

# Guide Specifications

## DAVE LENNOX *SIGNATURE*<sup>®</sup> COLLECTION CBX32MV

R-410A Ready– Multi-Position – Variable Speed

September 5, 2012



**Note:** This specification is for Lennox Industries **CBX32MV, CBX Series Air Handlers**. Revise specification section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

This specification utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat*<sup>™</sup>, *SectionFormat*<sup>™</sup> and *PageFormat*<sup>™</sup>. Optional text and text requiring a decision is indicated by bolded brackets [  **]**; delete text not required in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

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## FAN COIL UNITS & UNIT VENTILATORS

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### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Multi-Position, Variable Speed Blower Coil Units

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI *MasterFormat* and specifier's practice.

#### 1.2 RELATED SECTIONS

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section. Retain only those reference standards to be used within the text of this Section. Add and delete as required for specific project.

#### 1.3 REFERENCES

- A. Air-Conditioning and Refrigeration Institute (ARI):
  - 1. ARI 210/240 Unitary Air-Conditioning and Air-Source Heat Pump Equipment
  - 2. ARI 340/360 Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment.
- B. Servicing Safety Standards:
  - 1. National Electric Code (NEC)
  - 2. Canadian Electric Code (CEC)
  - 3. Canadian Standards Association (CSA)
- C. ISO 9001, units manufactured to quality standard
- D. Underwriters Laboratories (UL)
- E. Underwriters Laboratories Canada (ULC)

Specifier Note: DOE rating is for units with optional electric heater.

- F. [Department of Energy (DOE), rated in accordance to test procedures]

Specifier Note: FTCLabeling regulations are for units with optional electric heater.

- G. [Federal Trade Commission (FTC), labeling regulations]

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties required to link components of a system together and to interface with other systems.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Air Handler: [1.5 to 2, 2 to 2.5, 3, 4, 5, 5+] tons
- B. Electrical Characteristics:
  - 1. 60 Hz
  - 2. [208/230 V, 1-phase]

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

#### 1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures
- B. Product Data: Submit product data for specified products
- C. Shop Drawings:
  - 1. Submit shop drawings in accordance with Section [01 33 00 - Submittal Procedures]
  - 2. Indicate:
    - a. Equipment, piping and connections, together with valves, strainers, control assemblies, thermostatic controls, auxiliaries and hardware and recommended ancillaries which are mounted, wired and piped ready for final connection to building system, its size and recommended bypass connections.
    - b. Piping, valves and fittings shipped loose showing final location in assembly
    - c. Control equipment shipped loose, showing final location in assembly
    - d. Field wiring diagrams
    - e. Dimensions, internal and external construction details, installation clearances, recommended method of installation, sizes and location of mounting bolt holes.
    - f. Detailed composite wiring diagrams for control systems showing factory installed wiring and equipment on packaged equipment or required for controlling devices or ancillaries, accessories, controllers.
- D. Quality Assurance:
  - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties
  - 2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements
  - 3. Manufacturer's Instructions: Manufacturer's installation instructions

Specifier Note: Coordinate paragraph below with Part 3 Field Quality Requirements Article herein.

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Retain or delete as applicable.

- E. Manufacturer's Field Reports: Manufacturer's field reports specified herein
- F. Closeout Submittals: Submit the following:
  - 1. Warranty: Warranty documents specified herein
  - 2. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance. Include names and addresses of spare part suppliers.
  - 3. Provide brief description of unit, with details of function, operation, control and component service.
  - 4. Commissioning Report: Submit commissioning reports, report forms and schematics in accordance with Section [01 81 00 – Commissioning]

## **1.6 QUALITY ASSURANCE**

- A. Qualifications:
  - 1. Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project

## **1.7 DELIVERY, STORAGE & HANDLING**

- A. General: Comply with Division 1 Product Requirements
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays
- C. Packing, Shipping, Handling and Delivery:
  - 1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact
  - 2. Ship, handle and unload units according to manufacturer's instructions
- D. Storage and Protection:
  - 1. Store materials protected from exposure to harmful weather conditions
  - 2. Factory shipping covers to remain in place until installation

Specifier Note: Coordinate article below with Conditions of the Contract and Division 1 Closeout Submittals (Warranty).

## **1.8 WARRANTY**

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions
- B. Manufacturer's Warranty: 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.

Specifier Note: Coordinate paragraph below with manufacturer's warranty requirements.

C. Warranty: Commencing on Date of Installation

Specifier Note: Refer to Lennox Equipment Limited Warranty certificate included with equipment for details.

1. All Covered Components: 1 year limited (nonresidential applications).

## PART 2 - PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of such phrases as “or equal” or “or approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining “or equal” products.

