

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK
CITY OF PORTLAND

Please Read
Application And
Notes, If Any,
Attached

BUILDING INSPECTION

PERMIT

Permit Number: 061330

This is to certify that WEBBER OIL COMPANY Air Temp

has permission to install a York direct vent in

AT 952 BRIGHTON AVE

L 260 A024001

PERMIT ISSUED

provided that the person or persons firm or person accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

ification of inspection must be
 en and when permission proceed
 ore this building or part thereof is
 ed or service closed-in 4
 UR NO. REQUIRED

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. _____

Health Dept. _____

Appeal Board _____

Other _____

Department Name

William A. Collins 2/11/06
 Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application


389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 06-1330	Issue Date:	CBL: 260 A024001
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Location of Construction: 952 BRIGHTON AVE	Owner Name: WEBBER OIL COMPANY	Owner Address: 700 MAIN ST	Phone:
Business Name:	Contractor Name: Air Temp	Contractor Address: 11 Wallace Ave South Portland	Phone 2077742300
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	Zone: B-1

Past Use: Commercial/ Subway	Proposed Use: Commercial/ Subway- install a York direct vent in attic	Permit Fee: \$100.00	Cost of Work: \$8,000.00	CEO District: 3
Proposed Project Description: install a York direct vent in attic		FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied NCPA 90 A	INSPECTION: Use Group: M Type: HVAC IMC 2003 IBC 2003 Signature: Greg Case Date: 09/28/06	
		PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.) Action: <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Signature: Date:		

Permit Taken By: Idobson	Date Applied For: 09/11/2006	Zoning Approval
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1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. 2. Building permits do not include plumbing, septic or electrical work. 3. Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <u>09/14/06</u>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	Historic Preservation <input checked="" type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date:
	PERMIT ISSUED  CITY OF PORTLAND	Date: <u>09/14/06</u>	

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
------------------------	---------	------	-------

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE	DATE	PHONE
---------------------------------------------	------	-------

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 06-1330	Date Applied For: 09/11/2006	CBL: 260 A024001
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Location of Construction: 952 BRIGHTON AVE	Owner Name: WEBBER OIL COMPANY	Owner Address: 700 MAIN ST	Phone:
Business Name:	Contractor Name: Air Temp	Contractor Address: 11 Wallace Ave South Portland	Phone (207) 774-2300
Lessee/Buyer's Name	Phone:	Permit Type: HVAC	

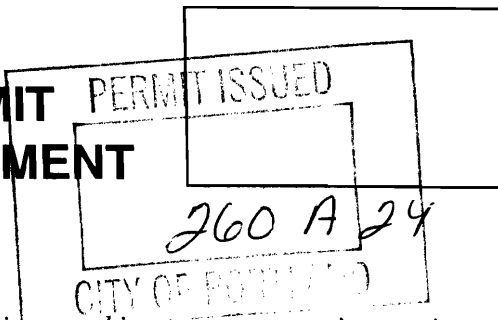
Proposed Use: Commercial/ Subway- install a York direct vent in attic	Proposed Project Description: install a York direct vent in attic
---------------------------------------------------------------------------------	-----------------------------------------------------------------------------

Dept: Zoning	Status: Pending	Reviewer:	Approval Date:	Note:	Ok to Issue: <input type="checkbox"/>
Dept: Building	Status: Approved with Conditions	Reviewer: Michael A. Collins	Approval Date: 09/28/2006	Note:	Ok to Issue: <input checked="" type="checkbox"/>
1) Equipment must be installed in compliance with the manufacturer's specifications					
2) The installation must comply with the State of Maine Gas Regulations.					
Dept: Fire	Status: Approved with Conditions	Reviewer: Cptn Greg Cass	Approval Date: 09/19/2006	Note:	Ok to Issue: <input type="checkbox"/>
1) Install shall comply with NFPA 90 A					



FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 952 Brighton Ave Use of Building sub shop Date 9/8/06
Name and address of owner of appliance Subway

Installer's name and address Airtamp 11 Wallace Ave.
S. Portland, ME 04106 Telephone 207-774-2300

Location of appliance:

- Basement Floor
 Attic Roof

Type of Fuel:

- Gas Oil Solid

Appliance Name: YORK
U.L. Approved Yes No

Will appliance be installed in accordance with the manufacture's installation instructions? Yes No

IF NO Explain: _____

The Type of License of Installer:

- Master Plumber # _____
 Solid Fuel # _____
 Oil # _____
 Gas # PNT1977
 Other _____

Type of Chimney:

- Masonry Lined
Factory built _____
 Metal
Factory Built U.L. Listing # _____

Direct Vent
Type PVC UL# _____

Type of Fuel Tank

- Oil Natural Gas
 Gas

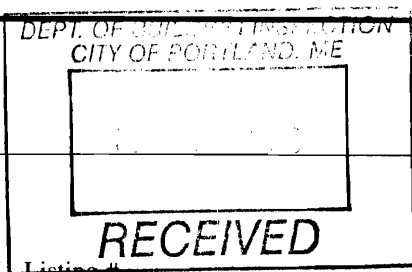
Size of Tank N/A

Number of Tanks N/A

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$ 8000.00

Permit Fee: \$ 100.00



Approved

Fire: _____
Ele.: _____
Bldg.: _____

Approved with Conditions

- See attached letter or requirement

Michelle A. Collins
Inspector's Signature

09/08/06
Date Approved

Signature of Installer Peter Lewis PETER LEWIS

**NORTHEAST TEST CONSULTANTS**

September 13, 2006

Mr. Eric Levesque
Build Partners
10 Main Street
Rochester, New Hampshire 03839

RE: Post Asbestos Abatement Visual Inspection
Former Burger King, 1071 Brighton Avenue, Portland, Maine
NTC Job #10121-2006

Dear Mr. Levesque:

Please find enclosed the documentation for the Visual Inspection performed on September 13, 2006 at the Former Burger King located on 1071 Brighton Avenue in Portland, Maine.

Northeast Test Consultants inspected the regulated asbestos area in accordance with the State of Maine Asbestos Regulations, Chapter 425, Section 8(B)(1) and Section 7(D)(g).

A visual inspection of the 2,400 square foot regulated area was conducted following the abatement of the asbestos roofing felt. No suspect asbestos debris was visible within the physical limits of the posted asbestos work area allowing for un-restricted access to allow for renovations/demolition activities to proceed.

Whenever roofing materials are removed using hand tools versus mechanical saws, the requirement for conducting air clearance sampling is not warranted as stated in Section 7(D)(g) of Chapter 425 of the mine Asbestos Regulations.

This report includes a visual inspection form which notes the satisfactory completion of the abatement activity in the regulated work area.

Please review the provided information and feel free to give me a call should you have any questions regarding this matter.

Sincerely,

James Guzelian
James Guzelian
General Manager

Attachments

244-D16 06/13/06

DATE: 09/13/2006**VISUAL INSPECTION OF ASBESTOS ABATEMENT WORK AREA**

NTC JOB #10121-2006

PROJECT: 1071 Brighton Ave, Portland Bldg Demo

CLIENT: Build Partners

LOCATION: Former Burger King

Attempt #: 1

PASSED: YesArea Satisfactorily Encapsulated? N/AWipe Samples Collected? N/A

<u>Inspection List</u>	<u>Inspection Status</u>	<u>Deficiencies: List Below</u>
<u>Floor(s)</u>	<u>O.K</u>	
<u>Horizontal Surfaces</u>	<u>O.K</u>	
<u>Pipe Lengths</u>	<u>N/A</u>	
<u>Lagging</u>	<u>N/A</u>	
<u>HVAC Equipment</u>	<u>N/A</u>	
<u>Boiler, Breaching, etc.</u>	<u>N/A</u>	
<u>Stairs</u>	<u>N/A</u>	
<u>Lighting Fixtures</u>	<u>N/A</u>	
<u>Non Porous Surfaces</u>	<u>O.K</u>	
<u>Associated Wiring</u>	<u>N/A</u>	
<u>Sprinkler System</u>	<u>N/A</u>	
<u>Mechanical Equipment</u>	<u>N/A</u>	
<u>Pipe/Wall Intersections</u>	<u>N/A</u>	
<u>Staircase & Planks</u>	<u>N/A</u>	
<u>Bolts, Threads, etc.</u>	<u>N/A</u>	
<u>Other</u>	<u>N/A</u>	

274 D16

Field Notes: Acadia removed approximately 2,400 square feet of roof felts from the Former Burger King at 1071 Brighton Avenue. Acadia left roof felts around penetrations and air handlers as directed. No visible debris within work area. Passed visual inspection. Okay to deregulate work area.

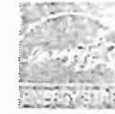
Industrial Hygienist: Tom Hatch

INSTALLATION MANUAL

HIGH EFFICIENCY TUBULAR HEAT EXCHANGER SERIES

MODELS: GF9S / GM9S / GY9S
(Single Stage Downflow/Horizontal)

40 - 120 MBH INPUT
(11.72 - 35.17 KW) INPUT



ISO 9001
Certified Quality
Management System

LIST OF SECTIONS

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SECTION I: SAFETY

 This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result in death or serious injury**.

WARNING indicates a potentially hazardous situation, which, if not avoided, **could result in death or serious injury**.

CAUTION indicates a potentially hazardous situation, which, if not avoided **may result in minor or moderate injury**. It is also used to alert against unsafe practices and hazards involving only property damage.

WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer or service agency.

CAUTION

This product must be installed in strict compliance with the installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.

INSPECTION

As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing. Also, before installation the unit should be checked for screws or bolts, which may have loosened in transit. There are no shipping or spacer brackets which need to be removed.

FURNACE LOCATION AND CLEARANCES

The furnace shall be located using the following guidelines:

1. Where a minimum amount of air intake/vent piping and elbows will be required.
2. As centralized with the air distribution as possible.
3. Where adequate combustion air will be available (particularly when the appliance is not using outdoor combustion air).
4. Where it will not interfere with proper air circulation in the confined space.
5. Where the outdoor combustion air/vent terminal will not be blocked or restricted. Refer to "COMBUSTION AIR / VENT CLEARANCES" located in SECTION VII of these instructions. These minimum clearances must be maintained in the installation.
6. Where the unit will be installed in a level position with no more than 1/4" (6.4 mm) slope side-to-side and front-to-back to provide proper condensate drainage.

Installation in freezing temperatures:

1. Furnace shall be installed in an area where ventilation facilities provide for safe limits of ambient temperature under normal operating conditions. Ambient temperatures must not fall below 32°F (0°C) unless the condensate system is protected from freezing.
2. Do not allow return air temperature to be below 55° F (13° C) for extended periods. To do so may cause condensation to occur in the main heat exchanger, leading to premature heat exchanger failure, leading to premature heat exchanger failure.

WARNING

Improper installation in an ambient below 32°F (0.0° C) could create a hazard, resulting in damage, injury or death.

3. If this furnace is installed in any area where the ambient temperature may drop below 32° F (0° C), a UL listed self-regulated heat tape must be installed on any condensate drain lines. It is required that self regulating heat tape rated at 3 watts per foot be used. This must be installed around the condensate drain lines in the unconditioned space. Always install the heat tape per the manufacturer's instructions. Cover the self-regulating heat tape with fiberglass, Armaflex or other heat resistant insulating material.
4. If this unit is installed in an unconditioned space and an extended power failure occurs, there will be potential damage to the condensate trap, drain lines and internal unit components. Following a power failure situation, do not operate the unit until inspection and repairs are performed.

Clearances for access:

Ample clearances should be provided to permit easy access to the unit. The following minimum clearances are recommended:

1. Twenty-four (24) inches (61 cm) between the front of the furnace and an adjacent wall or another appliance, when access is required for servicing and cleaning.
2. Eighteen (18) inches (46 cm) at the side where access is required for passage to the front when servicing or for inspection or replacement of flue/vent connections.

In all cases, accessibility clearances shall take precedence over clearances for combustible materials where accessibility clearances are greater.

WARNING

Downflow/Horizontal furnaces for installation on combustible flooring only when installed on the accessory combustible floor base on wood flooring only and shall not be installed directly on carpeting, tile or other combustible material.

Check the rating plate and power supply to be sure that the electrical characteristics match. All models use nominal 115 VAC, 1 Phase 60Hz power supply.

Furnace shall be installed so the electrical components are protected from water.

Installation in a residential garage:

1. A gas-fired furnace for installation in a residential garage must be installed so the burner(s) and the ignition source are located not less than 18 inches (46 cm) above the floor, and the furnace must be located or protected to avoid physical damage by vehicles.

TABLE 1: Unit Clearances to Combustibles

APPLICATION	TOP	FRONT	REAR	LEFT SIDE	RIGHT SIDE	FLUE	FLOOR/ BOTTOM	CLOSET	ALCOVE	ATTIC	LINE CONTACT
	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)	In. (mm)				
DOWNFLOW	1 (25.4)	3 (76.2)	0 (0)	0 (0)	0 (0)	0 (0)	1 (25.4) ¹	YES	YES	YES	NA
HORIZONTAL	0 (0)	3 (76.2)	0 (0)	1 (25.4)	1 (25.4)	0 (0)	0 (0)	YES	YES	YES	YES ²

1. Combustible floor base or air conditioning coil required for use on combustible floor.

2. Line contact only permitted between lines formed by the intersection of the rear panel (top in horizontal position) of the furnace jacket and building joists, studs or framing.

SECTION II: DUCTWORK

DUCTWORK GENERAL INFORMATION

The duct system's design and installation must:

1. Handle an air volume appropriate for the served space and within the operating parameters of the furnace specifications.
2. Be installed in accordance with standards of NFPA (National Fire Protection Association) as outlined in NFPA pamphlets 90A and 90B (latest editions) or applicable national, provincial, or state, and local fire and safety codes.

3. Create a closed duct system. For residential and Non-HUD Modular Home installations, when a furnace is installed so that the supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by a duct(s) sealed to the furnace casing and terminating outside the space containing the furnace.
4. Complete a path for heated or cooled air to circulate through the air conditioning and heating equipment and to and from the conditioned space.

