ADDISON™

UHD[X][S][R]-SERIES
TUBULAR DUCT FURNACES

Models 150 - 400

Models 75 - 125

EQUIPMENT SPECIFICATIONS

www.addison-hvac.com
Telephone: +1.407.292.4400

CSA CERTIFIED®

DESIGN CSA CERTIFIED®

GAS-FIRED DUCT FURNACE GUIDE SPECIFICATION

Part 1: GENERAL

Provide gas-fired duct furnaces, designed and manufactured for indoor use.

1.1 SECTION INCLUDES

A. Duct Furnace

B. Controls

1.2 REFERENCES

A. American National Standards Institute (ANSI) / Canadian Standards Association (CSA): Establish requirements applicable to construction, certification and installation of duct furnaces.

1. Standard ANSI Z83.8 / CSA 2.6 "Gas Unit Heater and Gas - Fired Duct Furnaces" (latest edition)

B. IAS: Establishes requirements applicable to construction and certification of duct furnaces.

1. Standard No.10-96 "Unit Heaters for Residential Use" (latest edition)

C. National Fire Protection Association (NFPA): Establishes fire prevention standards.

1. Article 54: National Fuel Gas Code (latest edition)
2. Article 70: National Electric Code (latest edition)

1.3 SUBMITTALS FOR REVIEW

A. Product Data: Provide data with dimensions, service connections, accessories, controls, electrical nameplate data and wiring diagrams.

1.4 PROJECT CLOSEOUT PROCEDURES

A. Training: Provide owner with verbal operating instructions as well as original manufacturer's installation, operation and service manuals.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section (gas-fired duct furnaces) with a minimum of ten years documented experience. Equipment shall be the standard product of the manufacturer and shall have complete catalogued data.

B. Installer Qualifications: All installation and service of duct furnaces must be performed by a contractor qualified in the installation and service of said products with proof of a minimum of three years documented experience.

C. Factory Testing: Each duct furnace shall be factory tested. Testing shall consist of verification of correct operation of burners, manifold, control assembly and electrical components.

1.6 REGULATORY REQUIREMENTS

A. Conform to ANSI Z83.8 / CSA 2.6, latest edition, and provide evidence that the duct furnace and its control system have been found in compliance with these standards by a nationally recognized testing laboratory.

1.7 WARRANTY

A. The product shall have a manufacturer's limited warranty of at least 24 months, subject to the manufacturer's standard warranty limitations.

Part 2: PRODUCTS

2.1 MANUFACTURERS

A. ADDISON™ UHD[X][S][R]-Series

2.2 MANUFACTURED UNITS

A. Unit: Gas-fired, power-vented duct furnace with tubular heat exchanger. Units shall have a minimum of 82% thermal efficiency. The standard unit shall consist of a non-separated combustion design with an aluminized heat exchanger and shall be installed on the positive pressure side of the circulating air blower. Design and heat exchanger alternatives shall be offered as follows:

1. Separated Combustion: A separated combustion unit shall consist of an enclosed sealed burner box to which combustion air is vented through a piece of internal flexible air duct. This duct terminates at an exterior cabinet flange to which a vent run to the outside of the heated space should be attached.
2. Stainless Steel Heat Exchanger: A stainless steel heat exchanger unit shall consist of heat exchanger tubes, heat exchanger tube supports, heat exchanger tube plates and a vent box produced of 409 stainless steel.

2.3 FABRICATION

A. Casing and Components: Galvannealed steel panels, minimum 20 gauge. All panels shall be lined with a minimum of 3/8" (.95 cm) thick insulation. Inlet and outlet duct connector flanges shall be 1.25" (3.2 cm).

B. Access Door: Door shall be provided for easy service of all critical components.

C. Finish: Standard finish is a heavy-duty white powder-coat.

2.4 HEAT EXCHANGERS, BURNERS AND GAS TRAIN

A. Heat Exchangers: For Models 75-125, heat exchanger tubes shall be of a six-pass design with 1.5" (3.8 cm) outer diameter [aluminized steel] [409 stainless steel] tube. For Models 150-400, heat exchanger tubes shall be of a four-pass design with 1.75" (4.4 cm) outer diameter [aluminized steel] [409 stainless steel] tube. Heat exchangers shall not be clamshell design. For Models 150 - 400, the heat

exchanger tubes shall be dimpled to provide efficient heat transfer. The tube plates shall be made of [aluminized steel] [409 stainless steel]. The tube supports shall be made of [galvannealed steel] [409 stainless steel].

