Blauair BL CFV U, CFV CR U – Air-to-Air energy recovery equipment for indoor installation
CSI MASTERFORMAT CATEGORY 23 72 00

Specifier notes are to be in red font (see below):

Specifier Notes: This product specification guide is written in accordance to the Construction Specifications Institute (CSI) Format - 2004 Edition.
This section must be carefully reviewed and edited by the Engineer to meet the requirements of the project and local building code.
Coordinate with other specification sections and the drawings.

Delete all unnecessary "Specifier Notes" when editing this section.

SECTION 23 72 00 – AIR-TO-AIR ENERGY RECOVERY EQUIPMENT

PART 1 – GENERAL

1.1 SUMMARY

- This section includes Air-to-Air Energy Core Ventilators for indoor installation.
- Within this document, these units may be referred to as Energy Recovery Units [ERV] or Heat Recovery Units [HRV].

1.2 RELATED

Drawing and general provisions of the contract, including General Requirements Division 01, Division 23, Division 23 Specifications Sections, and common work requirements for HVAC apply to work specified in this section.

- Section 23 09 00: Controls and Instrumentation

Include any other applicable specification divisions

1.3 SUBMITTALS (This section should include all data needed by A/E to verify suitability of product for each application. As a minimum, it should include CAPS data and IOM).

A. Product Data: For each type or model include the following:
   1. Unit performance data for both Supply Air and Exhaust Air, with system operating conditions indicated.
   2. [Energy] [Heat] core performance data for both summer and winter operation.
   3. Motor ratings, unit electrical characteristics.
   4. Dimensioned drawings for each type of installation, showing isometric and plan views, to include location of attached ductwork and service clearance requirements.
   5. Estimated gross weight of each installed unit.
   6. Filter types, quantities, and sizes
   7. Installation, Operating and Maintenance manual (IOM) for each model.
   8. [Remote Control Panel description to include all functions.]

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain unit with all appurtenant components or accessories from a single manufacturer.

B. For the actual fabrication, installation, and testing of work under this section, use only thoroughly trained and experienced workers completely familiar with the items required and with the manufacturer's current recommended methods of installation.

C. Product Options: Drawings must indicate size, profiles and dimensional requirements of Energy Recovery Units and are to be based on the specific system indicated. Refer to Division 1 Section "Product Requirements".

Blauberg North America
174 N 36th St.,
Lafayette, IN 47905

Tel: 765-780-7139
info@blauberg-na.com
www.blauberg-na.com

D. Certifications:

1. Entire unit shall be ETL Certified per U.L. 1812 and bear an ETL sticker.

E. Every unit to be factory tested prior to shipping: Motor Dielectric Voltage-Withstand Bench Test, Unit Dielectric Voltage-Withstand Test, Continuity of Internal Control Circuits Test, Unit Amperage Test

1.5 COORDINATION

A. Coordinate size and location of all building penetrations required for installation of each unit and associated plumbing and electrical systems.

B. Coordinate sequencing of construction of associated HVAC, electrical supply [roofing contractor].

1.6 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: [(Insert quantity) set(s) of [MERV 8] or [MERV 13] disposable filters for each unit].

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with specifications contained within this document, manufacturers offering products that may be incorporated into the work include, but are not limited to:

1. Blauberg North America

2.2 MANUFACTURED UNITS Indicate major components that must be included as part of the unit.

A. Unit shall be fully assembled at the factory and consist of an insulated double wall metal cabinet, [fixed-plate cross-flow exchanger with no moving parts], [fixed-plate counter-flow exchanger with no moving parts], [energy core], [heat core],[heating coil], [electric heating coil],[preheating coil], [electric preheating coil], [cooling coil], [motorized intake damper], [motorized return damper], [sensors], [frost control], [economizer control], [bypass damper] filter assembly for intake and exhaust air, supply air blower assembly, exhaust air blower assembly and an electrical control center. All specified components and internal accessories factory installed and tested and prepared for [single-point high voltage connection] [double-point high voltage connection] [triple-point high voltage connection].