TABLE 3: Round Duct Size

Round Duct Size	Calculated Area For Each Round Duct Size
inches (cm)	Sq.in (cm ²)
5 (13)	19.6 (126)
6 (15)	28.2 (182)
7 (18)	38.4 (248)
8 (20)	50.2 (324)
9 (23)	63.6 (410)
10 (25)	78.5 (506)
11 (28)	95 (613)
12 (30)	113.1 (730)
13 (33)	132.7 (856)
14 (36)	153.9 (993)

1. The Air Temperature Rise is determined by subtracting the Return Air Temperature Reading from the Supply Air Temperature Reading.
2. The External Static Pressure is determined by adding the Supply Duct Static Pressure reading to the Return Duct Static Pressure reading.

TABLES 2 AND 3 are to be used as a guide only to help the installer determine if the duct sizes are large enough to obtain the proper air flow (CFM) through the furnace. TABLES 2 and 3 ARE NOT to be used to design ductwork for the building where the furnace is being installed. There are several variables associated with proper duct sizing that are not included in the tables. To properly design the ductwork for the building, Refer to the ASHRAE Fundamentals Handbook, Chapter on "DUCT DESIGN" or a company that specializes in Residential and Modular Home duct designs.

IMPORTANT: If the supply air duct is being connected to the furnace without the use of an accessory duct connector, then a transition duct must be installed with flanges or tabs that are securely attach and sealed to the supply air duct and to the base of the furnace. The transition duct must have insulation between the transition duct and any combustible material.

The transition duct must be the same dimensional size as the rectangular opening in the base of the furnace.

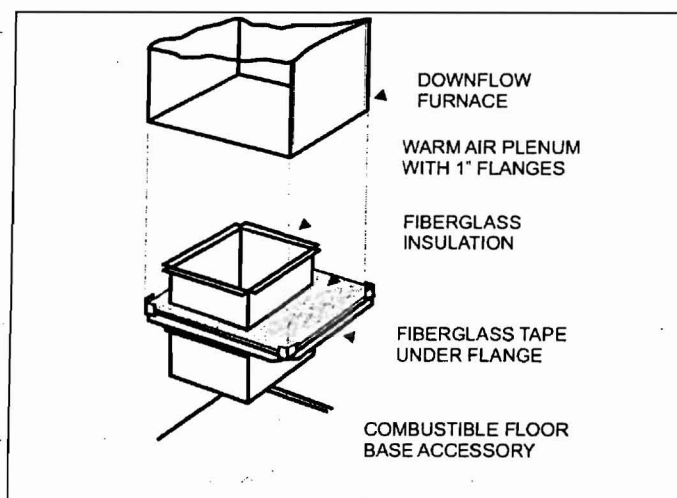


FIGURE 1 : Combustible Floor Base Accessory

⚠ WARNING

The supply air temperature **MUST NEVER** exceed the **Maximum Supply Air Temperature**, specified on the nameplate.

Operating the furnace above the maximum supply air temperature will cause the heat exchanger to overheat, causing premature heat exchanger failure. Improper duct sizing, dirty air filters, incorrect manifold pressure, incorrect gas orifice and/or a faulty limit switch can cause the furnace to operate above the maximum supply air temperature. Refer to sections II, III, IX & X for additional information on correcting the problem.

Downflow Air Conditioning Coil Cabinet

The Cooling Coil Cabinet can be used in place of the combustible floor base for downflow installations on combustible materials. The furnace should be installed with the cooling coil cabinet specifically intended for downflow applications. The cooling coil cabinet must be secured to the floor. A supply air duct plenum is installed through the opening provided. The supply air duct is then secured to the duct system with screws and sealed to prevent leaks. If a matching cooling coil is used, it may be placed directly on the furnace outlet using the accessory transition kit and sealed to prevent leakage. The transition kit must be used to secure the cooling coil cabinet to the furnace casing when installed in a downflow configuration.

This transition kit may be installed in one of two ways. The transition kit may be installed and secured to either the furnace or the cooling coil cabinet by the use of screws and then it must be sealed to prevent leaks.

- If the transition kit has been installed on the cooling coil cabinet it must be secured to the cooling coil cabinet with screws. The supply air side of the furnace is then placed on the cooling coil cabinet and then sealed for leaks.
- If the transition kit has been installed on the supply air side of the furnace it must be secured to the furnace with screws. The furnace and the transition kit are then placed on the cooling coil cabinet and then sealed for leaks.

NOTE: Refer to instructions packed out with coil cabinet, for securing and sealing to the furnace.

IMPORTANT: The furnace, transition kit, and the cooling coil cabinet **MUST BE SEALED** as needed to prevent leaks, **AND SECURED**. Refer to the assembly drawing in Figure 2.

IMPORTANT: On all installations without a coil, a removable access panel is recommended in the outlet duct such that smoke or reflected light would be observable inside the casing to indicate the presence of leaks in the heat exchanger. This access cover shall be attached in such a manner as to prevent leaks.

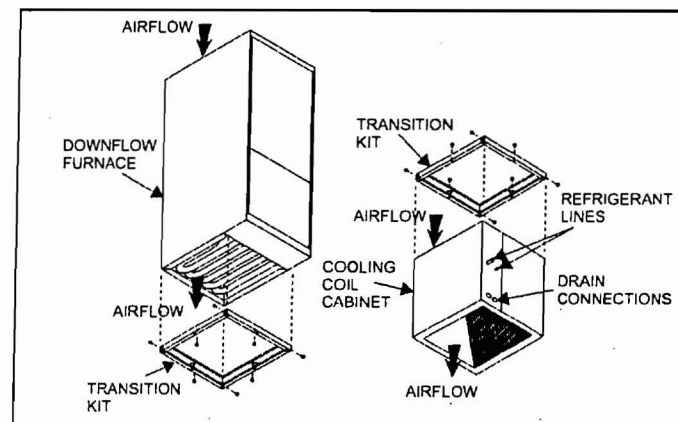
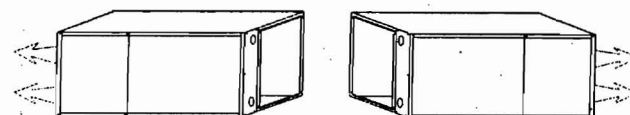


FIGURE 2: Transition Kit Assembly

Horizontal Models



Horizontal Installations With a Cooling Coil Cabinet

The furnace should be installed with the cooling coil cabinet specifically intended for horizontal applications. If a matching cooling coil is used, it may be placed directly on the supply air side of the furnace and sealed to prevent leakage. A warm air duct plenum with 1" (2.54 cm) is installed through the opening provided. The supply air duct system is connected to the warm air plenum and sealed to prevent leaks.

RESIDENTIAL AND NON HUD MODULAR HOME DOWNFLOW AND HORIZONTAL RETURN PLENUM CONNECTION

The return duct system must be connected to the furnace inlet and the return duct system must terminate outside the space containing the furnace. When replacing an existing furnace, if the existing plenum is not the same size as the new furnace then the existing plenum must be removed and a new plenum installed that is the proper size for the new furnace.

Attach the return plenum to the furnace inlet duct flanges. This is typically through the use of S cleat material when a metal plenum is used. The use of an approved flexible duct connector is recommended on all installations. The connection of the plenum to the furnace and all the ducts connecting to the plenum must be sealed to prevent air leakage. The sheet metal should be crosshatched to eliminate any popping of the sheet metal when the indoor fan is energized.

The duct system is a very important part of the installation. If the duct system is improperly sized the furnace will not operate properly. The ducts attached to the furnace must be of sufficient size so that the furnace operates at the specified external static pressure and within the air temperature rise specified on the nameplate.

Attic installations must meet all minimum clearances to combustibles and have floor support with required service accessibility.

IMPORTANT: If an external mounted filter rack is being used see the instructions provided with that accessory for proper hole cut size.

SECTION III: FILTERS

FILTER INSTALLATION

All applications require the use of a filter. Replacement filter size is shown in Table 5.

TABLE 5: Recommended Filter Sizes

Input / Output BTU/H (kW)	CFM (m ³ /min)	Cabinet Size	Top Return Filter in(cm)
40/37 (11.72/10.84)	1200 (34)	A	(2) 14 x 20 (36 x 51)
60/55 (17.57/16.10)	1200 (34)	B	(2) 14 x 20 (36 x 51)
80/75 (23.42/21.96)	1200 (34)	B	(2) 14 x 20 (36 x 51)
80/75 (23.42/21.96)	1600 (45)	C	(2) 14 x 20 (36 x 51)
100/95 (29.28/27.82)	1600 (45)	C	(2) 14 x 20 (36 x 51)
100/95 (29.28/27.82)	2000 (57)	C	(2) 14 x 20 (36 x 51)
120/112 (35.14/32.80)	2000 (57)	D	(2) 14 x 20 (36 x 51)

Downflow Filters

Downflow furnaces typically are installed with the filters located above the furnace, extending into the return air plenum or duct. Any branch duct (rectangular or round duct) attached to the plenum must attach to the vertical plenum above the filter height.

Filters(s) may be located in the duct system external to the furnace using an external duct filter box attached to the furnace plenum or at the end of the duct in a return filter grille(s). The use of straps and / or supports is required to support the weight of the external filter box.

If the accessory electronic air cleaner is installed, be sure the air cleaner is designed to accommodate the furnace CFM (cm/m) and the air cleaner is installed so it does not obstruct the return airflow. Consideration should be given when locating the air cleaner for maintenance and temperatures should the indoor fan motor fail to operate. The use of straps and / or supports is required to support the weight of the electronic air cleaner. It is recommended that the air cleaner not be located within 12 inches (30.5 cm) from the top of the return air opening on the furnace. Refer to the instructions supplied with the electronic air cleaner.

CAUTION

All loose accessories shipped with the furnace must be removed from the blower compartment, prior to installation.

If pleated media air filters or any filter that has a large pressure drop is installed in the return air duct system be sure that the pressure drop caused by the air filter will not prevent the furnace from operating within the rise range specified on the rating plate. If the furnace does not operate within the specified rise range then a larger air filter or an air filter that has a lower pressure drop must be installed.

IMPORTANT: For easier filter access in a downflow configuration, a removable access panel is recommended in the vertical run of the return air plenum immediately above the furnace.

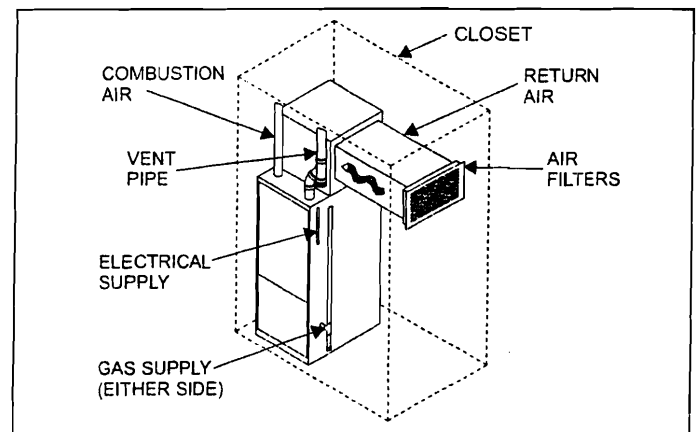


FIGURE 4: Return Filter Grill and Return Duct Installation

IMPORTANT: Air velocity through throwaway type filters must not exceed 300 feet per minute (1.52 m/m). All velocities over this require the use of high velocity filters. Refer to Table 17.

CAUTION

All installations must have a filter installed.

HORIZONTAL APPLICATION

Horizontal Filters

All filters and mounting provision must be field supplied. Filters(s) may be located in the duct system external to the furnace or in a return filter grille(s). Filters(s) may be located in the duct system using an external duct filter box attached to the furnace plenum. Any branch duct (rectangular or round duct) attached to the plenum must attach to the vertical plenum above the filter height. The use of straps and / or supports is required to support the weight of the external filter box.

An accessory filter rack is available.

ATTIC INSTALLATION

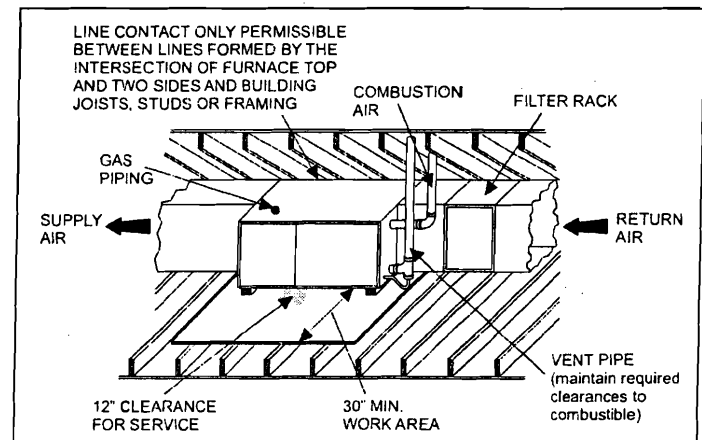


FIGURE 5: Typical Attic Installation

This appliance is design certified for line contact when the furnace is installed in the horizontal left or right position. The line contact is only

⚠ CAUTION

The gas valve body is a very thin casting that can take any limited external force. Never apply a pipe wrench to the body of the gas valve when installing piping. A wrench must be placed on the octagonal hub located on the gas inlet side of the valve. Placing a wrench to the body of the gas valve will damage the valve causing improper operation and/or the valve to leak.

Gas piping may be connected from either side of the furnace using any of the gas pipe entry knockouts on both sides of the furnace. Refer to Figure 3 dimensions.

GAS ORIFICE CONVERSION FOR PROPANE (LP)

This furnace is constructed at the factory for natural gas-fired operation, but may be converted to operate on propane (LP) gas by using a factory-supplied LP conversion kit. Follow the instructions supplied with the LP kit. Refer to Table 6 or the instructions in the propane (LP) conversion kit for the proper gas orifice size.

TABLE 6: Nominal Manifold Pressure - High Fire

Manifold Pressures (in wc)				
		Altitude (feet)		
		0-7999	8000-8999	9000-9999
Gas Heating Value (BTU/cu ft.)	800	3.5	3.5	3.5
	850	3.5	3.5	3.5
	900	3.5	3.5	3.5
	950	3.5	3.5	3.3
	1000	3.5	3.2	2.9
	1050	3.5	2.9	2.7
	1100	3.2	2.7	2.4
	2500 (LP)	9.8	8.2	7.5

HIGH ALTITUDE GAS ORIFICE CONVERSION

This furnace is constructed at the factory for natural gas-fired operation at 0 – 8,000 feet (0-m – 2,438 m) above sea level.

