

INSTALLATION INSTRUCTIONS

**AIR INLET KITS**

CATEGORY III VENTING FOR SEPARATED COMBUSTION  
TUBULAR GAS FIRED DUCT FURNACES

**USE 5" KIT FOR UNITS WITH CAPACITIES 100,000 TO 200,000 BTU/HR**  
**USE 6" KIT FOR UNITS WITH CAPACITIES 250,000 TO 400,000 BTU/HR**

Supplement to unit installation instructions – TDII

**▲ WARNING** Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read this supplement and the unit heater installation, operation and maintenance instructions thoroughly before installing or servicing this equipment.



This Air Inlet Kit utilizes a 5 or 6 inch collar and gaskets to allow a tubular indoor duct furnace to be converted to separated combustion. Included in the kit is a vent cap to be placed at the termination of the new air inlet pipe. Note: a vent cap is also required for the exhaust pipe termination and is available for purchase separately from this kit.

The location of the vent terminal must be in accordance with the National Fuel Code ANSI Z223.1 in the U.S. or the Natural Gas Installation Code CSA-B149.1 or the Propane Gas Installation Code CSA-B149.2 in Canada. Minimum clearances are shown in Table 1.

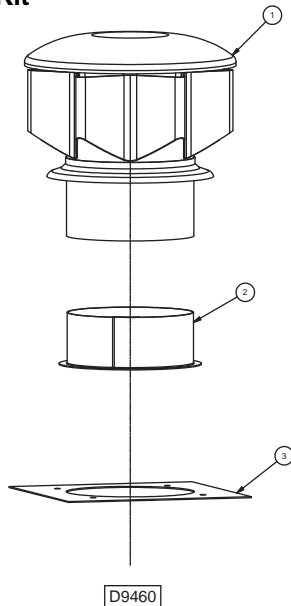
**KIT CONTENTS:**

**Figure 1a – 5 Inch Air Inlet Kit**

- #1 – Part No. 11J37R02222-002  
(1) Vent Cap
- #2 – Part No. 11251R09199-001  
(1) Air Inlet Collar – 5"
- #3 – Part No. 11251R09429-100  
(1) Air Inlet Collar Gasket – 5"

Also Included:

- (1) Part No. J30-09444X9  
Installation Instructions
- (1) Part No. 11H03R03612-002  
Tube of High Temp Silicone Sealant
- (1) Part No. 11262R08614-006  
Access Panel Gasket – 86.75"

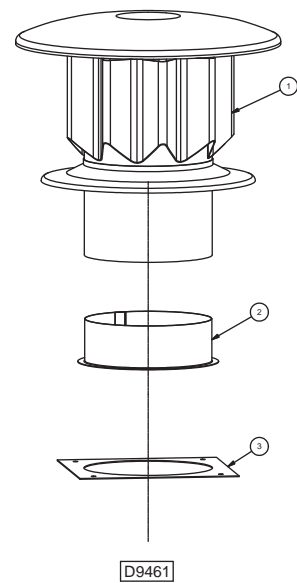


**Figure 1b – 6 Inch Air Inlet Kit**

- #1 – Part No. 11J37R02222-003  
(1) Vent Cap
- #2 – Part No. 11251R09199-002  
(1) Air Inlet Collar – 6"
- #3 – Part No. 11251R09429-250  
(1) Air Inlet Collar Gasket – 6"

Also Included:

- (1) Part No. J30-09444X9  
Installation Instructions
- (1) Part No. 11H03R03612-002  
Tube of High Temp Silicone Sealant
- (1) Part No. 11262R08614-007  
Access Panel Gasket – 112.75"



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# VENTING FOR POWER VENTED DUCT FURNACES (CATEGORY III) GENERAL GUIDELINES

**All duct furnaces must be vented!** All venting installations shall be in accordance with the latest edition of Part 7, Venting of Equipment of the National Fuel Gas Code, ANSI Z223.1 (NFPA 54), or applicable provisions of local building codes for power vented units. Refer to Figures 3a, 3b, 4a, 4b, 5a, and 5b. For installations in Canada, see page 3.

**▲ WARNING CARBON MONOXIDE!** Your venting system must not be blocked by any snow, snow drifts, or any foreign matter. Inspect your venting system to ensure adequate ventilation exists at all times! Failure to heed these warnings could result in Carbon Monoxide Poisoning (symptoms include grogginess, lethargy, inappropriate tiredness, or flu-like symptoms).

