## Part 1 General

### 1.1 Section Includes

.1 Heat recovery ventilators

### 1.2 Related Work

.1 Section 23 07 13 - Duct Insulation.

.2 Section 23 31 00 - Duct Work.

.3 Section 23 33 00 - Duct Work Accessories: Backdraft dampers.

.4 Section 23 73 23 - Air Handling Units.

### 1.3 References

.1 AFBMA 9 - Load Ratings and Fatigue Life for Ball Bearings.

.2 AFBMA 11 - Load Ratings and Fatigue Life for Roller Bearings.

.3 AMCA 99 - Standards Handbook.

.4 AMCA 210 - Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.

.5 AMCA 300 - Reverberant Room Method for Sound Testing of Fans.

.6 AMCA 301 - Method of Calculating Fan Sound Ratings from Laboratory Test Data.

.7 SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

### 1.4 Submittals

.1 Division 01: Procedures for submittals.

.2 Shop Drawings: Indicate assembly of centrifugal 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.

.3 Product Data: Provide data on centrifugal 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.

.4 Manufacturer's Installation Instructions.

### 1.5 Operation And Maintenance Data

.1 Section 01 78 00: Submittals for project closeout.

.2 Maintenance Data: Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

**1.6 Delivery, Storage, And Handling**

.1 Protect motors, shafts, and bearings from weather and construction dust.

**1.7 Environmental Requirements**

.1 Do not operate fans for any purpose until ductwork is clean, filters in place, bearings lubricated, and fan has been test run under observation.

**1.8 Extra Materials**

.1 Provide two sets of filters.

**Part 2 Products**

**2.1 Heat Recovery Ventilators**

.1 Manufacturers: Venmar CES Model: HRV1200i

.2 Other acceptable manufacturers offering equivalent products.

.1 Substitutions: Refer to Section 01 61 00.

.3 General

.1 Performance Ratings: Conform to AMCA 210.

.2 Unit shall be constructed in accordance with CSA C22.2 and UL 1812 and shall carry the ETL and (C)ETL label of approval.

.3 Indoor packaged heat recovery ventilation unit designed for high moisture and/or corrosive environments.

.4 Sound Ratings: AMCA 301, tested to AMCA 300.

.5 Performance

.1 Refer to schedule on drawings

.4 Housing

.1 Unit shall include, baked on, polyester pre-paintedgalvanized steel package. Cabinet shall withstand 10 years without cracking, chipping, peeling, brazing or spotting.

.2 Cabinet shall be less than 25" [635mm] in height for ease of installation.

.3 Main access panel shall be hinged and provide access to all components.

.4 Flat plate heat exchanger sections shall be easily removable from unit.

.5 Blower

.1 Fan ratings are based on tests made in accordance with AMCA Standard 210.

.2 Blowers must be selected to operate on a stable, efficient part of the fan curve when delivering air quantities scheduled against static of the system.

.3 Fan blades shall be statically and dynamically balanced and tested prior to shipment.

.4 Fan shall be provided with internal vibration isolation mounts.

.5 Fan discharge shall be as noted in the equipment schedule.

.6 Motors

.1 Motors shall be continuous duty, permanently lubricated and matched to the fan loads.

.2 Motor selection must include a 15% service factor.

.7 Electrical Requirements

.1 Unit shall have single point power connection only (120V).

.2 All controls shall be factory mounted and wired, requiring only field installation of remote sensing devices and wiring to unit mounted terminal strips.

.8 Filtration

.1 Refer to schedule on drawings.

.9 Heat Exchanger Core

.1 Aluminum flat plate heat exchanger designed to meet NFPA-90A requirements for smoke development and flame spread.

.2 Energy recovery performance for component shall be rated in accordance with ARI Standard 1060 and CERTIFIED to ARI. Actual performance in packaged equipment may vary.

.10 Controls

.1 Unit shall be provided with factory mounted and wired microprocessor control.

.2 All service connectors shall be quick disconnect type.

.3 Unit circuitry shall allow the following operational characteristics:

.1 dry contacts for occupancy control

.2 remote fan interlock on call for ventilation

.3 selection of low or high speeds

.4 remote wall control contacts

.11 Frost Control

.1 Preheat Defrost Cycle

**Part 3**

**Part 4 Execution**

**4.1 Installation**

.1 Install to manufacturer's written instructions.

.2 Install fans as specified, with resilient mountings and flexible electrical leads.

.3 Install flexible connections specified in Section 23 33 00 between fan inlet and discharge ductwork. Ensure metal bands of connectors are parallel with minimum 25 mm (one inch) flex between ductwork and fan while running.

.4 Provide backdraft dampers on discharge of exhaust fans and as indicated. Refer to Section 23 33 00.

**END OF SECTION**