The manifold pressure must be changed in order to maintain proper and safe operation when the furnace is installed in a location where the altitude is greater than 8,000 feet (2,438 m) above sea level. Refer to Table 6 for proper manifold pressure settings.

HIGH ALTITUDE PRESSURE SWITCH CONVERSION

For installation where the altitude is less than 8,000 feet (2,438 m), it is not required that the pressure switch be changed. For altitudes above 8,000 feet (2,438 m), see Field Installed Accessories - High Altitude pressure Switch.

Manifold Pressures (kpa)				
		Altitude (m)		
		0-2437	2438-2742	2743-3048
Gas Heating Value (MJ/cu m)	29.8	0.87	0.87	0.87
	31.7	0.87	0.87	0.87
	33.5	0.87	0.87	0.87
	35.4	0.87	0.87	0.81
	37.3	0.87	0.80	0.73
	39.1	0.87	0.73	0.67
	41.0	0.80	0.66	0.61
	93.2 (LP)	2.44	2.03	1.86

⚠ DANGER**PROPANE AND HIGH ALTITUDE CONVERSION KITS**

It is very important to choose the correct kit and/or gas orifices for the altitude and the type of gas for which the furnace is being installed.

Only use natural gas in furnaces designed for natural gas. Only use propane (LP) gas for furnaces that have been properly converted to use propane (LP) gas. Do not use this furnace with butane gas.

Incorrect gas orifices or a furnace that has been improperly converted will create an extremely dangerous condition resulting in premature heat exchanger failure, excessive sooting, high levels of carbon monoxide, personal injury, property damage, a fire hazard and/or death.

High altitude and propane (LP) conversions are required in order for the appliance to satisfactorily meet the application.

An authorized distributor or dealer must make all gas conversions.

In Canada, a certified conversion station or other qualified agency, using factory specified and/or approved parts, must perform the conversion.

The installer must take every precaution to insure that the furnace has been converted to the proper gas orifice size when the furnace is installed. Do not attempt to drill out any orifices to obtain the proper orifice size. Drilling out a gas orifice will cause misalignment of the burner flames, causing premature heat exchanger burnout, high levels of carbon monoxide, excessive sooting, a fire hazard, personal injury, property damage and/or death.

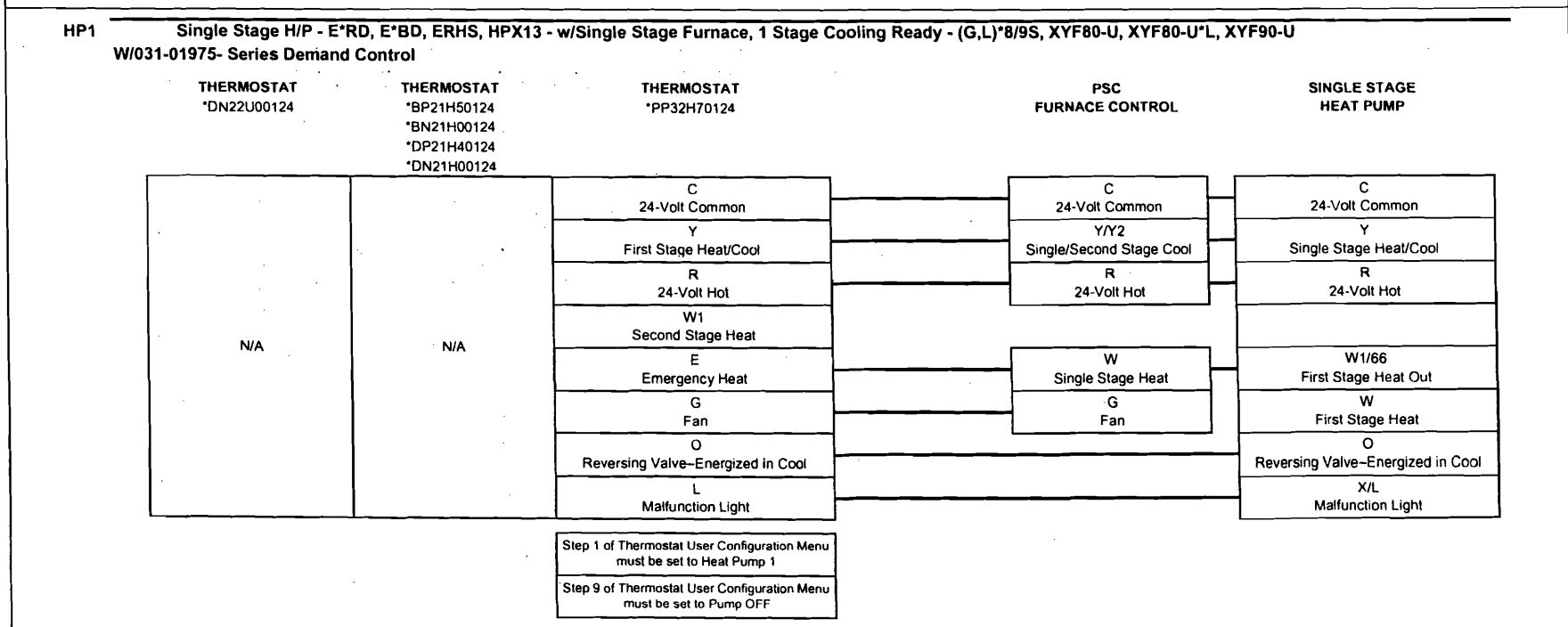
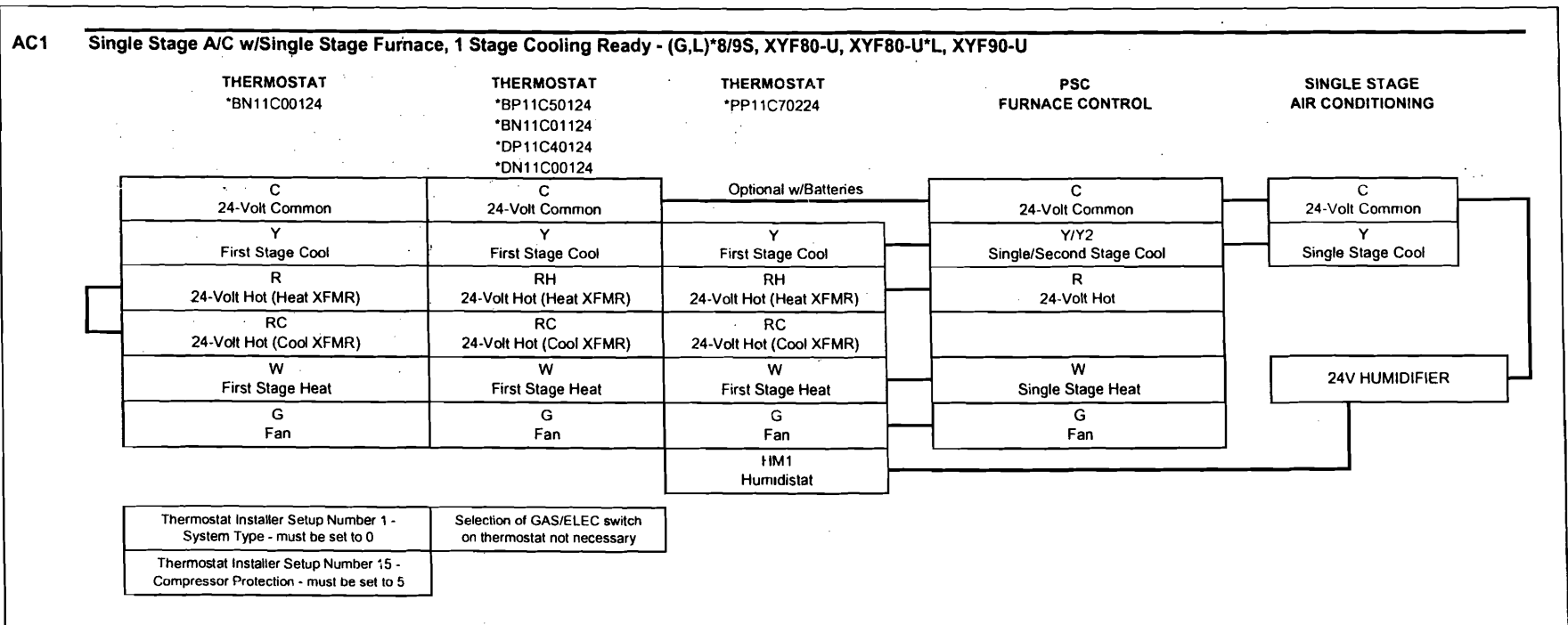
⚠ CAUTION

Use copper conductors only.

SECTION V: ELECTRICAL POWER**ELECTRICAL POWER CONNECTIONS**

Field wiring to the unit must be grounded. Electric wires that are field installed shall conform to the temperature limitation for 63°F (35°C) rise wire when installed in accordance with instructions. Refer to Table 7 in these instructions for specific furnace electrical data.

FIGURE 11: Thermostat Chart



Single-Wire Twinning Instructions

Connect the control wiring as shown in the Figure 14.

1. Connect the low voltage wiring from the wall thermostat to the terminal strip on the control board of Furnace #1.
2. Connect a wire from the TWIN terminal of Furnace #1 to the TWIN terminal of Furnace #2.
3. Install a separate 24V relay as shown in the diagram below. Use of this relay is required, as it ensures that the transformers of the two furnaces are isolated, thus preventing the possibility of any safety devices being bypassed.

Single-Wire Twinning Operation

Heating - On a call for heat (W signal) from the wall thermostat, both furnaces will start the ignition sequence and the burners on both furnaces will light. About thirty seconds after the burners light, the blowers on both furnaces will come on in heating speed. When the thermostat is satisfied, the burners will all shut off and, after the selected blower off delay time, both blowers will shut off at the same time. The twinning control ensures that both blowers come on and shut off at the same time.

Cooling - On a call for cooling (Y signal) from the wall thermostat, both furnace blowers will come on at the same time in cooling speed. When the thermostat is satisfied, both blowers will stay on for 60 seconds, then will shut off at the same time.

Continuous Fan - On a thermostat call for continuous fan (G signal), both furnace blowers will come on at the same time in cooling speed and will stay on until the G signal is removed.

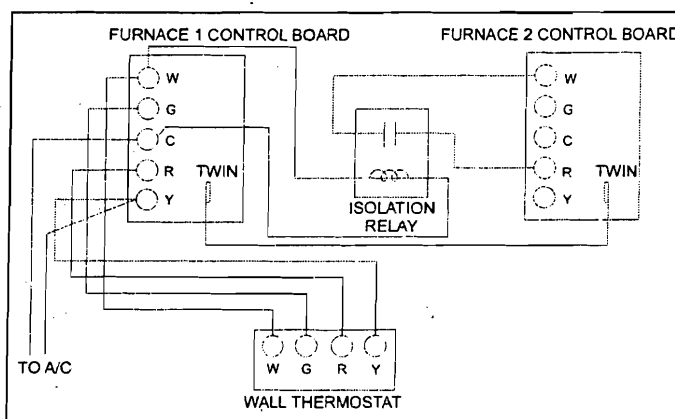


FIGURE 14: Single Stage Twinning Wiring Diagram

STAGING

In applications where more heating capacity or more airflow capacity is needed than what one furnace can deliver, twinning can be used to make two furnaces operate in tandem, using one duct system and one room thermostat. This control can also be used along with a two-stage wall thermostat to stage two twinned furnaces, making them operate like a single two-stage furnace. This allows only one furnace to supply heat during times when the heat output from one furnace is sufficient to satisfy the demand. When one duct system is used for two furnaces, it is necessary that the two blowers operate in unison. The twinning function of this board ensures that both blowers turn on and off simultaneously, and operate on the same blower speed. Even when only one furnace is supplying heat, both furnace blowers must run.

Single-Wire Staging

The single-wire twinning feature of this board can also be used for staging of two furnaces. With this feature, a single wire is connected between the TWIN terminal on one furnace board to the TWIN terminal on the second furnace board. The board then communicates the blower status from one furnace to the other along this wire. This communication makes the second furnace blower come on at the same time, and on the same speed, as the first furnace blower.

Single-Wire Staging Instructions

Connect the control wiring as shown in the Figure 15.

1. Connect the low voltage wiring from the wall thermostat to the terminal strip on the control board of Furnace #1. For staging applications, the wire from thermostat W1 is connected to the W connection on the board on Furnace #1. The wire from thermostat W2 is connected to Furnace #2 through a separate relay, as described below.
2. Connect a wire from the TWIN terminal of Furnace #1 to the TWIN terminal of Furnace #2.
3. Install a separate 24V relay as shown in the diagram below. Use of this relay is required, as it ensures that the transformers of the two furnaces are isolated, thus preventing the possibility of any safety devices being bypassed.

Single-Wire Staging Operation

Heating - On a call for first-stage heat (W1 signal) from the wall thermostat, Furnace #1 will start the ignition sequence and the burners will light. About thirty seconds after the burners light, the blowers on both furnaces will come on in heating speed. When the thermostat is satisfied, the burners will shut off and, after the selected blower off delay time, both blowers will shut off at the same time. On a call for second stage of heat, the burners of Furnace #2 will also light and both blowers will run. The twinning control ensures that both blowers come on and shut off at the same time.

Cooling - On a call for cooling (Y signal) from the wall thermostat, both furnace blowers will come on at the same time. When the thermostat is satisfied, both blowers will stay on for 60 seconds, then will shut off at the same time.

Continuous Fan - On a thermostat call for continuous fan (G signal), both furnace blowers will come on at the same time in cooling speed and will stay on until the G signal is removed.