B. Burners: The burners shall be in-shot type, directly firing each heat exchanger tube individually. Burners shall be capable of burning natural gas or LPG.

C. Gas Train: The gas train is constructed of black pipe and includes a single-stage gas valve. The valve provides the regulator, main gas and manual shutoff functions.

2.5 COMBUSTION AIR AND VENTING COMPONENTS

A. Vent Box: The vent box shall be of [aluminized steel] [409 stainless steel].

B. Flue Fan: Each unit shall have a factory-installed flue fan to draw combustion gases through the heat exchanger and into the flue venting. No unit shall be gravity vented. The flue fan shall be internally mounted by the manufacturer. No combustion draft inducers shall be mounted outside of heater cabinet.

C. Combustion Air: For non-separated units, the combustion air shall be drawn into the unit's exposed burner box directly from the heated space through openings in the access door. For separated units, the combustion air shall be drawn from outside the heated space into the unit's enclosed burner box through a piece of flexible duct that terminates at an exterior cabinet flange. Ductwork shall be run from that flange to the building penetration.

D. Flue and Combustion Air Connections: The flue collar and combustion air collar (if applicable) shall be located on the rear of the unit. For Models 75 - 125, heater design shall allow for the shifting of the venting and combustion air collars to the top of the cabinet in the field.

2.6 2.6 CONTROL SYSTEM

A. Factory Testing: The complete control system and burner and gas manifold functions shall be factory tested for proper operation and to simplify field commissioning.

B. Control Enclosure: Burner controls (transformer, ignition module, gas valve, safety switches) shall be internally mounted by the manufacturer. No burner controls or gas train components shall be mounted outside of heater cabinet.

C. Safety Controls:

1. Air Flow Switch: The air flow switch measures air pressure differential across the heat exchangers to verify blower operation and the presence of an adequate supply of combustion air. The gas valve cannot open until the air flow switch is satisfied.

2. High Temperature Limit Switch: The high temperature limit switch shall turn the burners off when air is discharged above its set point. The switch helps ensure unit shut down in case of failure or any problem which may result in overheating.

D. Controls System: Units shall be equipped for use with 120 V / 1 Ø / 60 Hz power supply. All units shall be factory equipped with a 24 V thermostat control terminal strip on the outside of the cabinet, pre-wired to heater internal controls.

2.7 OPTIONS AVAILABLE (Select Applicable Options)

A. Shelf-Mounting Bracket Kit (Available for Models 75 - 125 Only): The shelf-mounting bracket kit shall provide a manner in which to mount a unit to an existing shelf.

B. Wall Suspension Mounting Bracket Kit (Available for Models 75 - 125 Only): The wall suspension mounting bracket kit shall provide a wall-mounted structure from which a unit can be suspended.

C. Wall Shelf Mounting Bracket Kit (Available for Models 75 - 125 Only): The wall shelf mounting bracket kit shall provide a wall-mounted shelf structure on which a unit can be mounted.

D. Concentric Vent Kit: The concentric vent kit allows the flue and combustion air to be consolidated into a single concentric vent, thereby minimizing the number of required wall/roof penetrations. The kit consists of a concentric vent box, a 4" (10.2 cm) vent terminal with baffle plate and a 6" (15.2 cm) (Models 75 - 250) / 8" (20.3 cm) (Models 300-400) combustion air terminal.

E. Fuel Conversion Kit: The fuel conversion kit allows for field-conversion of the type of gas supplied to the unit. The kit consists of a replacement spring for the gas valve and replacement orifices.

F. Stainless Steel Package (Available for Models 150 – 400 Only): Unit shall be installed downstream of a refrigeration unit. The stainless steel package consists of heat exchanger tubes, heat exchanger tube supports, heat exchanger tube plates, drip pan and vent box produced of 409 stainless steel.

