

B. Performance Specifications:

1. Fan Size: 10 feet (3 m).
2. Motor Power: 1/2 HP (.37kw).
3. Power Consumption: 264W.

4. Amps at 120 Volts: 2.2A.
5. Speed: 0-120 rpm.
6. Air Flow: 45,000 cfm (21,237 l/s).
7. Max Effective Diameter (where horizontal air speed at 1.2 m (3.9 feet) above floor drops below 0.2 m/s (0.7 fps) in an empty room): 60 feet (18.2 m).
8. Weight: 85 lbs (38.5 kgs).
9. Noise Level 8 feet (2.4 m) below wing tip: 49 dBA.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Do not begin installation until supporting structure and interior work have been properly completed.
- B. Installation of miscellaneous or structural support, if required, electrical wire and wiring, conduit, fuses, and disconnect switches other than those included within the control box shall be specified in other sections.
- C. Installer shall examine the substrate and conditions under which the Fan is to be installed and notify the Architect and Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### **3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### **3.3 INSTALLATION**

- A. Factory Trained Installer:
  1. Where available, Envira-North Factory Trained Installation Services shall install fans. Factory trained installation includes full mechanical installation of the fan. Electrically, installations from a local power disconnect within 3 feet (1 m) of the final fan location and full connection of the low voltage key pad controller within 100 feet (30 m) of final fan location is included. Additional Factory Trained Installation includes connection of Fire

Alarm Tie at Fan Location Only. Coordinate connection to flow switch or alarm panel with the electrical contractor.

2. Where factory trained installation services are not available, install fans in accordance with manufacturer's instructions and local regulations.

B. Install fans in accordance with NFPA 13.

C. Mounting Method: Each fan to be equipped with the necessary components to mount the fans to the structure using any of the following methods

1. OWSJ (Open Web, Steel Joist) Mounting
2. Purlin Mounting
3. Wooden Truss Mounting
4. Glu Lam Mounting

**\*\* NOTE TO SPECIFIER \*\* All mounting materials are required with each fan. Delete mounting methods that are not applicable for project.**

D. Clearance Requirements:

1. Mounting Minimum 29 inches (739 mm) above blades to underside of roof deck/ceiling.
2. Minimum 12 inches (305 mm) from fan blade's leading edge to obstruction above or below fan.
3. Minimum 18 inches (457 mm) from end of blade to fan obstruction.
4. Fan shall be installed at a minimum of 144 inches (3658 mm) above finished floor.

E. Safety System:

1. 3/32 inch braided stainless steel safety cable shall run the entire length of the fan assembly and secured to the main building structure.
2. Each airfoil to be attached by four fasteners

### 3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion

**END OF SECTION**