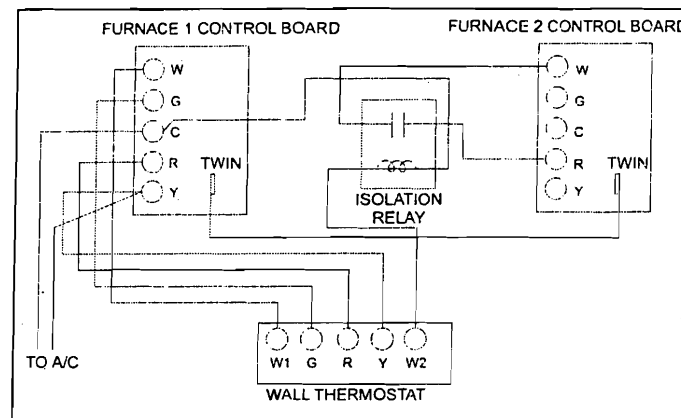


FIGURE 15: Two-Stage Twinning Wiring Diagram

SECTION VII: COMBUSTION AIR AND VENT SYSTEM

COMBUSTION AIR AND VENT SAFETY

This Category IV, dual certified direct vent furnace is designed for residential application. It may be installed without modification to the condensate system in a basement, garage, equipment room, alcove, attic or any other indoor location provided the space temperature is 32 °F (0°C) or higher and where all required clearance to combustibles and other restrictions are met. The combustion air and the venting system must be installed in accordance with Section 5.3, Air for Combustion and Ventilation, of the National Fuel Gas Code Z223.1/NFPA 54 (latest edition), or Sections 7.2, 7.3 or 7.4 of CSA B149.1, National Gas and Propane Codes (latest edition) or applicable provisions of the local building code and these instructions.

IMPORTANT: The "VENT SYSTEM" must be installed as specified in these instructions for Residential and Non HUD Modular Homes. The sealed combustion air / vent system is the only configuration that can be installed in a Non HUD Modular Home.

COMBUSTION AIR AND VENT PIPING ASSEMBLY

The final assembly procedure for the combustion air and vent piping is as follows:

1. Cut piping to the proper length beginning at the furnace.
2. Deburr the piping inside and outside.
3. Chamfer (bevel) the outer edges of the piping.
4. Dry-fit the vent piping assembly from the furnace to the outside termination checking for proper fit support and slope.
5. Dry-fit the combustion air piping assembly checking for proper fit, support and slope on the following systems:
 - A. Sealed combustion air systems from the furnace to the outside termination.
 - B. Ventilated combustion air systems from the furnace to the attic or crawl space termination.

⚠ CAUTION

Solvent cements are flammable and must be used in well-ventilated areas only. Keep them away from heat, sparks and open flames. Do not breathe vapors and avoid contact with skin and eyes.

6. Disassemble the combustion air and vent piping, apply cement primer and the cement per the manufactures instructions. Primer and cement must conform to ASTM D2564 for PVC, or ASTM D2235 for ABS piping.
7. All joints must provide a permanent airtight and watertight seal.
8. Support the combustion air and vent piping such that it is angled a minimum of 1/4" per foot (0.635 cm/m) so that condensate will flow back towards the furnace. Piping should be supported with pipe hangers to prevent sagging.
9. Seal around the openings where the combustion air and / or vent piping pass through the roof or sidewalls.

COMBUSTION AIR / VENT CLEARANCES

IMPORTANT: The vent must be installed with the minimum clearances as shown in Figure 16, and must comply with local codes and requirements.

VENT SYSTEM

This furnace is certified to be installed with one of two possible vent configurations.

1. Horizontal vent system. This vent system can be installed completely horizontal or combinations of horizontal, vertical, or offset using elbows.
2. Vertical vent system. This vent system can be installed completely vertical or a combination of horizontal, vertical, or offset using elbows.

HORIZONTAL VENT APPLICATIONS AND TERMINATION

When selecting the location for a horizontal combustion air / vent termination, the following should be considered:

1. Observe all clearances listed in vent clearances in these instructions.
2. Termination should be positioned where vent vapors will not damage plants or shrubs or air conditioning equipment.
3. Termination should be located where it will not be affected by wind gusts, light snow, airborne leaves or allow recirculation of flue gases.
4. Termination should be located where it will not be damaged or exposed to flying stones, balls, etc.
5. Termination should be positioned where vent vapors are not objectionable.
6. Horizontal portions of the vent system must slope upwards and be supported to prevent sagging. The vent system may be supported by the use of clamps or hangers secured to a permanent part of the structure every 4 ft. (1.22 m).
7. A vent drain is required when vent passes through any unconditioned space such as an attic or crawl space in order to prevent the accumulation of excess condensate in the inducer motor during operational cycles. Refer to Figure 21 & 22.
8. Sealed combustion air systems must be installed so the vent and the combustion air pipes terminate in the same atmospheric zone. Refer to Figures 20, 21, & 22.

DOWNFLOW VENT ASSEMBLY

1. Place the 2" (5.08 cm) 45° PVC street elbow on the vent connection shown in Figure 17.
2. Place the 2" (5.08 cm) PVC WYE ("Y") assembly on the 2" (5.08 cm) 45° PVC street elbow as shown in Figure 17.
3. Locate the rubber condensate hose in front of the blower access panel.
4. Slide the hose through the hole in the top cover, and insert the hose on to the barbed fitting on the bottom of the 2" (5.08 cm) PVC WYE ("Y") assembly as shown in Figure 17.

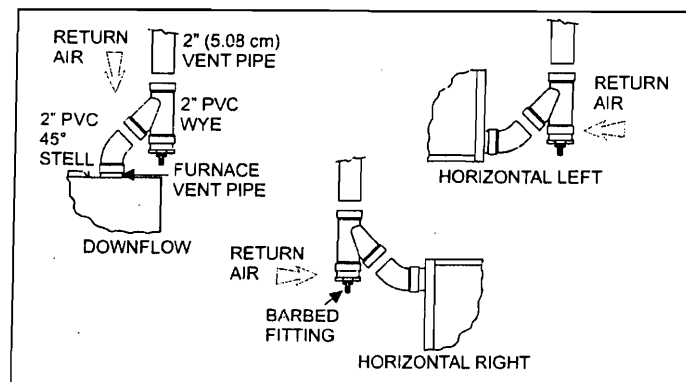


FIGURE 17: Downflow/Horizontal Vent Assembly

HORIZONTAL VENT ASSEMBLY

Horizontal Left Vent Assembly

1. Place the 2" (5.08 cm) 45° PVC street elbow on the vent connection shown in Figure 17.
2. Place the 2" (5.08 cm) PVC WYE ("Y") assembly on the 2" (5.08 cm) 45° PVC street elbow as shown in Figure 17.
3. Refer to the "DOWNFLOW/HORIZONTAL CONDENSATE INTERNAL DRAIN CONFIGURATIONS" for further details.

Horizontal Right Vent Assembly

1. Place the 2" (5.08 cm) 45° PVC street elbow on the vent connection shown in Figure 17.
2. Place the 2" (5.08 cm) PVC WYE ("Y") assembly on the 2" (5.08 cm) 45° PVC street elbow as shown in Figure 17.
3. Refer to the "DOWNFLOW/HORIZONTAL CONDENSATE INTERNAL DRAIN CONFIGURATIONS" for further details.

EXTERNAL HORIZONTAL VENT DRAIN (Field Supplied)

When installing the furnace with a horizontal vent configuration that will predominately be in a low ambient condition it is recommended that an external vent drain be installed in the horizontal portion of the venting system. The external vent drain is also recommended for extremely long horizontal vent applications. This is recommended to prevent accumulation of excess condensate in the inducer motor during operational cycles. Refer to Figure 18 for recommended external vent drain configuration and connections.

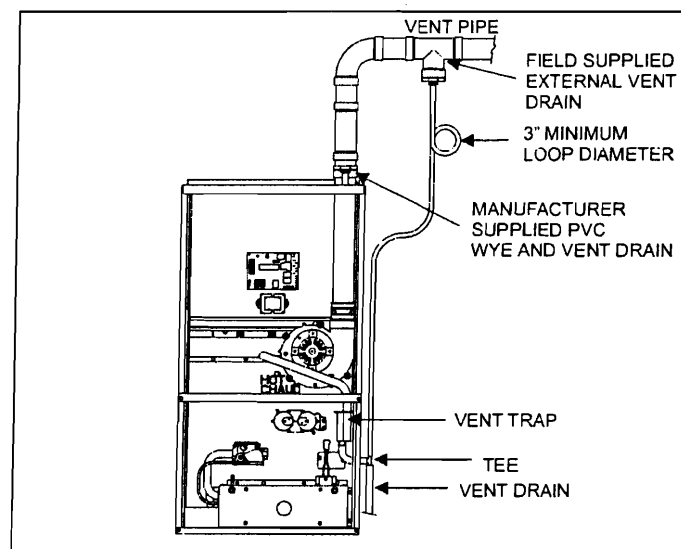


FIGURE 18: External Horizontal Vent Drain

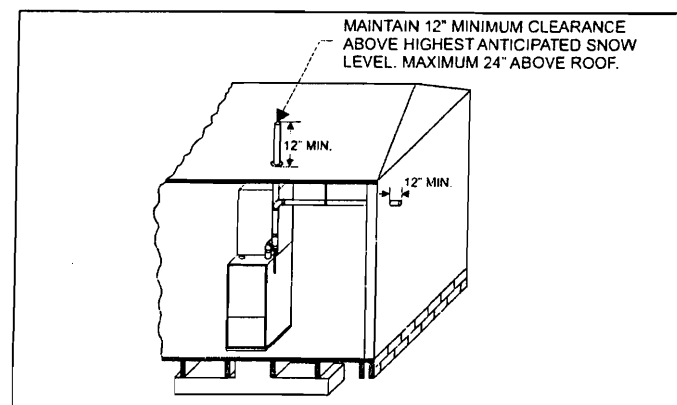


FIGURE 19: Termination Configuration - 1 Pipe

Outdoor Combustion Air

Combustion Air Intake/Vent Connections

This installation requires combustion air to be brought in from outdoors. This requires a properly sized pipe (shown in Figures 31, 33, or 35) that will bring air in from the outdoors to the furnace combustion air intake collar on the burner box. The second pipe (shown in Figures 31, 33 or 35) is the furnace vent pipe.

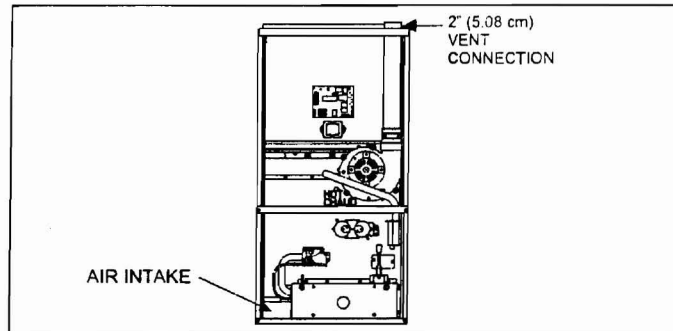


FIGURE 25: Sealed Combustion Air Intake Connection and Vent Connection

The combustion air intake pipe should be located either through the wall (horizontal or side vent) or through the roof (vertical vent). Care should be taken to locate side vented systems where trees or shrubs will not block or restrict supply air from entering the terminal.

Also, the terminal assembly should be located as far as possible from a swimming pool or a location where swimming pool chemicals might be stored. Be sure the terminal assembly follows the outdoor clearances listed in Section #1 "COMBUSTION AIR QUALITY (LIST OF CONTAMINANTS)."

Fresh air pipe can either be routed through the furnace or routed outside the furnace.

Ambient Combustion Air Supply

This type installation will draw the air required for combustion from within the space surrounding the appliance and from areas or rooms adjacent to the space surrounding the appliance. This may be from within the space in a non-confined location or it may be brought into the furnace area from outdoors through permanent openings or ducts. It is not piped directly into the burner box. A single, properly sized pipe from the furnace vent connector to the outdoors must be provided. For down-flow models combustion air is brought into the furnace through the unit top panel opening. Do not install a pipe into the combustion air pipe at the top of the furnace. Refer to Figures 19 & 26.

WARNING

This type of installation requires that the supply air to the appliance(s) be of a sufficient amount to support all of the appliance(s) in the area. Operation of a mechanical exhaust, such as an exhaust fan, kitchen ventilation system, clothes dryer or fireplace may create conditions requiring special attention to avoid unsatisfactory operation of gas appliances. A venting problem or a lack of supply air will result in a hazardous condition, which can cause the appliance to soot and generate dangerous levels of CARBON MONOXIDE, which can lead to serious injury, property damage and / or death.

An **unconfined space** is not less than 50 cu.ft (1.42 m³) per 1,000 Btu/hr. (0.2928 kW) input rating for all of the appliances installed in that area.

Rooms communicating directly with the space containing the appliances are considered part of the unconfined space, if openings are not furnished with doors.

A **confined space** is an area with less than 50 cu.ft (1.42 m³) per 1,000 Btu/hr. (0.2928 kW) input rating for all of the appliances installed in that area. The following must be considered to obtain proper air for combustion and ventilation in confined spaces.

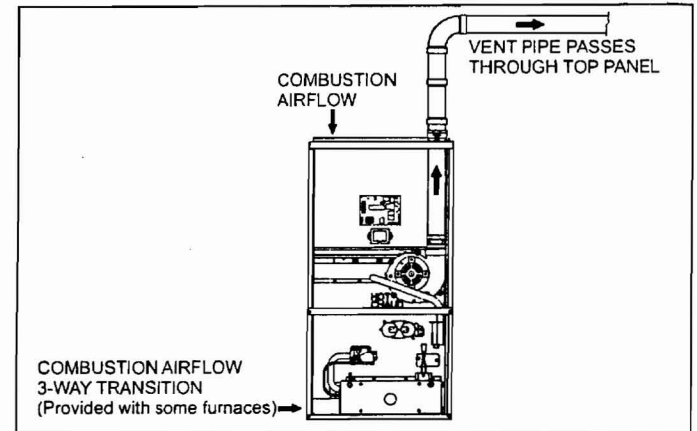


FIGURE 26: Combustion Airflow Path Through The Furnace Casing to the Burner Box

Combustion Air Source From Outdoors

The blocking effects of louvers, grilles and screens must be given consideration in calculating free area. If the free area of a specific louver or grille is not known, refer to Table 10, to estimate free area.

TABLE 10: Estimated Free Area

Wood or Metal Louvers or Grilles	Wood 20-25%* Metal 60-70% *
Screens+	1/4" (0.635 cm) mesh or larger 100%

* Do not use less than 1/4" (0.635 cm) mesh

+ Free area of louvers and grilles varies widely; the installer should follow louver or grilles manufacturer's instructions.