2.8 PERFORMANCE

A. See Schedule on plans.

Part 3: EXECUTION

3.1 INSTALLATION

A. General: Install gas-fired duct furnaces as indicated, in accordance with manufacturer's installation instructions and in compliance with applicable codes and approvals. Allow adequate space for combustion air supply and servicing or removal of the unit without disturbing other equipment. For installation at altitudes above 2,000' (610 m), inform manufacturer at time of order for appropriate high altitude adjustment and rating by the manufacturer.

B. Support: Suspend heater, venting, gas piping and conduit from building substrate as indicated, or if not indicated, in a manner to provide durable and safe installation; and in accordance with manufacturer's installation instructions.

C. Clearances to Combustibles: Do not impede upon clearances to combustibles outlined and printed on burner nameplate, and in manufacturer's product data. Measure clearances distance from surface of cabinet. Models 75 - 125 shall have a rated clearances to combustibles of 1" (2.5 cm) below unit and 1" (2.5 cm) above the unit. Models 150-400 shall have a rated

clearances to combustibles of 6" (15.2 cm) below unit and 6" (15.2 cm) above the unit.

D. Venting: Install vent piping as indicated and per national and local codes. Terminate where indicated with vent terminal assembled per instructions supplied by the manufacturer of the vent terminal. Properly support venting. Penetrations through combustible surfaces must obey all venting clearances defined by local codes and heater and venting manufacturers. Vent insulation recommended depending on vent lengths as indicated by manufacturer. Condensate drains may be recommended as indicated by manufacturer.

E. Gas Piping: Install gas piping as indicated and in accordance with NFPA Article 54 National Fuel Gas Code (latest edition), local requirements and the Installation, Operation and Service Manual. Gas pressure supply to each burner shall be as specified by heater manufacturer. For units running on natural gas, the required gas supply inlet pressure must be between 5.0 in wc (12.5 mbar) and 14.0 in wc (34.9 mbar). For units running on LPG, the required gas supply inlet pressure must be between 12.0 in wc (29.9 mbar) and 14.0 in wc (34.9 mbar).

F. Electrical Wiring: Install electrical wiring per NFPA Article 70 National Electric Code (latest edition), local requirements and the information and wiring diagrams in the Installation, Operation and Service Manual.

G. Thermostat Devices: Where indicated, provide 24 V thermostat device connected to heater. Mount thermostat device 5'–6' (1.5 m-1.8 m) above finish floor or otherwise as noted on the drawing. Thermostat wiring must follow local codes. Mount wall instruction tag (provided by manufacturer) at user level near thermostat device.

H. Start-Up: Start-up, test, and adjust gas-fired heaters in accordance with manufacturer's start-up instructions, and Utility Company's requirements. Check and calibrate controls, adjust burners, if applicable, according to manufacturer's instructions for maximum efficiency.

I. Ducts: Ductwork must have removable access panels upstream and downstream of the heater. These panels must be of appropriate size and placement so that smoke or reflected light could be observed to indicate the presence of leaks in the heat exchanger. Covers for these openings should be sealed to prevent leakage.

3.2 SCHEDULES

A. See plans.

ADDISON™

7050 Overland Road
Orlando, FL 32810 U.S.A.
Telephone: +1.407.292.4400
Fax: +1.407.290.1329
www.addison-hvac.com

Installation Code and Annual Inspections: All installation and service of ADDISON™ equipment must be performed by a contractor qualified in the installation and service of equipment sold and supplied by Addison and conform to all requirements set forth in the ADDISON™ manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment. To help facilitate optimum performance and safety, Addison recommends that a qualified contractor conduct, at a minimum, annual inspections of your ADDISON™ equipment and perform service where necessary, using only replacement parts sold and supplied by Addison.

Further Information: Applications, engineering and detailed guidance on systems design, installation and equipment performance is available through ADDISON™ representatives. Please contact us for any further information you may require, including the Installation, Operation and Service Manual.

These products are not for residential use.

This document is intended to assist licensed professionals in the exercise of their professional judgment.