**NOTICE: All vertical and horizontal venting arrangements for the Tubular Duct Furnace are Category III venting.**

ANSI now organizes vented appliances into four categories.

**Venting Categories**

	Non Condensing	Condensing
Negative Vent Pressure	I	II
Positive Vent Pressure	III	IV

**Category I**

Includes non-condensing appliances with negative vent pressure, like the traditional atmospheric unit heater.

**Category II**

Groups condensing appliances with negative vent pressure.

**Category III**

Appliances are non-condensing and operate with a positive vent pressure.

**Category IV**

Covers condensing appliances with positive vent pressure.

Do not damper or add heat recovery devices to the flue piping. Failure to open such a damper prior to operating gas unit will result in the spillage of flue gas into the occupied space.

Vent pipe material must be in compliance with UL 1738 for installations in the United States, and UL S636 for installations in Canada.

Refer to Table 1 for vent termination clearance requirements.

Through the wall vents for these appliances shall NOT terminate over public walkways, or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves, or other equipment.

The vent pipe equivalent length must be 5 feet (1.5m) minimum and must not exceed 50 feet (15.2m). Equivalent length is the total length of straight sections PLUS 10 feet (3.05m) for each 90 degree elbow, and 4 feet (1.22M) for each 45 degree elbow.

Maintain 6 inch (152mm) between vent pipe and combustible materials. A minimum of 12 inch (305mm) of straight pipe is required from the venter outlet before installing an elbow in the vent system. **An elbow should never be attached directly to the venter!**

**▲ WARNING** Never use a pipe of a diameter other than that specified in Table 1! Never use PVC or other nonmetallic pipe for venting! To do so may result in serious damage to the unit, severe personal injury, or death.

Any run of single wall vent pipe exposed to cold air or passing through an unheated space must be insulated with insulation suitable to 550°F (288°C).

The vent system must be installed to prevent collection of condensate. Vertical vent pipes should be equipped with condensate drains. Pitch horizontal pipes downward 1/4 inch per foot (21mm/m) toward outlet for condensate drainage.

Horizontal portions of the venting system shall be supported at maximum intervals of 4 feet (1.2m) to prevent sagging. In Canada, support at a maximum of 3 feet (1m) intervals.

**Each unit must have an individual vent pipe and vent terminal per furnace section!** Each unit MUST NOT be connected to other vent systems or to a chimney.

# VENTING FOR POWER VENTED DUCT FURNACES (CATEGORY III) GENERAL GUIDELINES (CONTINUED)

**Table 1**

<b>Vent Systems Termination Clearance Requirements</b>		
<b>Structure/Object</b>	<b>Minimum Clearances for Termination Locations</b>	
	<b>USA</b>	<b>CANADA</b>
Door, window or gravity vent inlet; combustion air inlet for other appliances	9 in. for 10,000 to 50,000 BTU/Hr input; 12 in. for input exceeding 50,000 BTU/Hr	9 in. (230mm) for 10,000 to 50,000 BTU/Hr input; 12 in. (305mm) for input exceeding 50,000 BTU/Hr
Forced air inlet within 10 ft.	3 ft. above	6 ft. (1.8m)
Adjoining building or parapet	10 ft.	10 ft. (3.04m)
Adjacent public walkways	7 ft. above grade	7 ft. (2.1m) above grade
Electric, gas meters & regulators	4 ft. horizontal	3 ft. (0.9m) horizontally from meter/regulator assembly. 6 ft. (1.8m), any direction, from a gas service regulator vent outlet
Above grade level*	1 ft.	1 ft. (0.3m)

\* Minimum above maximum snow depth, or per local code, whichever is greater.

## ADDITIONAL REQUIREMENTS FOR CANADIAN INSTALLATIONS

REFER TO SPECIFICATION TABLE AND INSTALLATION MANUAL FOR PROPER USAGE

The following instructions apply to Canadian installations in addition to installation and operating instructions.

1. Installation must conform with local building codes, or in the absence of local codes, with current CSA-B149.1, Installation Codes for Natural Gas Burning Appliances and Equipment, or CSA-B149.2, Installation Codes for Propane Gas Burning Appliances and Equipment.
2. Any reference to U.S. standards or codes in these instructions are to be ignored, and the applicable Canadian standards or codes applied.

# INSTALLATION INSTRUCTIONS

## AIR INLET COLLAR

Remove screen and mounting plate from air inlet on top panel of unit by removing 4 screws. Secure inlet collar and gasket to inlet opening by reusing the 4 screws removed in previous step.

