**Product Specification Guide**

**Commercial Centrifugal High Induction Car Park Ventilator, Model IV Smart EC**

**Facility Services Subgroup: Division 23**

Specifier Notes: This product specification guide is written in accordance with the Construction Specifications Institute (CSI) Format. Please review and edited accordingly to ensure the information set forth meet the requirements of the project and local building codes applicable.

**1. GENERAL**

**1.1 WORK INCLUDED**

1. Direct drive, dual motor centrifugal high induction car park ventilator intended for installation in underground and above-ground parking structures to facilitate in ventilation and cold smoke extraction.

Model IV Smart EC.

**1.2 RELATED SECTIONS**

1. All sections, drawing plans, specifications and contract documents.

**1.3 CERTIFICATIONS AND TESTING**

1. Unit shall be tested in accordance to and compliant with UL 705 and CSA 22.2 No. 113-15 and determined by Underwriters Laboratory to comply with and bear the cULus marking for Power Roof Ventilators.
2. Unit shall be tested in accordance with and licensed to bear the AMCA Seal pertaining to AMCA 250, Laboratory Methods of Testing Jet Tunnel Fans for Performance. The ratings are based on the tests and procedures performed in accordance with AMCA publication 211 and publication 311 and comply with the requirements of the AMCA certified rating program.

C. Each product shall be factory tested in accordance with Tunnel Jet Fans (BV4) as listed in AMCA 204-05, Balance Quality and Vibration Levels for Fans.

**1.4 SUBMITTALS**

1. Manufacturer shall provide dimensional drawings, Revit model and product data on each high induction car park ventilator.

B. Manufacturer shall provide CFD Analysis Report verifying ventilator rated Thrust (N) with measured length of throw and width of spread at minimum terminal velocity of 1m/s. The CFD Report shall also include measured volume of induced airflow.

C. Manufacturer shall provide CFD CO Simulation Analysis, ensuring the designed ventilation system for the parking area achieves the optimal locations, quantity and configuration of induction fans required for the effective and efficient ventilation of the car parking deck, for the given positions of inlets and outlets such that it meets requirements of CO exposure limit set by applicable health & safety regulations. CFD Simulation providing velocity simulation alone are not acceptable.

**1.5 DELIVERY, STORAGE, AND HANDLING**

A. Deliver materials to site in manufacturer’s original, unopened containers and packaging, with labels clearly indicating manufacturer, material, products included, and location of installation.

B. Store materials in a dry area indoor, protected from damage, and in accordance with manufacturer’s instructions. For long term storage, follow manufacturer’s Installation, Operation and Maintenance manual.

C. Handle and lift ventilators in accordance with the manufacturer’s instructions. Protect materials and finishes during handling and installation to prevent damage. Follow all safety warnings posted by the manufacturer.

**1.6 WARRANTY**

1. Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

B. The warranty of this equipment is to be free from defects in material and workmanship for a period of 36 months from the purchase date. Any units or parts which prove defective during the warranty period will be replaced at the manufacturers’ option when returned to the manufacturer, transportation costs prepaid.

**2. PRODUCT**

A. Ventilator shall be model IV Smart EC as manufactured by Systemair Mfg of Lenexa, Kansas.

**2.1 PERFORMANCE**

1. Each IV Smart EC product shall be capable of producing 10.9N (newtons) of thrust with a measured throw of 129’ length at a terminal velocity of 1m/s.

**2.2 CONSTRUCTION**

1. Ventilator shall use a combination of corrosion resistant bolts and rivets as the primary fastening methods during the construction process to ensure a rigid yet serviceable product. Sealant shall be an anodized aluminum certified to the *Greenguard Gold* standard.
2. The exterior housing shall be comprised of 16 gauge (G90) galvanized steel with integrated outlet deflectors and 12 gauge (G90) galvanized steel mounting brackets.
3. The electrical compartment shall be of a steel clamshell design.
4. The product name plate shall be of a polyester label stock using a thermal transfer file in compliance with UL product name plate requirements and shall indicate the asynchronous fan RPM and motor model in addition to rated volts, amperage, power, frequency, and phase.
5. The ventilator housing profile shall not exceed 5-7/8” height.

**2.3 WHEEL**

1. Each wheel shall be a single inlet, centrifugal backwards incline, and constructed of a polyamid 6 (PA 6) material and shall be integral to the motor via press fit to the external rotor hub.
2. Wheel inlet shall overlap an aerodynamic steel inlet cone to provide maximum performance and efficiency.
3. Unit shall be factory tested in accordance with Tunnel Jet Fans (BV4) as listed in AMCA 204-05, Balance Quality and Vibration Levels for Fans.

**2.4 MOTOR**

1. Motor shall be of the electronically commutated type and speed controlled via a 0-10Vdc or PWM input signal. Insulation class shall be minimum of class B and rated for continuous duty. Maximum temperature of transferred air shall be 60°C.

**2.5 INLET AND OUTLET GUARDS**

* + 1. To reduce the likelihood of unintentional contact of moving parts, safe guards where applicable shall be employed to comply with section 6.5 of UL705 for accessibility of moving parts.

**3. EXECUTION**

* 1. **EXAMINATION**

1. Examine areas to receive fans and immediately notify the Engineer of conditions that would negatively impact installation or proper operation and maintenance of fans. Do not proceed with installation until impacted conditions are corrected.

**3.2 INSTALLATION**

A. Install ventilators where indicated on the contract drawings and in accordance with manufacturer’s Installation, Operation and Maintenance manual.

**4. ACCEPTABLE MANUFACTURERS**

1. Systemair, Inc. 10048 Industrial Blvd, Lenexa, KS 66215, [www.systemair.com/na/north-america/](http://www.systemair.com/na/north-america/)