Guide Specifications

ELITE® SERIES LARGE SPLIT SYSTEM UNITS UPFLOW/HORIZONTAL ELA – AIR HANDLER

R-410A - 60 HZ

October 15, 2018

Note: This specification specifies **Lennox Industries Elite® Series Indoor Air Handlers, 6- to 20-tons**, -EL series. 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™, SectionFormat™ and PageFormat™. 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.

FAN COIL UNITS

SECTION 23 82 19

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Up-Flow/Horizontal Air handler 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) 340/360-Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment
B. Servicing Safety Standards and Codes:
    1. Underwriters Laboratories (UL).
    2. National Electric Code (NEC)
    3. Canadian Electric Code (CEC)
    4. Canadian Standards Association (CSA)
C. ISO 9001, units manufactured to quality standard
D. All unit to be ETL listed
E. All models are ASHRAE 90. 1-2016 compliant
F. All models meet California Code of Regulations, Title 24 rand ASHRAE 90.1-2010 section 6.4.3.10 requirements for staged airflow

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: **[**6-, 7.5-,10-,12.5-,15-,20-**]** tons
B. 60 Hz
C. 3-phase
D. **[**208/230 V**] [**460 V**] [**575 V**]**

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. 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).

1.08 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 Bond: 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 HANDLER UNITS

A. Manufacturer: Lennox Industries
   1. Contact: 2140 Lake Park Blvd., Richardson, TX 75080; Telephone: (800) 453-6669; Web site: www.lennoxcommercial.com
B. General:
   1. Air-Flow
      a. Up-flow (top supply, side return)/horizontal (end return, end supply)
      b. **[**6-**] [**7.5-**] [**10-**] [**12.5-**] [**15-**] [**20-**]** nominal tonnage
C. Proprietary Products/Systems:
   1. Cabinet:
      a. Heavy gauge corrosion resistant pre-painted steel
      b. Insulated with thick fiberglass insulation
      c. Removable service access on three sides
      d. Large removable panels provided complete service access on one side
      e. Drain Pans:
         1. Corrosion resistant plastic
         2. Reversible drain pan
         3. Designed for up-flow and Horizontal applications
   2. Refrigerant System:
      a. Refrigerant: R-410a
      b. Refrigerant Line Connections: Suction (vapor) and liquid lines are internal to the cabinet with sweat connections
      c. Copper Tube/Enhanced Fin Evaporator Coil:
         1. Lanced, ripple-edged aluminum fins
         2. Seamless copper tubing
         3. Rifled copper tubing
         4. Flared shoulder tubing joints and silver soldering
         5. Factory leak tested under high pressure
      d. Check and Expansion Valve:
         1. Factory installed and piped
         2. Internal Check valves if required by manufacturer
         3. 090 and 120 models have internal check valves for use with heat pump systems
      e. Freezestat - Factory installed, field wired
   3. Belt Drive Blower:
      a. Factory installed VFD to control blower speed
      b. 072-090-120-150 models have Single blower wheel ,180 and 240 models have dual blower wheels
      c. Heavy-duty blower wheel

d. Statically and dynamically balanced blower wheels
e. Forward curved blades and double inlet
f. Heavy-duty, permanently sealed and lubricated bearings
g. Low or high static drives as called out on schedule

4. 24 V transformer factory installed
5. Blower relay factory installed
6. Low voltage terminal strip factory installed
7. Filter:
    a. Rails furnished in cabinet
    b. Factory provided, field installed, external filter rack
    c. **[**Factory provided, 2 " filter MERV 8**] [**Field installed, 4" MERV 8**] [**Field installed, 4" MERV 13**]**.
8. **[**Optional Accessories**]**:
    a. **[**Economizer Damper Section:
        1. Factory assembled and wired dampers and controls for field installation
        2. Heavy-gauge, galvanized steel cabinet with thick, matte-faced fiberglass insulation
        3. Removable access panels on both sides of cabinet
        4. Mounting flanges for blower-coil unit connection
        5. Outdoor air opening and return air opening flanges for duct connection
        6. Mechanically linked outdoor air and recirculated air dampers
        7. Outdoor air dampers reinforced and gasketed
        8. Gear driven, direct coupled damper design
        9. 24 V fully modulating, electronic spring return damper motor with adjustable minimum position potentiometer, controlled by room thermostat, adjustable mixed air sensor and adjustable enthalpy control
        10. Free cooling capability (100% fresh air)**]**

D.

1. **[**High Performance Economizer downflow**] [**High Performance Economizer horizontal**]**:
2.
3. i. Outside (fresh) Air damper Max Leakage Rate: 3 CFM/sq. ft. at 1" w.g.
4.
5. ii. Return Air Max Leakage Rate: 3 CFM/sq. ft. at 1" w.g.
6.
7. iii. Damper Reliability: 60,000 cycles minimum
8.
9. iv. Economizer fault detection and diagnostics
10.
11. v. W7220 Economizer Control
12.
13. a. Mixed Air Temperature sensor error
14. b. CO2 sensor error
15. c. Outside Air Temperature sensor error
16. d. Discharge Air sensor error
17. e. Actuator over voltage
18. f. Actuator under voltage

19. g. Actuator stalled
20. h. Current alarms
21. i. Historic alarms

b.

c. **[**Differential Enthalpy Control: Solid state return air enthalpy sensor field installable in economizer damper section**]**

d. **[**Electric Heat Section- T3EH-:
    1. Field Installed
    2. Thick fiberglass insulation
    3. Removable access panels
    4. Electrical Wiring Inlet
    5. Helix wound, ni-chrome heating elements insulated from heavy-gauge steel support frame**]**

e. **[**L Connection® Network**]**

f. **[**BACNet Integration**]**

g. **[**Coil corrosion protection**]**

h. **[**Condensate float switch, field installed**]**

i. **[**Hot Water Coil**]**

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: Article below is an addition to the CSI *SectionFormat*. 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 ELA series Air Handler Units in accordance with the manufacturer's instructions and regulations of authorities having jurisdiction.

END OF SECTION