

Guide Specifications

GAS-FIRED DUCT FURNACES

LD24

Horizontal

January 2, 2014



Note: This specification is for **Lennox Industries LD24 Gas Fired Duct Furnaces**. 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.

Fuel-Fired Heaters

SECTION 23 55 00

PART 1 - GENERAL

1.1 SECTION INCLUDE

- A. Gas-Fired Duct Heaters

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. Units Certified by CSA International
- B. ISO 9001, units manufactured to quality standard

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. Design Requirements
 - 1. Provide products and systems manufactured, fabricated and installed to the following criteria:
 - a. Certified for vertical or horizontal venting
 - b. Approved for installation with single wall and type B-1 double wall vent pipe (vertical venting only)

Specifier Note: Duct furnace may be installed downstream from refrigeration units that supply air below the ambient surrounding air dewpoint. Condensate drain (furnished) is required under burner box. See installation instructions for additional information.

- B. Nominal Gas Heat Input: 75=75,000 Btuh, 100=100,000 Btuh, 125=125,000 Btuh, 150=150,000 Btuh, 200=200,000 Btuh, 250=250,000 Btuh, 300=300,000 Btuh

- C. Steady State Efficiency: 80%
- D. Electrical Characteristics
 - 1. 60 Hz
 - 2. 115 V
 - 3. Single phase
 - 4. 115/24V Transformer
 - 5. Fuel Requirements: [Natural Gas] [and][/][or] [LPG/Propane Gas]

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, including manufacturer's SPEC-DATA® product sheet, for specified products
- E. 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.
- F. 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.

- G. Manufacturer's Field Reports: Manufacturer's field reports specified herein
- H. 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
 - 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 Division 1 Product Requirements
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays
- B. 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
- C. 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
 - 1. Stainless Steel Heat Exchanger: 5 years (limited)
 - 2. Aluminized Steel Heat Exchanger: 2 years (limited)
 - 3. Other Covered Components: 1 year (limited)

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 HORIZONTAL GAS FIRED DUCT FURNACE

- A. Manufacturer: Lennox Industries
 - 1. Contact: 2140 Lake Park Blvd.; Richardson, TX 75080; Telephone: (800) 453-6669; website: www.lennoxcommercial.com
- B. General:
 - 1. Air Flow: Horizontal
- C. Proprietary Products/Systems:
 - 1. Cabinet:
 - a. Heavy gauge painted steel
 - b. Insulated
 - c. Wiring junction box with electrical and safety controls outside cabinet
 - d. 3/8" x 16 spot nuts on top of cabinet for unit suspension
 - 2. Heating System:
 - a. Gas Control Valve: 24 V redundant valve with manual shutoff, automatic electric valve (dual) and gas pressure regulation
 - b. Electronic direct spark ignition control
 - c. Separate electronic flame sensor control
 - d. Pressure switch
 - 3. Heat Exchanger: Tubular [Aluminized] [Stainless] steel
 - 4. Limit Controls: Factory installed; fixed temperature setting
 - 5. Combustion Air Inducer:
 - a. Prepurges heat exchanger and vents combustion products
 - b. Thermally protected blower motor with ball bearings and pressure switch

Specifier Note: The following sentence is only applicable to models LD24-75, LD24-100, LD24-125 and LD24-150.

- c. Rotatable by 90 degrees to left or right of vertical
 - 6. Inshot Burners: Aluminized steel burner assembly removable as single component, individually removable
 - 7. Controls:
 - a. 24 V main gas valve with 100% safety shutoff

- b. Direct spark ignition
 - c. Main shutoff valve
 - d. Gas pressure regulation (natural gas models)
 - e. 115/24 V transformer
 - f. Combination Direct Spark Ignition/Fan Timer Control
 - g. Terminal strip for thermostat connections
 - h. Solid-state control board with LED diagnostics
 - i. Fan timer control - fan on (45 seconds - fixed), fan off (150 seconds fixed)
8. Venting
- a. Horizontal Venting
 - b. Vertical Venting
9. [Optional Accessories]
- a. [Thermostat]
 - b. [Horizontal Vent Kits]

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* and a supplement to MANU-SPEC. 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, product carton installation instructions and [Lennox Industries] SPEC-DATA® sheets.

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 LD24 Gas-Fired Duct Furnace in accordance with manufacturer's instructions and regulations of authorities having jurisdiction.

END OF SECTION