

# Guide Specifications

## ELITE<sup>®</sup> SPLIT SYSTEM UNITS

### SPB

### R-410A - 60 HZ

February 14, 2020



**Note:** This specification is for Lennox SPB Elite<sup>®</sup>, 3- to 5- ton, split system heat pumps. These products are manufactured by Lennox Industries. Revise section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

Optional text and text that requires a decision are indicated by bolded brackets [ ]; delete text that is not needed 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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## AIR-SOURCE UNITARY HEAT PUMPS

### SECTION 23 81 43

#### PART 1 - GENERAL

##### 1.1 SECTION INCLUDES

- A. Split System Air Conditioners, including:
  - 1. Cabinet
  - 2. Compressor
  - 3. Refrigerant system
  - 4. Controls
  - 5. Refrigerant line connectors, electrical inlets and service valves.

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 01 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. AHRI 210/240 – 2005, Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
  - 2. AHRI 270-2008/370-2001, Sound Rating of Outdoor Unitary Equipment
- B. Servicing Standards and Codes:
  - 1. Intertek (ETL)
  - 2. National Electric Code (NEC)
  - 3. Canadian Electric Code (CEC)
- C. Department of Energy (DOE), units rated to

- D. ISO 9001 registered manufacturing quality system
- E. Units to Be Energy Star® compliant (certain models)

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**

Specifier Note: Refer to Lennox Engineering Handbook for specific heating and cooling capacities. Units are available in 3, 4 and 5 ton models. Cooling capacities vary from 345800 to 59,000 Btuh, and heating capacities vary from 32,400 to 61,5000 Btuh.

- A. 3-, 4- and 5-ton capacity
- B. Electrical Characteristics:
  - 1. 60 hz
  - 2. 3-phase
  - 3. 208/230 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 that 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

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wiring and equipment on split systems 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. Retain or delete as applicable.

E. Manufacturer's Field Reports: Manufacturer's field reports specified

F. Closeout Submittals: Submit the following:

1. Warranty: Warranty documents specified
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 91 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
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction and approving application method

B. Preinstallation Meetings: Conduct preinstallation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings).

## 1.7 DELIVERY, STORAGE & HANDLING

A. General: Comply with section [01 61 00 - Common Product Requirements]

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- 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: Include or remove following section as project dictates.

- E. Waste Management and Disposal:

Specifier Note: ENVIRONMENT: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.

- 1. Separate waste materials for [Reuse] [And] [Recycling] [\_\_\_\_\_] in accordance with Section [01 74 19 - Construction Waste Management and Disposal] [\_\_\_\_\_].
- 2. Remove from site and dispose of packaging materials at appropriate recycling facilities.
- 3. Collect and separate for disposal [Paper] [Plastic] [Polystyrene] [Corrugated cardboard] [\_\_\_\_\_] packaging material [In appropriate onsite bins] [\_\_\_\_\_] for recycling.

Specifier Note: Coordinate article below with Conditions of the Contract and with Division 01 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
  - 1. Compressor: Five years (limited) (non-residential)
  - 2. Other Covered Components: One year (limited) (non-residential)

## 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 AIR CONDITIONERS/SPLIT SYSTEM 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. *[Proprietary]* Products/Systems: *[SPB, Elite®]* Heat Pump Units, including the following equipment:
  - 1. All units to be factory assembled, wired and piped
  - 2. All units to be assembled in the USA
  - 3. All units to be factory tested prior to shipping
  - 4. Cabinet:
    - a. Heavy-gauge steel construction
    - b. Corrosion free pre-painted cabinet finish
    - c. Corrosion free durable zinc-coated base section
    - d. Compressor and control box
      - 1) Located in separate compartment inside unit
      - 2) Insulated with thick fiberglass insulation
    - e. Control box with controls factory wired
    - f. Large removable service access panel
    - g. Base drainage holes for moisture removal
    - h. High density polyethylene unit support feet
    - i. Coil protection panels
      - 1) *[SmartHinge™]*
      - 2) Steel construction
      - 3) Hinged
      - 4) Louvered
      - 5) May be completely removable
    - j. Refrigerant Line Connections, Electrical Inlets, Service Valves:
      - 1) Sweat connection vapor and liquid lines located on cabinet corner
      - 2) Fully serviceable brass service valves
      - 3) Full shutoff vapor valve
      - 4) Liquid valve can be front seated to manage refrigerant charge while servicing system
      - 5) Vapor and liquid line service valve to be located inside unit

- 6) Suction and liquid line gauge ports to be located inside unit
  - 7) Refrigerant line connections and field wiring inlets to be located in one central area
5. Controls:
- a. Defrost Control
  - b. [Options:]
    - 1) [L-Connection® Network]
    - 2) [Indoor Blower Speed Relay Kit]
    - 3) [Time Delay Relay Kit]
    - 4) [Low Ambient Kit (down to 30° F)]
    - 5) [Low Ambient Control Option (down to 0° F)]
    - 6) [Compressor Low Ambient Cutoff]
    - 7) [Compressor Lock-out thermostat]
    - 8) [Outdoor Thermostat Kit]
    - 9) [Monitor Kit – Service Light]
    - 10) [Commercial ComfortSense® Thermostat by Lennox]
6. Compressor:
- a. Two Stage
  - b. Scroll type
  - c. Resiliently mounted on rubber mounts for vibration isolation
  - d. Internal excessive current and temperature protection
  - e. Crankcase heater
  - f. [Outdoor Thermostat Kit – Field installed]
7. Refrigerant System:
- a. Refrigerant: R410-A
  - b. Units to come pre-charged
  - c. Outdoor Coil Fan:
    - 1) Direct drive fan
    - 2) Vertical air discharge
    - 3) Totally enclosed fan motor with sleeve bearings
    - 4) Inherently protected fan motor
    - 5) Corrosion resistant PVC coated steel fan guard
    - 6) Removable fan guard for fan service access
  - d. Copper Tube/Fin Coil:

- 1) Copper tube construction
- 2) Flared shoulder connections
- 3) Silver solder construction
- 4) Lanced, ripple-edged aluminum fins
- 5) Coil is leak tested at factory
- 6) Entire coil to be accessible for cleaning
- e. Standard factory installed features:
  - 1) Expansion valve to be factory piped
  - 2) Discharge temperature switch
  - 3) High pressure switch
  - 4) Low pressure switch
  - 5) Hi-capacity liquid line drier
  - 6) Four (4) – way reversing valve
- f. [Options]:
  - 1) [Field installed expansion valve kits]
  - 2) [Freezestat that opens at 29° F and closes at 58° F]
  - 3) [Refrigerant Line Kit]
8. See manufacturers documentation for matching add-ons:
  - a. Air handlers
  - b. Furnaces:
    - 1) Dual fuel applications
9. Installer must:
  - 1) Set heat pump
  - 2) Connect refrigerant lines
  - 3) Make electrical connections

Specifier Note: Edit article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 01 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 that 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 heat pump in accordance with manufacturer's instructions and regulations of authorities having jurisdiction.

**END OF SECTION**