Dampers, Louvers and Grilles (Canada Only)

1. The free area of a supply air opening shall be calculated by subtracting the blockage area of all fixed louvers grilles or screens from the gross area of the opening.
2. Apertures in a fixed louver, a grille, or screen shall have no dimension smaller than 0.25" (0.64 cm).
3. A manually operated damper or manually adjustable louvers are not permitted for use.
4. A automatically operated damper or automatically adjustable louvers shall be interlocked so that the main burner cannot operate unless either the damper or the louver is in the fully open position.

TABLE 11: Free Area

BTUH Input Rating	Minimum Free Area Required for Each Opening		
	Horizontal Duct (2,000 BTUH)	Vertical Duct or Opening to Outside (4,000 BTUH)	Round Duct (4,000 BTUH)
40,000	20 sq. in. (50cm)	10 sq. in. (25 cm)	4" (10 cm)
60,000	30 sq. in. (76 cm)	15 sq. in. (38 cm)	5" (13 cm)
80,000	40 sq. in. (102 cm)	20 sq. in. (51 cm)	5" (13 cm)
100,000	50 sq. in. (102 cm)	25 sq. in. (64 cm)	6" (15 cm)
120,000	60 sq. in. (152 cm)	30 sq. in. (76 cm)	7" (18 cm)

EXAMPLE: Determining Free Area.

Appliance	1Appliance	2Total Input
100,000	+ 30,000 = (130,000 ÷ 4,000) = 32.5 Sq. In. Vertical	
Appliance	1Appliance	2Total Input
100,000	+ 30,000 = (130,000 ÷ 2,000) = 65 Sq. In. Horizontal	

TABLE 12: Unconfined Space Minimum Area in Square Inch

BTUH Input Rating	Minimum Free Area Required for Each Opening
40,000	250 (635 cm ²)
60,000	375 (953 cm ²)
80,000	500 (1270 cm ²)
100,000	625 (1588 cm ²)
120,000	750 (1905 cm ²)

EXAMPLE: Square feet is based on 8 foot ceilings.

$$\frac{28,000 \text{ BTUH}}{1,000} \times 50 \text{ Cubic Ft.} = \frac{1,400}{8' \text{ Ceiling Height}} = 175 \text{ Sq. Ft.}$$

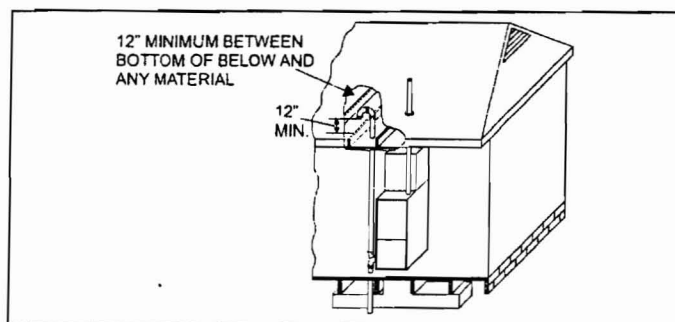


FIGURE 28: Attic Combustion Air Termination

Specially Engineered Installations

The above requirements shall be permitted to be waived where special engineering, approved by the authority having jurisdiction, provides an adequate supply of air for combustion, ventilation and dilution of flue gases.



SECTION VIII: CONDENSATE PIPING

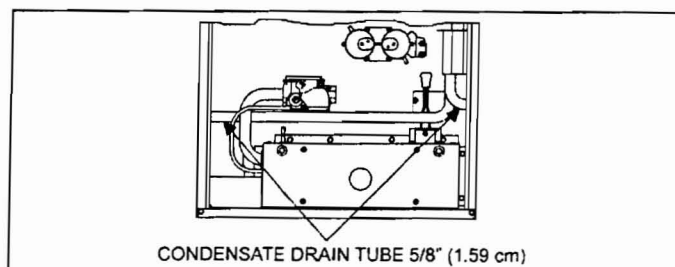


FIGURE 29: Condensate Drain Internal Hose Routing

CONDENSATE DRAIN

The condensate drain connection is provided in the furnace for field installation. It consists of the hoses shown below, a NPT male connection, and a 1/2" (1.27 cm) female x 3/4" (1.9 cm) PVC slip coupling. Some of the drain hoses will be needed to convert the condensate drain system when the furnace is installed in a horizontal left or right configuration. Refer to Figures 30 - 36 for the condensate hose sizes for condensate drain connections.

IMPORTANT: The condensate drain from the furnace may be connected in common with the drain from an air conditioning coil if allowed by local code.

IMPORTANT: Condensate must be disposed of properly. Follow local plumbing or wastewater codes. The drain line must maintain a 1/4" per foot (0.635 cm per meter) slope to the drain.

CONDENSATE DRAIN TRAP AND DRAIN FREEZE PROTECTION

Special precautions **MUST** be made if installing furnace in an area, which may drop below freezing. This can cause improper operation or damage to the equipment. If the furnace is installed in an area that has the potential of freezing, the drain line and the drain trap must be protected. Use a 3 to 6 watt per foot (0.003 to 0.006 kW per meter) at 115 vac, 40° F (4.4° C) self-regulating, shielded and waterproof heat tape. Wrap the drain trap and the drain line with the heat tape and secure with ties. Follow the heat tape manufacturer's recommendations.

CONDENSATE DRAIN HOSE PART NUMBERS

TABLE 13: Condensate Drain Hose

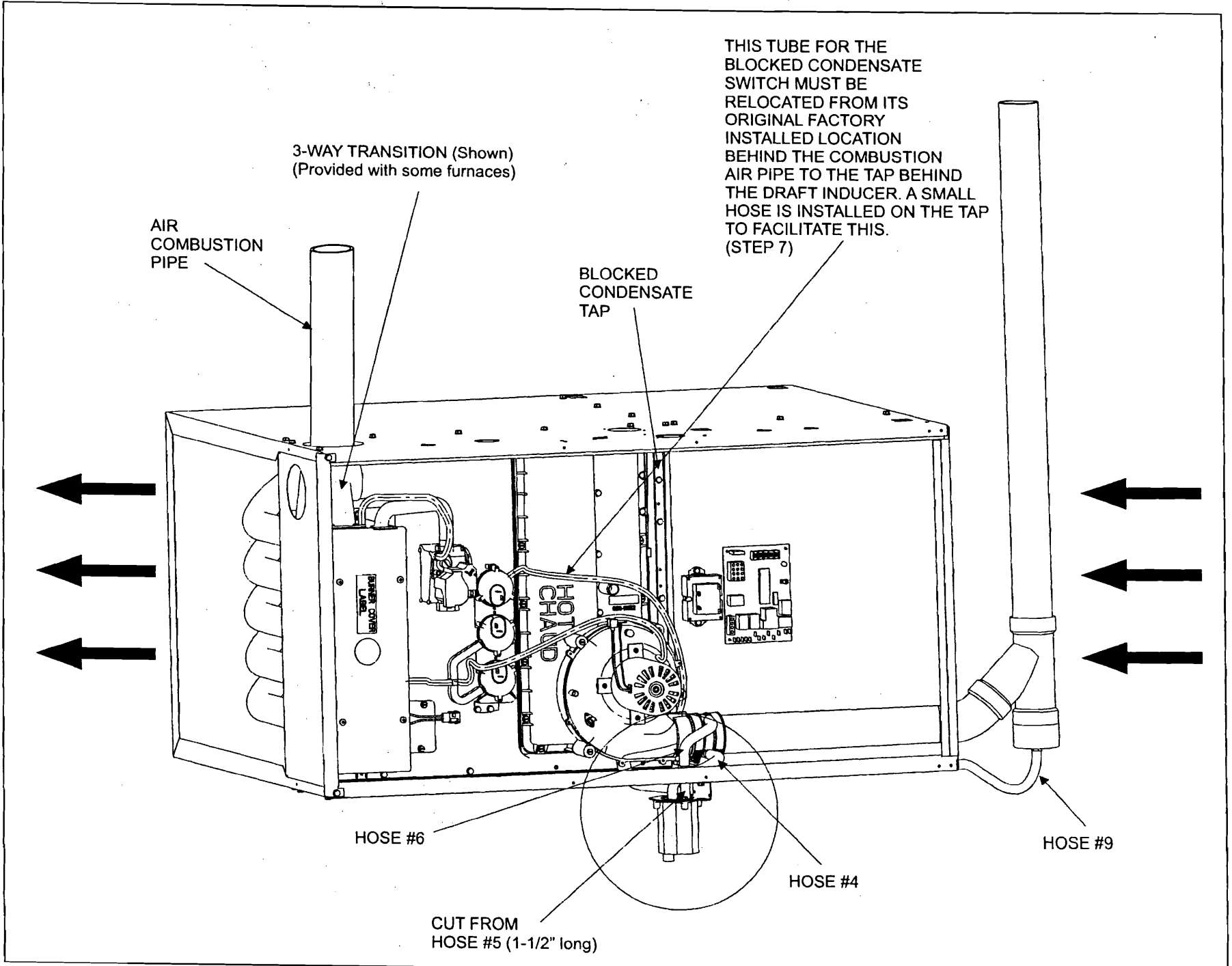
Part Number	Hose Number	Description
028-15156-000	#1	Drain tube - Condensate pan (Down flow)
028-15176-000	#2	Drain tube - Inducer (Horizontal RT.)
-Vent system Down flow)		
028-15168-000	#3	Drain tube - Inducer (Down flow)
028-15176-000	#4	Drain tube - Rain gutter (Down flow & Horizontal RT.)
028-15176-000	#5	Drain tube - After Tee (Down flow)
028-15196-000	#6	Drain tube - Upper rain gutter (Horizontal LT.)
028-15169-001	#7	Drain tube - After Tee (Horizontal RT.)
028-13309-004	#8	Drain tube - P-trap (All models)
028-15158-000	#9	Drain tube - Vent system (Horizontal LT.)
- Before Tee (Horizontal RT.)		
028-15197-000	#10	Drain tube - Condensate pan (Horizontal - drain closer to the front of the furnace, both LT & RT)
Hoses #2, #4, #5, along with a barbed nipple, and a barbed tee are part of condensate hose assembly 028-15176-000.		

DOWNFLOW/HORIZONTAL CONDENSATE INTERNAL DRAIN CONFIGURATIONS

Downflow - Refer to Figure 30

Furnace is shipped with one end of condensate hose #2 left open in the furnace. If the provided Wye's drain is aligned with the opening in the top of the furnace, hose #2 can be used. If it is desired that the Wye and street elbow assembly point away from the opening in the casing top, then the #2 hose will have to be replaced with provided #9 hose. The dogleg end of hose #9 hose should be installed on the drain of the Wye.

FIGURE 31: Horizontal Left Condensate Drain Hose Configuration



Horizontal Right Air Flow (Inducer High)**Refer to Figures 33-36****Installation with condensate trap bracket (Front of casing):****Refer to Figure 33 & 34**

1. Remove the 2" knockout on the casing side, away from the inducer motor.
2. Remove all the condensate hoses inside the furnace, including the 3/8" barbed nipple, factory installed, in the rain gutter.
3. Remove the drain cap from the bottom rain gutter drain and insert the 3/8" barbed nipple removed above in the bottom rain gutter drain. Place the cap, just removed, to the other side of the rain gutter on the inducer.
4. Remove the condensate trap and its bracket from inside the furnace, saving the screws for later use.
5. Remove the large condensate cap from the side of the condensate pan and install it on the middle drain of the condensate pan, from where #1 hose was removed.
6. Install longer dogleg end of hose #10 through the casing hole on to the side drain of the condensate pan, where cap was removed in step #3. Some lubricant may have to be used to facilitate this installation as the hose is designed to be a tight fit over the condensate drain. The other, smaller, dogleg end of hose #10 should be installed into the large recessed drain in the condensate trap.
7. Install the condensate trap bracket, with the condensate trap, on to the front side of the furnace, using the screws removed in step #1.
8. Install the dogleg end of hose #9 on the Wye drain and route the hose through the opening on top of the furnace, as shown. Install the other end of the #9 hose to the barbed tee, inside the furnace.
9. Install the dogleg end of hose #4 to the rain gutter on the inducer. The other end of hose #4 should be installed on the 3/8" barbed tee.
10. Install one end of hose #7 on the 3/8" barbed tee inside the furnace. Guide the other end of hose #7 towards the condensate trap, and install it on the tap on the condensate trap.
11. Install the dogleg end of hose #2 on the bottom drain of the inducer. Guide the other end of hose #2 towards the condensate trap, and install it on the small recessed drain in the condensate trap.
12. Ensure that all hoses are properly installed, have no kinks, and are draining properly. All hoses on the condensate trap and condensate pan should be pushed all the way down to ensure against leakage and performance. Some hoses may have to be trimmed for proper fit.

NOTE: The condensate trap can also be installed on the 2" knockout opening, in this configuration, using the provided condensate trap bracket. Some modifications may, however, have to be made to the condensate hoses.

CAUTION

Ensure all condensate hoses are pushed all the way down on the condensate trap, barbed fittings, and condensate pan drains.

CAUTION

Plug all unused condensate trap, condensate pan and inducer drain connection points using plugs provided.