2.3 CABINET

A. Materials: Formed double wall insulated metal cabinet, fabricated to permit access to internal components for maintenance.

B. Outside casing: [zinc coated steel] or [galvanized steel], 23 gauge (0.7 mm thick).

C. Access doors for fans and filters assembly shall be hinged. Bolt-on access doors are standard for core.

D. Cabinet Insulation:

1. Materials: Mineral wool.
2. Thickness: [1 37/64 inch (40 mm) – unite sizes: 800, 1200, 1500, 2500, 3500, 5000, 6000]
3. Location and application: Full coverage of the entire cabinet exterior includes walls, roof, and unit floor. Insulation is installed between the inner and outer shells of all cabinets.

E. Energy core: Energy recovery core shall be of the [total enthalpy type] [condensing type], capable of transferring [both sensible and latent energy between airstreams] [sensible energy between airstreams]. Core shall be removable from the cabinet. The core media shall be a corrugated [polystyrene][polymer] membrane in a galvanized steel framework and can be removable for servicing. Performance criteria are to be as specified in AHRI Standard 1060.

F. Control panel /connections: Energy Recovery Unit shall have an electrical control center where all high and low voltage connections are made. Control center shall be constructed to permit [single-point high voltage power supply connections] [double-point high voltage power supply connections] [triple-point high voltage connection].

G. Frost control: [Preheating coil], [Electric preheating coil], [Bypass damper].

H. Preheater shall be provided for frost control of the energy core. [Preheater assembly shall include a thermostat in the exhaust air stream to initiate frost control sequence]. [Preheater shall comply with UL 1996 and be constructed on a metal casing.]

I. Economizer Control: Bypass Damper.

J. Motorized Dampers: [None included] [Supply and Exhaust motorized dampers of low leakage type shall be factory installed].

K. [Sensors are considered to be part of various optional operational modes or device controllers and are to be factory supplied and installed as specified by the A/E].

2.4 BLOWER

A. Blower section construction, Supply Air and Exhaust Air: Blower assemblies consist of [1 phase] [3 phase] 60 Hz motor, and a direct-driven blower with a backward-impeller.

B. Blower assemblies: Shall be statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and horsepower.

2.5 MOTORS

A. Blower motors shall be Premium Efficiency, EISA compliant for energy efficiency. The blower motors shall be totally enclosed (TEFC) and be shall be supplied with factory installed motor starters.

B. Motors shall be Select one: [230V - 1 phase] [208-230V – 3 phase] [380-480V - 3 phase] [575V - 3 phase] 60 Hz.

2.6 UNIT CONTROLS

A. Unit shall include an integrated microprocessor-based unit controller. The controls shall be located in the integral control's cabinet. All internal controls and sensors shall be factory prewired and tested.

B. The control system shall regulate temperatures, airflows and other functions as required. Unit controller shall be pre-programmed with factory tested software for all possible functions. Integral USB and Ethernet ports for updating programs and retrieving log files shall be.

C. Operating protocol: The microprocessor shall be factory-programmed for [BACnet MSTP] [BACnet IP] [Modbus RTU] [Modbus IP] for monitoring of the unit's status.

D. [Remote Display: Contractor shall provide and install a remote display that functions as a remote indicator of owner-selected operating parameters and also permits remote inputting of new operating parameters]. Note: only one remote display per unit is available.

E. [Variable Frequency Drive (VFD)]: [Unit shall have factory installed variable frequency drive for modulation of the blower motors. The VFDs shall be factory-programmed for unit-specific requirements and shall not require additional field programming to operate].

F. [Supply fan shall be configured for [constant volume] [duct pressure] [building pressure] [CO2 sensor] [network control] [0-10 VDC signal by others] [VOC monitor].] Note: Modulating fan control requires EC motors or VFDs and microprocessor.

G. [Exhaust fan shall be configured for [constant volume] [building pressure] [network control] [0-10 VDC signal by others] [supply tracking].] Note: Modulating fan control requires EC motors or VFDs and microprocessor.