### 2.1 UP-FLOW/HORIZONTAL/MULTI-POSITION AIR HANDLERL UNITS

- A. Manufacturer: Lennox Industries
  1. Contact: 2140 Lake Park Blvd., Richardson, TX 75080; Telephone: (800) 453-6669; Web site: [www.lennoxcommercial.com](http://www.lennoxcommercial.com)
- B. General:
  1. Air-Flow
    - a. Multi-position, Variable Speed
    - b. [1.5 - 2][2 – 2.5][3][4][5][5+] nominal tonnage
- C. Proprietary Products/Systems:
  1. Cabinet:
    - a. Pre-painted heavy gauge galvanized steel
    - b. Insulated with thick fiberglass insulation
    - c. Prime coated on unpainted sides
    - d. Shipped in one piece
    - e. Removable panels for complete service access
    - f. Electrical inlets provided in sides and top of cabinet
    - g. Low leakage
    - h. Multi-position capability
    - i. Tool-less filter access makes changing filters simple and efficient
    - j. Dual Position Drain Pans:
      1. Corrosion resistant plastic
      2. Dual pipe drains
      3. Designed for Up-flow, Down-flow, and Horizontal applications
  2. Refrigerant System:
    - a. Refrigerant: R-410A
    - b. Refrigerant Line Connections: Suction (vapor) and liquid lines extend outside cabinet with sweat connections
    - c. Copper Tube/Enhanced Fin Evaporator Coil:
      1. Twin coils in “A” configuration
      2. Lanced, ripple-edged aluminum fins

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3. Seamless copper tubing
      4. Rifled copper tubing
      5. Flared shoulder tubing joints and silver soldering
      6. Factory leak tested under high pressure
    - d. Check and Expansion Valve:
      1. Factory installed internal to cabinet
      2. Chatleff style fitting, wide range valve
  3. Direct Drive Blower:
    - a. Statically and dynamically balanced before installation
    - b. Resiliently mounted, Variable-Speed Blower Motor(VSM) with plug-in connections
    - c. Selectable speeds
    - d. Slides out for servicing
  4. Filter:
    - a. Rails furnished in cabinet
    - b. Factory installed
    - c. Tool-less access to filter area for easy servicing
    - d. Disposable frame type filter
    - e. 1-inch (25.4 mm)] thick
  5. Controls:
    - a. icomfort™ Control:
      1. Advanced control board communication
      2. Auto configuration
      3. EEPROM storage for all local configuration
      4. Non-volatile memory storage
      5. Connections for optional outdoor temperature
      6. Controls evaporator humidity
      7. Two-stages-Heat and Cool
      8. Delay jumper pin
    - b. Display LED
    - c. Dehumidification(Active or Humiditrol® Option)
    - d. Electric Heat Operation
    - e. EvenHeater® Electric Heat Control
    - f. Heat Pump Operation
    - g. Two Stage Cooling Operation
    - h. Lennox System Operations Monitor Connection
    - i. Continuous Blower Speed
    - j. Transformer
    - k. Accessory Terminals
      1. Two accessory terminals for additional power supply
  6. [Optional Accessories]:
    - a. [Down-Flow Combustible Flooring Base]
    - b. [Horizontal Support Frame Kit]
    - c. [Side Return Unit Stand (Upflow only): Two adjustable, all aluminum frames]
    - d. [Wall Hanging Bracket Kit:
      1. Two heavy gauge steel support brackets (one for blower coil unit, one

- for wall mount)
- 2. Screws for fastening bracket to unit and bolts for fastening bracket to wall]
- e. [icomfort Touch® Communicating Thermostat
  - 1. Part of the icomfort® Residential Communicating Control System]
- f. [ComfortSense® 7000
  - 1. Electronic 7-day, universal, multi-stage, programmable touchscreen thermostat
  - 2. 4 Heat/2 Cool
  - 3. Auto-changeover
  - 4. Controls humidity during cooling mode]
- g. [Thermostat]
- h. [Hot Water Heat Kit]

Specifier Note: The following accessory can be used with optional electric heat when single power supply is connected to multi-circuit electric heat on all CBX series models.

- i. [Single-Point Power Source Control Box:
  - 1. Heavy gauge steel, baked enamel finish
  - 2. Pre-punched mounting holes
  - 3. Electrical inlet knockouts
  - 4. Terminal strip
  - 5. Field installed, on [Top] [Side] of cabinet exterior]
- j. [Electric Heat:
  - 1. [Circuit Breaker] [EvenHeater] Model
  - 2. Field installed internal to unit cabinet
  - 3. Helix wound nichrome heating elements
  - 4. Limit control with fixed temperature off setting and automatic reset
  - 5. Supplemental thermal cutoff limit control
  - 6. Thermal sequencer relay
  - 7. Heating control relay(s)
  - 8. Heavy gauge galvanized steel control box and access cover
  - 9. Factory assembled with controls installed and wired
  - 10. Electric heat low voltage controls plug-in to blower coil unit]

Specifier Note: The following accessory is optional for CBX Series models CBX40UHV, CBX32MV, CBX32M, CBX27UH and CBX26UH and may replace factory installed circuit breaker in certain applications.

- k. [Circuit Breakers: Field installed in electric heat section]
- l. [Healthy Climate Germicidal UVC Light]

Specifier Note: Edit Article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

## **2.2 PRODUCT SUBSTITUTIONS**

- A. Substitutions: No substitutions permitted

## **PART 3 - EXECUTION**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

Specifier Note: Revise article below to suit project requirements and specifier's practice.

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions and product carton installation instructions.

### **3.2 EXAMINATION**

- A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

### **3.3 INSTALLATION**

- A. Install CB series Blower Coil Units in accordance with manufacturer's instructions and regulations of authorities having jurisdiction.

**END OF SECTION**