Installation with condensate trap bracket (Back of casing):**Refer to Figure 35 & 36**

1. Remove the 2" knockout on the casing side, away from the inducer motor.
2. Remove all the condensate hoses inside the furnace, including the 3/8" barbed nipple, factory installed, in the rain gutter.
3. Remove the drain cap from the bottom rain gutter drain and insert the 3/8" barbed nipple removed above in the bottom rain gutter drain. Place the cap, just removed, to the other side of the rain gutter on the inducer.
4. Remove the condensate trap and its bracket from inside the furnace, saving the screws for later, use.
5. Remove the large condensate cap from the side of the condensate pan and install it on the middle drain of the condensate pan, from where #1 hose was removed.
6. Do not remove condensate trap from the condensate trap bracket.
7. Cut 2-1/2" straight piece from hose #1 and install it through the knockout opening in the casing on the side of the condensate pan, from where the cap was previously removed. Insert the other end of the hose into the large recessed drain on the condensate trap.
8. Install the condensate trap bracket to the 2" inch hole on the side of casing, using existing holes, lining up the condensate pan opening with the larger opening on the condensate trap.
9. Install the dogleg end of hose #9 on the Wye drain and route the hose through the opening on top of the furnace. Install the other end of the #9 hose to the barbed tee, inside the furnace.
10. Install the dogleg end of hose #4 on 3/8" barbed nipple, in the rain gutter. The other end of hose #4 should be installed on the 3/8" barbed tee.
11. Install one end of hose #7 on the 3/8" barbed tee inside the furnace. Guide the other end of hose #7 towards the condensate trap, and install it on the tap on the condensate trap.
12. Install the dogleg end of hose #2 on the bottom drain of the inducer. Guide the other end of hose #2 towards the condensate trap, and install it on the small recessed drain in the condensate trap.
13. Ensure that all hoses are properly installed, have no kinks, and are draining properly. All hoses on the condensate trap should be pushed all the way down to ensure against leakage. All hoses on the condensate pan should be pulled all the way up to ensure proper operation.

FIGURE 34: Horizontal Right Condensate Drain Hose Configuration (Option 1 - Front of Casing)

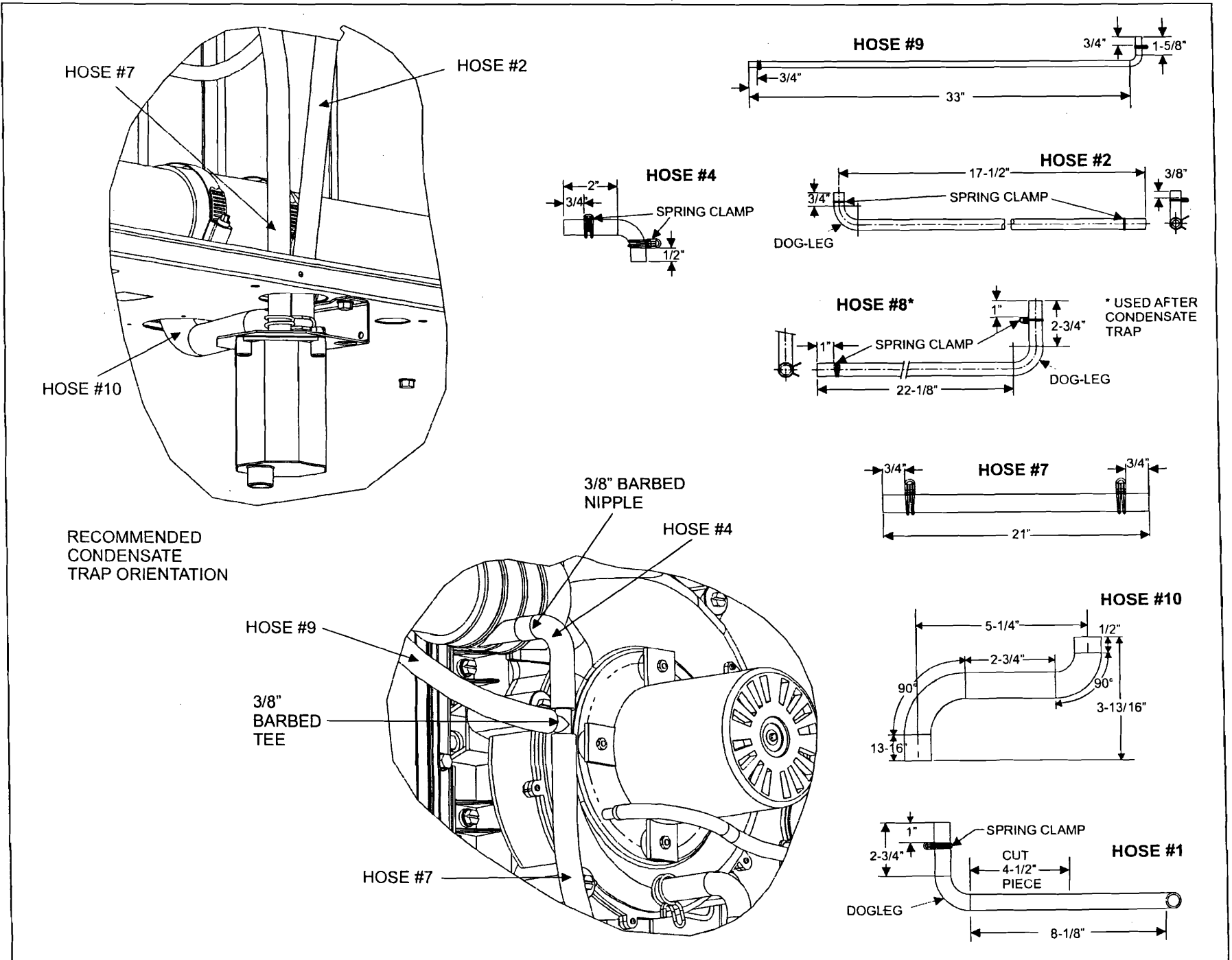
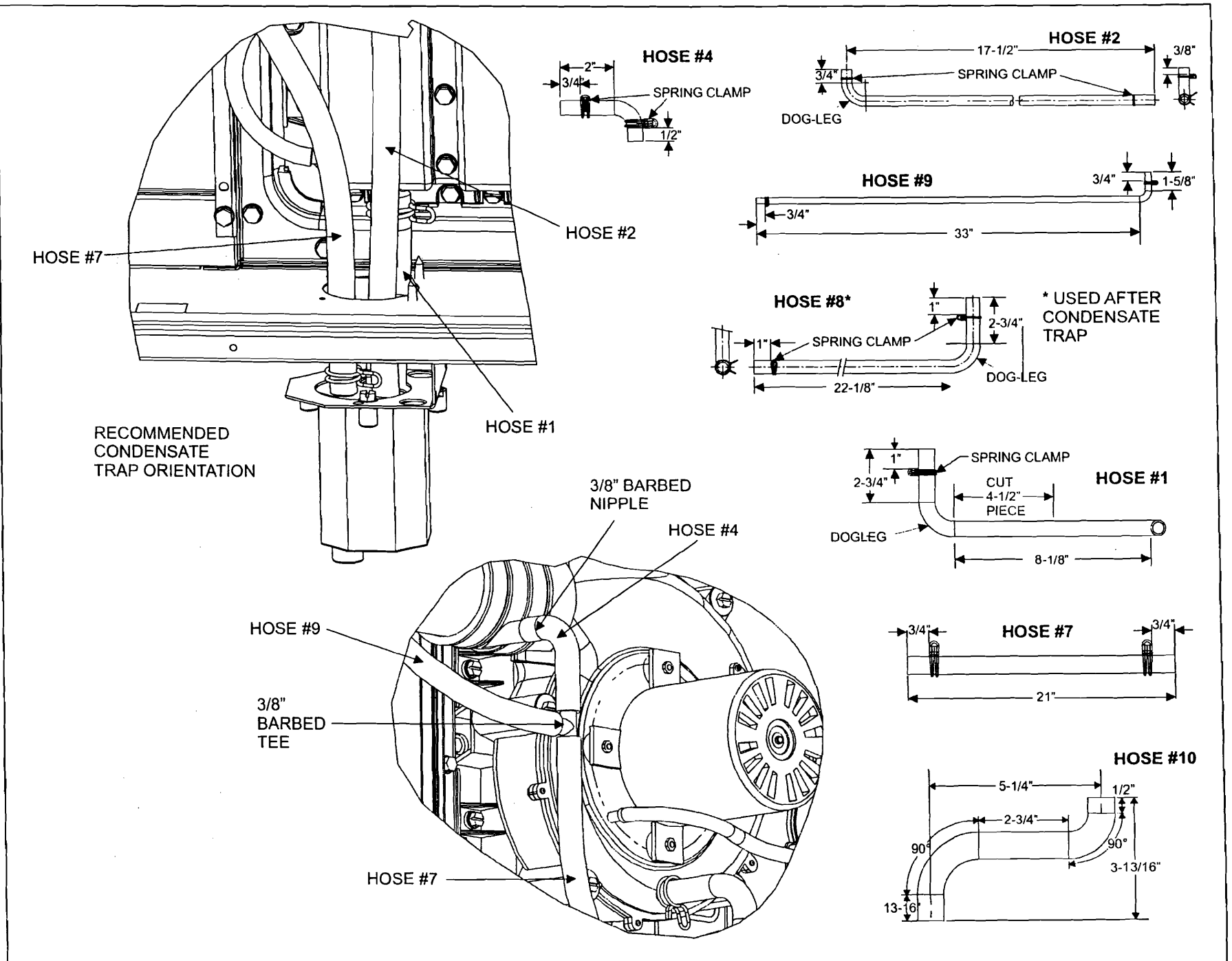


FIGURE 36: Horizontal Right Condensate Drain Hose Configuration (Option 2 - Back of Casing)



There is an accessory kit (1PK0601) available from Source 1, which has the following items:

- 1 - 12" (30 cm) length x 1/8" (0.3 cm) diameter tubing
- 2 - pieces of 4" (10 cm) length x 1/8" (0.3 cm) diameter tubing
- 1 - 5/16" (0.8 cm) tee
- 1 - 5/16" (0.8 cm) x 1/8" (3.175 mm) reducing coupling
- 1 - 1/8" (0.3 cm) adapter

There is a accessory kit (1PK0602) available from Source 1, which has the following items:

- 12" (30 cm) length x 1/8" (0.3 cm) diameter tubing
- 2 - pieces of 4" (10 cm) length x 1/8" (0.3 cm) diameter tubing
- 1 - 5/16" (0.8 cm) tee
- 1 - 5/16" (0.8 cm) x 1/8" (0.3 cm) reducing coupling
- 1 - 1/8" (0.3 cm) adapter
- 1 - Dwyer - Manometer

These items are required in order to properly perform the required start-up procedure.

IGNITION SYSTEM SEQUENCE

1. Turn the gas supply ON at external valve and main gas valve.
2. Set the thermostat above room temperature to call for heat.
3. System start-up will occur as follows:
 - a. The induced draft blower motor will start and come up to speed. Shortly after inducer start-up, the hot surface igniter will glow for about 17 seconds.
 - b. After this warm up, the ignition module will energize (open) the main gas valve.
 - c. After flame is established, the supply air blower will start in about 30 seconds.

WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

IMPORTANT: Burner ignition may not be satisfactory on first startup due to residual air in the gas line or until gas manifold pressure is adjusted. The ignition control will make 3 attempts to light before locking out.

With furnace in operation, check all of the pipe joints, gas valve connections and manual valve connections for leakage using an approved gas detector, a non-corrosive leak detection fluid, or other leak detection methods. Take appropriate steps to stop any leak. If a leak persists, replace the component.

The furnace and its equipment shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 PSI (3.45 kPa).

The furnace must be isolated from the gas supply piping system by closing the equipment shutoff valve during any pressure testing of the gas supply piping system.

CALCULATING THE FURNACE INPUT (NATURAL GAS)

NOTE: Burner orifices are sized to provide proper input rate using natural gas with a heating value of 1030 BTU/Ft³ (38.8 MJ/m³). If the heating value of your gas is significantly different, it may be necessary to replace the orifices.

NOTE: Front door of burner box must be secured when checking gas input.

1. Turn off all other gas appliances connected to the gas meter.
2. At the gas meter, measure the time (with a stop watch) it takes to use 2 cubic ft. (0.0566 m³.) of gas.
3. Calculate the furnace input by using one of the following equations.

⚠ CAUTION

Be sure to relight any gas appliances that were turned off at the start of this input check.

TABLE 14: Inlet Gas Pressure Range

INLET GAS PRESSURE RANGE		
	Natural Gas	Propane (LP)
Minimum	4.5" W.C. (1.12 kPa)	8.0" W.C. (1.99 kPa)
Maximum	10.5" W.C. (2.61 kPa)	13.0" (3.24 kPa) W.C.

IMPORTANT: The inlet gas pressure operating range table specifies what the minimum and maximum gas line pressures must be for the furnace to operate safely. The gas line pressure **MUST BE**

- 7" W.C. (1.74 kPa) for Natural Gas
- 11" W.C. (2.74 kPa) for Propane (LP) Gas

in order to obtain the BTU input specified on the rating plate and/or the nominal manifold pressure specified in these instructions and on the rating plate.

ADJUSTMENT OF MANIFOLD GAS PRESSURE

Manifold gas pressure may be measured by two different procedures. It may be measured with the burner box cover in place or it may be measured with the burner box cover removed. Follow the appropriate section in the instructions below. Refer to Figure 38 for a drawing of the locations of the pressure ports on the gas valve.

Turn gas off at the ball valve or gas cock on gas supply line before the gas valve. Find the pressure ports on the gas valve marked OUT P and IN P.

1. The manifold pressure must be taken at the port marked OUT P.
2. The gas line pressure must be taken at the port marked IN P.
3. Using a 3/32" (2.4 mm) Allen wrench, loosen the setscrew by turning it 1 turn counter clockwise. **DO NOT REMOVE THE SET SCREW FROM THE PRESSURE PORT.**

Read the inlet gas pressure using either of the two methods below.

Reading the gas pressure with the burner box cover in place:

- A. Disconnect the pressure reference hose from the right side of the burner box. Using a tee fitting and a short piece of hose, connect the negative side of the manometer to the burner box as described in below.
- B. Remove one end the 5/16" (0.8 cm) ID flexible tubing over the pressure port on the burner box.
- C. Insert the end of the 5/16" (0.8 cm) tubing, that has the 1/8" (0.3 cm) adapter at the end of the tube, in to the 1/8" (0.3 cm) tee.
- D. Connect the 1/8" (0.3 cm) tee to the burner box adapter and to the negative side of a U-tube manometer or digital pressure measuring equipment with 2 – 1/8" (0.3 cm) tubes.
- E. Use the 5/16" (0.8 cm x 1/8" (0.3 cm) reducing coupling and a 4" (10.2 cm) piece of 1/8" (0.3 cm) tubing to connect the positive side of the manometer to the gas valve pressure reference port. Refer to Figure 39 for connection details.

Reading the gas pressure with the burner box cover removed - Remove the screws securing the burner box front cover plate. Remove the cover. The gasket and may stick in place. Connect the positive side of the manometer to the gas valve as described in E above. There will be no second connection to the manometer, as it will reference atmospheric pressure. Refer to Figure 39 for connection details.