H. [Airflow monitoring required in the [supply airstream] [exhaust airstream] [supply & exhaust airstreams].

I. Sensors
   1. [Dirty Filter Sensors]
   2. [CO2 Sensor]
   3. [Temperature Sensors]

2.7 FILTERS

A. [MERV 8] [MERV 13] disposable pleated filters shall be provided in the intake air stream and [MERV 8] MERV 13] filters in the exhaust air stream].

2.8 HOT-WATER HEATING COIL

A. Capacity Ratings: Coil rated in accordance with ARI 410 – Standard for Forced-Circulation Air-Cooling and Air-Heating Coils

B. Coil Casing Material: [Galvanized steel] [Stainless steel].

C. Tube Material: Copper.

D. Tube Header Material: Copper.

E. Fin Material: Aluminum.

F. Fin and Tube Joints: Mechanical bond.

G. Leak Test: Coils shall be leak tested with air underwater.

H. Provide adequate clearance for accessing, cleaning, servicing and maintaining the coil per coil manufacturer's recommendation.

I. Ensure that the coil can be removed and replaced in the field with ease.

J. Coating (Optional): epoxy corrosion-protection coating as an option.

2.9 ELECTRIC-RESISTANCE HEATING COIL

A. UL Compliance: Comply with requirements in UL 1996, "Heating and Cooling Equipment."

B. Electric-Resistance Heating Elements:
   1. Coils shall be made of high-grade Nickel-Chrome alloy and shall be insulated from the frame. Open-Coil Resistance Wire: 80 percent nickel, 20 percent chromium.

2. Supports and Insulation: Floating ceramic bushings recessed into casing openings; fastened to supporting brackets and mounted in stainless-steel frame.
3. Safety Controls:
   - Automatic high-limit switch for primary over-temperature protection.
   - Manual reset high-limit switch for secondary over-temperature protection.

2.10 COOLING COILS

A. Capacity Ratings: Coil rated in accordance with ARI 410 – Standard for Forced-Circulation Air-Cooling and Air-Heating Coils
B. Coil Casing Material: [Galvanized steel] [Stainless steel].
C. Tube Material: Copper.
D. Tube Header Material: Copper.
E. Fin Material: Aluminum.
F. Fin and Tube Joints: Mechanical bond.
G. Leak Test: Coils shall be leak tested with air underwater.
H. Refrigerant type: [cold water] [freon].
I. Refrigerant Coil Suction and Distributor Header Materials: Seamless copper tube with brazed joints.
J. Coating (optional): epoxy corrosion-protection coating after assembly.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Prior to start of installation, examine area, and conditions to verify correct location for compliance with installation tolerances and other conditions affecting unit performance. See unit IOM.
B. Examine roughing-in of electrical and HVAC services to verify actual location and compliance with unit requirements. See unit IOM.
C. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Installation shall be accomplished in accordance with these written specifications, project drawings, manufacturer's installation instructions as documented in manufacturer's IOM, best practices, and all applicable building codes.
B. Install unit with clearances for service and maintenance.

3.3 CONNECTIONS

A. In all cases, industry best practices shall be incorporated. Connections are to be made subject to the installation requirements shown above.
   1. Duct installation and connection requirements are specified in Division 23 of this document.
   2. Electrical installation requirements are specified in Division 26 of this document.

3.4 FIELD QUALITY CONTROL

A. Contractor to inspect field assembled components and equipment installation, to include electrical and piping connections. Report results to Architect/Engineer in writing. Inspection must include a complete startup checklist to include (as a minimum) the following: Completed Start-Up Checklists as found in manufacturer's IOM. Insert any other requirements here.

3.5 START-UP SERVICE

A. Engage an authorized service representative to perform startup service. Clean entire unit and install clean filters. Measure and record electrical values for voltage and amperage. Refer to Division 23 "Testing, Adjusting, and Balancing" and comply with provisions therein.

3.6 DEMONSTRATION AND TRAINING

A. Engage an authorized service representative to train owner's maintenance personnel to adjust, operate, and maintain the entire unit. Refer to Division 01 Section Closeout Procedures and Demonstration and Training.