IMPORTANT: The cap for the pressure regulator must be removed entirely to gain access to the adjustment screw. Loosening or tightening the cap does not adjust the flow of gas.

1. Refer to Figure 38 for location of pressure regulator adjustment cap and adjustment screw on main gas valve.
2. Turn gas and electrical supplies on and follow the operating instructions to place the unit back in operation.
3. Adjust manifold pressure by adjusting gas valve regulator screw for the appropriate gas per the following:

TABLE 15: Nominal Manifold Pressure

NOMINAL MANIFOLD PRESSURE	
Natural Gas	3.5" w.c. (0.87 kPa)
Propane (LP) Gas	10.0" w.c. (2.488 kPa)

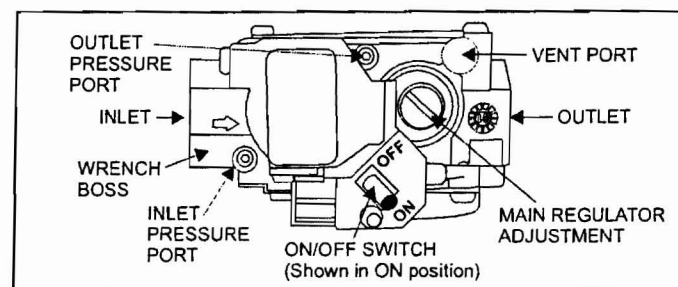


FIGURE 38: Gas Valve

IMPORTANT: If gas valve regulator is turned in (clockwise), manifold pressure is increased. If screw is turned out (counterclockwise), manifold pressure will decrease.

4. After the manifold pressure has been adjusted, re-calculate the furnace input to make sure you have not exceeded the specified input on the rating plate. Refer to "CALCULATING THE FURNACE INPUT (NATURAL GAS)".
5. Once the correct BTU (kW) input has been established, turn the gas valve to OFF and turn the electrical supply switch to OFF; then remove the flexible tubing and fittings from the gas valve pressure tap and the pressure reference hose from the right side of the burner box and tighten the pressure tap plug using the 3/32" Allen wrench. Replace the burner box front cover (if it was removed) and place the pressure reference hose back on the gas valve.
6. Turn the electrical and gas supplies back on, and with the burners in operation, check for gas leakage around the gas valve pressure port for leakage using an approved gas detector, a non-corrosive leak detection fluid, or other leak detection methods.

⚠ WARNING

The manifold pressure must be checked with the screw-off cap for the gas valve pressure regulator in place. If not, the manifold pressure setting could result in an over-fire condition. A high manifold pressure will cause an over-fire condition, which could cause premature heat exchanger failure. If the manifold pressure is too low, sooting and eventual clogging of the heat exchanger could occur. Be sure that gas valve regulator cap is in place and burner box to gas valve pressure reference hose is connected.

TABLE 16: Blower Performance CFM

MODELS		AIRFLOW WITH TOP RETURN - WITHOUT FILTERS																				
		Speed Tap	EXTERNAL STATIC PRESSURE, INCHES W.C. (kPa)																			
			0.1 (0.025)		0.2 (0.050)		0.3 (0.075)		0.4 (0.099)		0.5 (0.124)		0.6 (0.149)		0.7 (0.174)		0.8 (0.199)		0.9 (0.224)		1.0 (0.249)	
Input/ Output/ Airflow/ cabinet	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min	CFM	m ³ /min		
40/37/1200/A	High	1635	46	1590	45	1535	43	1480	42	1415	40	1340	38	1280	36	1185	34	NR	NR	NR	NR	
	Medium High	1179	33	1170	33	1160	33	1140	32	1135	32	1098	31	1048	30	1026	29	NR	NR	NR	NR	
	Medium Low	969	27	967	27	967	27	959	27	938	27	905	26	860	24	802	23	NR	NR	NR	NR	
	Low	774	22	753	21	745	21	726	21	698	20	674	19	652	18	612	17	NR	NR	NR	NR	
60/55/1200/B	High	1687	48	1652	47	1631	46	1595	45	1557	44	1511	43	1456	41	1382	39	1313	37	1211	34	
	Medium High	1193	34	1183	33	1173	33	1162	33	1142	32	1115	32	1076	30	1036	29	982	28	950	27	
	Medium Low	933	26	933	26	921	26	911	26	902	26	872	25	825	23	793	22	771	22	712	20	
	Low	752	21	745	21	731	21	718	20	698	20	652	18	602	17	580	16	536	15	496	14	
80/75/1200/B	High	1686	48	1658	47	1623	46	1572	44	1534	43	1465	41	1391	39	1305	37	1202	34	1091	31	
	Medium High	1257	36	1223	35	1218	34	1203	34	1177	33	1142	32	1094	31	1026	29	939	27	874	25	
	Medium Low	977	28	982	28	976	28	955	27	934	26	899	25	843	24	791	22	738	21	686	19	
	Low	775	22	777	22	757	21	733	21	698	20	663	19	627	18	584	17	549	16	490	14	
80/75/1600/C	High	2071	59	2026	57	1981	56	1935	55	1864	53	1796	51	1713	48	1625	46	1532	43	1401	40	
	Medium High	1583	45	1590	45	1569	44	1554	44	1532	43	1502	43	1457	41	1409	40	1327	38	1221	35	
	Medium Low	1256	36	1275	36	1275	36	1288	36	1275	36	1265	36	1232	35	1187	34	1126	32	1023	29	
	Low	937	27	939	27	936	26	945	27	942	27	936	26	912	26	874	25	810	23	726	21	
100/95/1600/C	High	1996	56	1961	56	1938	55	1896	54	1836	52	1779	50	1707	48	1625	46	1531	43	1399	40	
	Medium High	1449	41	1480	42	1495	42	1488	42	1488	42	1449	41	1417	40	1368	39	1299	37	1208	34	
	Medium Low	1167	33	1192	34	1192	34	1187	34	1202	34	1192	34	1182	33	1140	32	1097	31	1018	29	
	Low	932	26	900	25	871	25	840	24	805	23	761	22	710	20	663	19	641	18	623	18	
100/95/2000/C	High	2404	68	2320	66	2225	63	2138	61	2034	58	1924	54	1816	51	1692	48	1559	44	1422	40	
	Medium High	2018	57	1955	55	1883	53	1815	51	1750	50	1670	47	1586	45	1497	42	1394	39	1246	35	
	Medium Low	1626	46	1581	45	1531	43	1488	42	1418	40	1363	39	1291	37	1225	35	1123	32	964	27	
	Low	1336	38	1291	37	1249	35	1205	34	1155	33	1091	31	1018	29	951	27	884	25	759	21	
120/112/2000/D	High	2520	71	2432	69	2353	67	2251	64	2152	61	2042	58	1947	55	1815	51	1701	48	1525	43	
	Medium High	2018	57	1979	56	1945	55	1911	54	1863	53	1779	50	1705	48	1599	45	1493	42	1353	38	
	Medium Low	1586	45	1545	44	1501	42	1457	41	1407	40	1351	38	1287	36	1216	34	1081	31	926	26	
	Low	1321	37	1266	36	1213	34	1163	33	1111	31	1071	30	987	28	864	24	763	22	700	20	

NOTES:

1. Airflow expressed in standard cubic feet per minute (CFM) and in cubic meters per minute (m³/min).
2. Motor voltage at 115 V.
3. NR = Operation at this static pressure is not recommended.

FILTER PERFORMANCE

The airflow capacity data published in Table 16 represents blower performance WITHOUT filters. To determine the approximate blower performance of the system, apply the filter drop value for the filter being used or select an appropriate value from the Table 17.

NOTE: The filter pressure drop values in Table 17 are typical values for the type of filter listed and should only be used as a guideline. Actual pressure drop ratings for each filter type vary between filter manufacturers.

TABLE 17: Filter Performance - Pressure Drop Inches W.C. and (kPa)

AIRFLOW RANGE		MINIMUM OPENING SIZE		FILTER TYPE					
				DISPOSABLE		WASHABLE FIBER ¹		PLEATED	
CFM	m ³ /m	in ²	cm ²	In W.C.	kPA	In W.C.	kPA	In W.C.	kPA
0 - 750	0 - 21.4	230	584.2	0.01	0.00249	0.01	0.00249	0.15	0.03736
751 - 1000	21.25 - 28.32	330	838.2	0.05	0.01245	0.05	0.01245	0.20	0.04982
1001 - 1250	28.33 - 35.40	330	838.2	0.10	0.02491	0.10	0.02491	0.20	0.04982
1251 - 1500	35.41 - 42.48	330	838.2	0.10	0.02491	0.10	0.02491	0.25	0.06227
1501 - 1750	42.49 - 49.55	380	965.2	0.15	0.03736	0.14	0.03487	0.30	0.07473
1751 - 2000	49.56 - 56.63	380	965.2	0.19	0.04733	0.18	0.04484	0.30	0.07473
2001 & Above	56.64 - Above	463	1176.0	0.19	0.04733	0.18	0.04484	0.30	0.07473

1. Washable Fiber are the type supplied with furnace (if supplied).

FIGURE 41: Wiring Diagram

SECTION XI: WIRING DIAGRAM

BLOWER SPEED CHART
(CHART DE VITESSE DE LA SOUFFLERIE)

INPUT (ENTRÉE)	PSW (S.W.)	COOL (FROID)	HEAT (CHAUD)
04C	1200	BLK (NOIR)	YEL (JAUN)
06C	1200	BLK (NOIR)	BLK (NOIR)
08C	1200	BLK (NOIR)	BLK (NOIR)
10C	1500	BLK (NOIR)	BLK (NOIR)
12C	2000	BLK (NOIR)	BLK (NOIR)
14C	2000	BLK (NOIR)	BLK (NOIR)

WIRE COLOR KEY
(CODE DE COULEUR (C) - ILIAGE)

BLK	BLACK	NOIR
BLU	BLUE	BLEU
BRN	BROWN	MARRON
GRN	GREEN	VERT
OR	GOLD	OR
PUR	PURPLE	ROSE
RED	RED	ROUGE
WHT	WHITE	BLANC
YEL	YELLOW	JAUNE

CAUTION
OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT

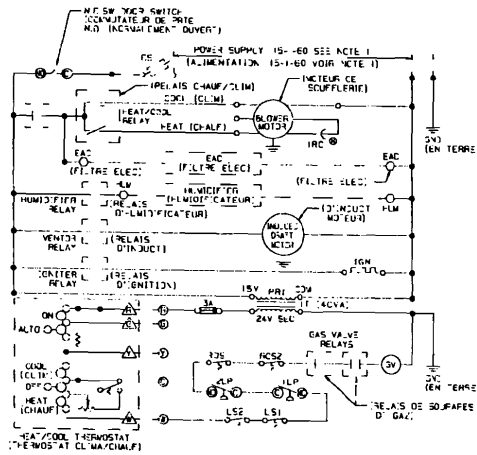
PRECAUTION
OUVREZ LES DISJONCTEURS AVANT DE PROCÉDER AVEC LE SERVICE

90° DOWNFLOW / 40° HORIZONTAL
FLUENCE

(FOURNAISE 90°
HORIZONTALE / VENTILÉE
PAR L'EN HAUT)

1C4593-UW-1-A-204

LADDER DIAGRAM
(DIAGRAMME ÉLÉMENTAIRE)



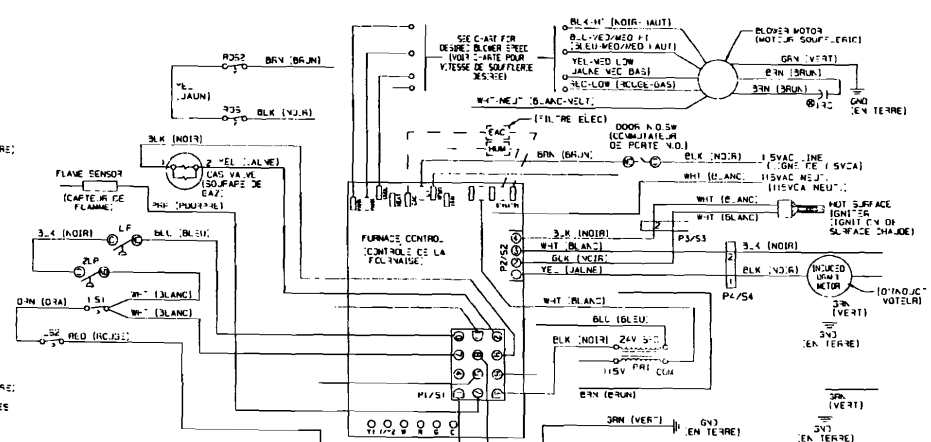
NOTES:

1. ALL FIELD WIRING PER: (A) NATIONAL ELEC. CODE (NEC) AND/OR (B) CANADIAN ELEC. CODE (CEC) AND/OR (C) LOCAL OR CITY CODES.
2. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE FURNACE MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 221°F (105°C).
3. CONNECTORS SUITABLE FOR COPPER CONDUCTORS ONLY.
4. ALL REPLACEMENT COMPONENTS MUST BE PROPERLY GROUNDING.
5. PROVIDE DISCONNECTS FOR ALL POWER SUPPLIES.
6. MOTORS ARE IMMEDIATELY PROTECTED.

NOTES:

1. TOIT ILIAGE EN CHÂNTIER SELON: (A) CODE ÉLEC. NATIONAL (NEC) ET/OU (B) CODE É. C. CANADIEN (CEC) ET/OU (C) CODES LOCAUX ET MUNICIPAUX.
2. SI LE FILAGE DOIT ÊTRE REMPLACÉ EN PATRIE OU EN "C.A.", DOIT ÊTRE AVEC UN MATÉRIAU FOURNANT RÉSISTANCE À DES TEMPÉRATURES D'AU MOINS 221°F (105°C).
3. SÉLÈMMENT DES MARETTES POUR FIL DE CUivre.
4. TOUTE COMPOSANTE DE REMPLACEMENT DOIT ÊTRE BIEN MISE EN TERRE.
5. FOURNISSEZ LES DISJONCTEURS POUR L'ALIMENTATION.
6. LES MOTEURS SONT PROTÉGÉS PAR LEUR CONCEPTION.

CONNECTION DIAGRAM
(DIAGRAMME DE RACCORDEMENT)



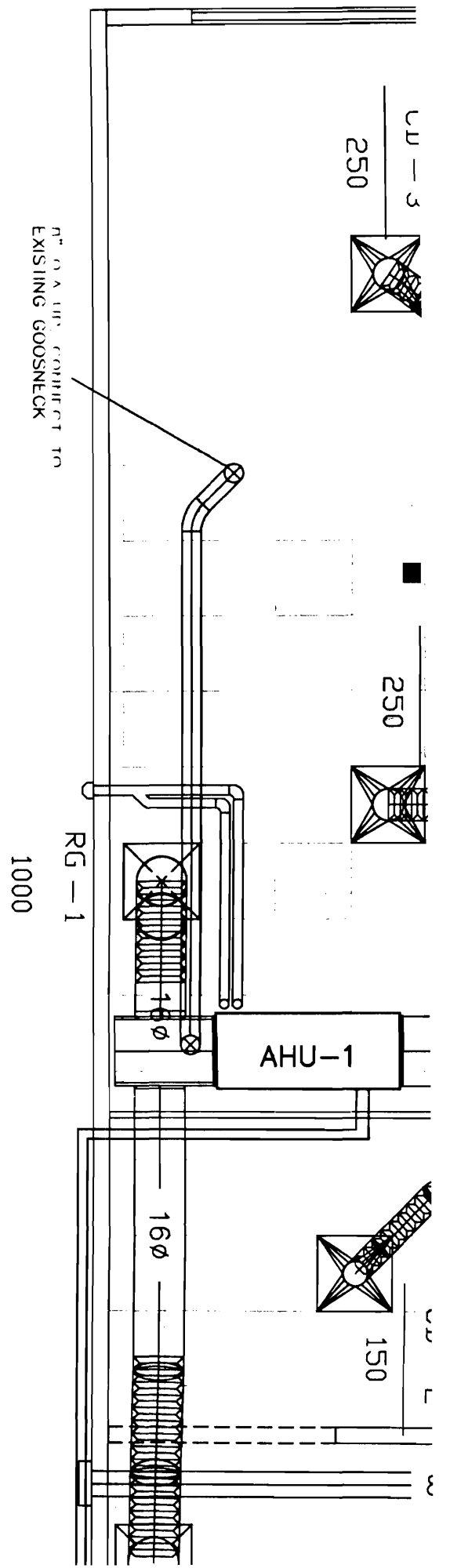
LEGEND

- DE DISCONNECT SWITCH
- GV GAS VALVE
- IGN IGNITION SURFACE IGNITER
- P1/S1 2 PIN PLUG & SOCKET ON IGNITION CONTROL BOARD
- P2/S2 4 PIN PLUG & SOCKET ON IGNITION CONTROL BOARD
- P3/S3 2 PIN PLUG & SOCKET AT HOT SURFACE IGNITER
- P4/S4 2 PIN PLUG & SOCKET AT INDOOR MOTOR
- LS1 PRIMARY LIMIT SWITCH
- LS2 INDUCER LIMIT SWITCH
- RES RESISTOR (RESISTANCE VALUE)
- HCS2 HOT LIMIT SWITCH (RIGHT SIDE)
- FUSE FUSE
- LP PRESSURE SWITCH BURNER BOX/VENTOR
- ZLP PRESSURE SWITCH CONDENSATE
- RC RUN CAPACITOR
- TT TRANSFORMER 40VA
- ⊕ IDENTIFIED RUN CAPACITOR
- ⊖ 24V CONNECTION HEAVY TERMINALS
- ⊙ FIELD CONNECTION
- FACTORY WIRING AND DEVICES
- FIELD WIRING AND DEVICES
- RELAY CONTACTS ON IGNITION CONTROL BOARD

LEGENDE

- DE DISJONCTEUR DE DISJONCTION
- GV SOUFFLE DE GAZ
- IGN IGNITION DE SURFACE C-AUSE
- P1/S1 PRISE ET RECEPTACLE A 2 PINS SUR LA PLAQUETTE DE CONTRÔLE D'IGNITION
- P2/S2 PRISE ET RECEPTACLE A 4 PINS SUR LA PLAQUETTE DE CONTRÔLE D'IGNITION
- P3/S3 PRISE ET RECEPTACLE A 2 PINS D'IGNITION DE SURFACE C-AUSE
- P4/S4 PRISE ET RECEPTACLE A 2 PINS AU MOTEUR D'INDUCTION
- LS1 COMMANDEUR DE LIMITE PRINCIPALE
- LS2 COMMANDEUR DE LIMITE AU MOTEUR D'INDUCTION
- RES COMMANDEUR DE SOULEVEMENT CÔTÉ GAUCHE
- HCS2 COMMANDEUR DE SOULEVEMENT CÔTÉ DROIT
- FUSE FUSIBLE
- LP COMMANDEUR DE PRESSION INDUCTIBILITÉ DE BRULEUR
- ZLP COMMANDEUR DE PRESSION, CONDENSATION
- RC CAPACITEUR DE FONCTIONNEMENT IDENTIFIÉ
- TT TRANSFORMEUR 40VA
- ⊕ CAPACITEUR DE FONCTIONNEMENT IDENTIFIÉ
- ⊖ 24V RACCORDEMENT DES TERMINAUX LÉGERES
- ⊙ RACCORDEMENT DE CHÂNTIER
- FILAGE DE L'USINE ET APPAREILS
- FILAGE DE CHÂNTIER ET APPAREILS
- CONTACTS DES RELAYS SUR LA PLAQUETTE DE CONTRÔLE D'IGNITION

NOTES



SYMBOL LEGEND



4-WAY SUPPLY DIFFUSER



RETURN REGISTER



CEILING EXHAUST FAN



ROOF MOUNTED EXHAUST FAN



ELBOW WITH TURNING VANES



SQUARE TO ROUND TRANSITION



STANDARD SIZE REDUCTION



SPIN-IN TAKE-OFF WITH DAMPER



FLEX DUCT

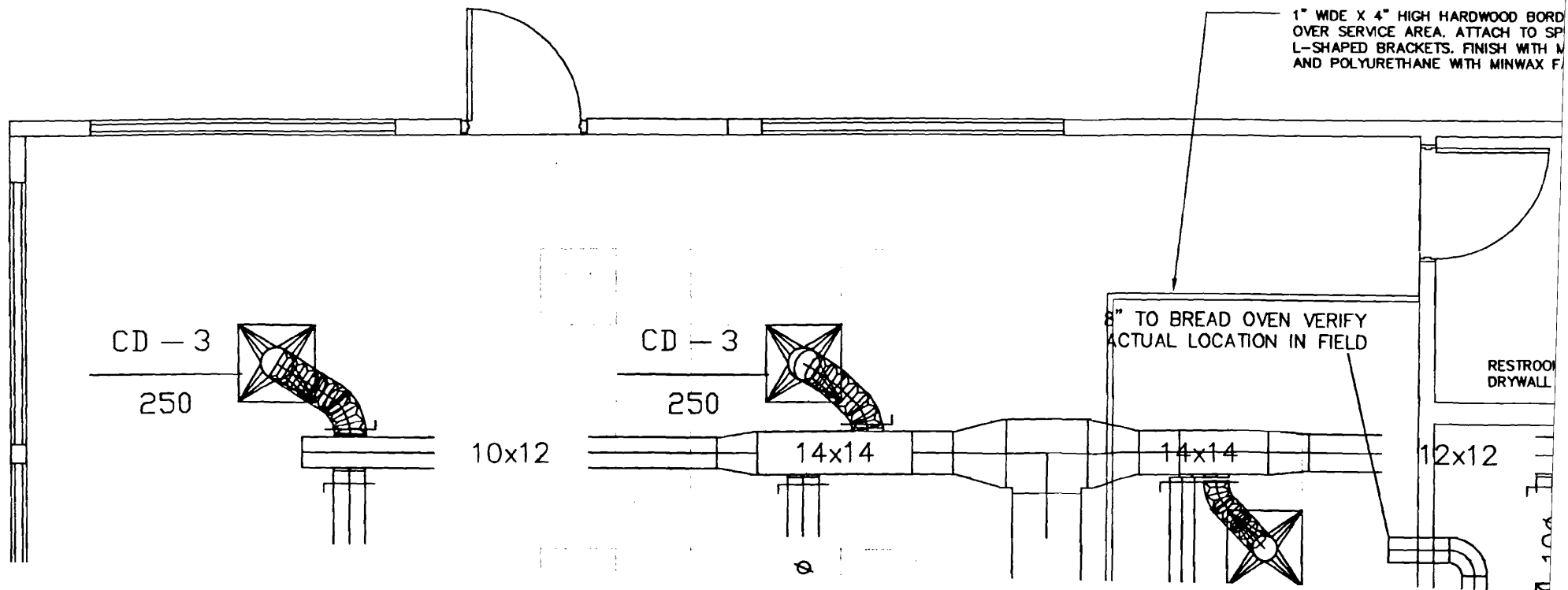
DIFFUSER/REGISTER TYPE

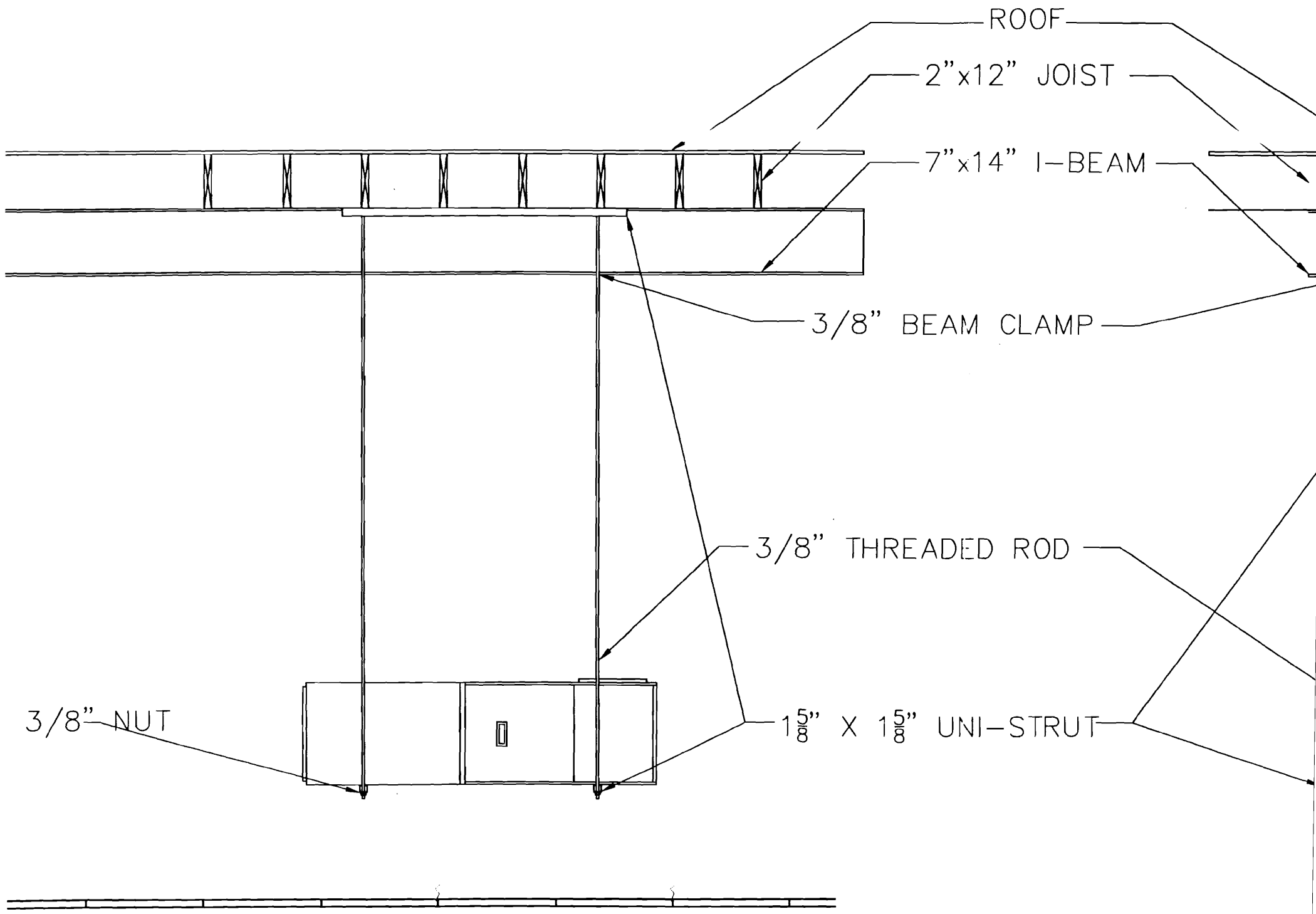
CD-2 1

OF DIFFUSERS/REGISTERS

130

CFM





ANGING DETAIL

HANGING UNIT SCHEDULE								
MODEL NUMBER	ELECTRIC VOLTS/PHASE	MCA AMPS	MAX FUSE	WEIGHT	STAGES	CFM	MIN O.A CFM	REMARKS
GY9S120	115 / 1	14.0	20.0	261 LBS.	1 C / 1 H	2,000	200	

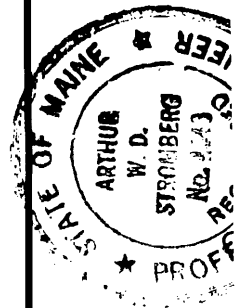
HANGING UNIT SCHEDULE						
MODEL NUMBER	ELECTRIC VOLTS/PHASE	MCA AMPS	MAX FUSE	WEIGHT	STAGES	REMARKS
H3RA060S06	208 / 1	37.3	60.0	188 LBS	1C	

CEILING FAN SCHEDULE					
NUMBER	ELECTRIC VOLTS/PHASE	MCA AMPS	MAX FUSE	WEIGHT	REMARKS
	115 / 1	1.8	20.0	13 LBS	CEILING MOUNTED

REMARKS

AIRTEMP MECHANICAL CONTRACTORS

11 WALLACE AVENUE



AIRTEMP