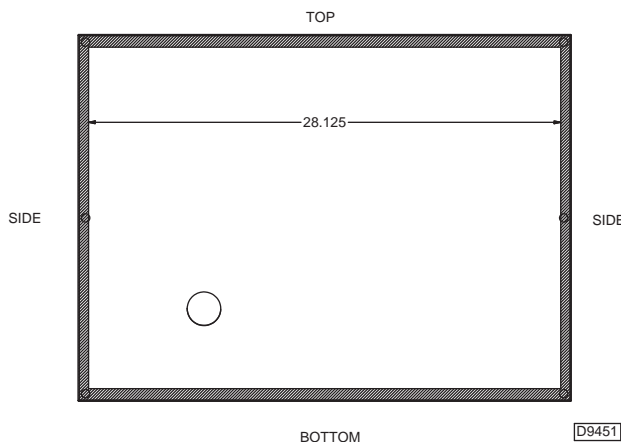
## ACCESS PANEL SEAL

Cut gasket to lengths listed in Table 2. Remove paper backing and adhere to access panel making certain that the entire perimeter is covered (Figure 2).

Table 2 – Gasket Lengths

Unit Size	Top/Bottom Gasket Length (In)	Qty	Right/Left Gasket Length (In)	Qty
100	8-3/4	2	28-1/8	2
150	12	2	28-1/8	2
200	15-1/4	2	28-1/8	2
250	18-1/2	2	28-1/8	2
300	21-3/4	2	28-1/8	2
350	25	2	28-1/8	2
400	28-1/4	2	28-1/8	2

Figure 2 – Access Panel Seal



## POWER SUPPLY INLET

After supply power line is run to main control board, seal the gap between the cord and the hole in rear panel with silicone sealant.

## VENTING FOR SEPARATED COMBUSTION DUCT FURNACES (CATEGORY III)

### COMBUSTION AIR

**▲ WARNING** Never operate separated combustion duct furnaces without combustion air and flue gas piping in place or severe personal injury or death may occur!

**▲ WARNING** CARBON MONOXIDE!

Your venting system must not be blocked by any snow, snow drifts, or any foreign matter. Inspect your venting system to ensure adequate ventilation exists at all times! Failure to heed these warnings could result in Carbon Monoxide Poisoning (symptoms include grogginess, lethargy, inappropriate tiredness, or flu-like symptoms).

1. In the United States, the combustion air system installation must be in accordance with the latest edition of ANSI Z223.1 (NFPA 54) National Fuel Gas Code. In Canada, installation must be in accordance with CSA-B149.1 "Installation Code for Natural Gas Burning Appliances and Equipment" and CSA-B149.2 "Installation Code for Propane Burning Appliances and Equipment."
2. A Breidert Type L or Fields Starkap, furnished by the customer, must be installed at the termination point of the combustion air system. See Figures 3a and 3b.

3. Each duct furnace MUST have its own combustion air system. It MUST NOT be connected to other air intake systems.
4. Combustion air intake duct may be PVC, CPVC, Type B vent, single wall, double wall or other material approved by local code authority. Never use duct size other than the diameter stated in these instructions.
5. Long runs of single wall combustion air piping passing through an unheated space may require insulating if condensation becomes noticeable.
6. The combustion air system must be installed to prevent collection of condensate. Pitch horizontal pipes downward 1/4" per foot (21mm/m) toward the inlet cap to facilitate drainage. Vertical combustion air pipes should be piped as depicted in Figure 3a.
7. The equivalent length of the combustion air system must not be less than 5 feet (1.5m) and must not exceed 50 feet (15.2m). Equivalent length equals the total length of straight pipe, plus 10 feet (3.05m) for each 90° elbow and 4 feet (1.22m) for each 45° elbow.

**NOTICE:** For optimum performance keep the combustion air system as straight as possible.

## VENTING FOR SEPARATED COMBUSTION DUCT FURNACES (CATEGORY III) (CONTINUED)

- Each slip joint must be secured with at least three corrosion resistant screws. Two full turns of 3M #425 Aluminum Foil Tape or its equivalent must then be used to seal each joint. General Electric RTV-108, Dow-Corning RTV-732 or an equivalent may be used instead of tape.
- For horizontal combustion air systems longer than 5 feet (1.5m), the system must be supported from overhead building structures at 4 feet (1.22m) maximum intervals in the United States and at 3 feet (1m) maximum intervals in Canada.

### EXHAUST VENTING

**▲ WARNING** Never operate separated combustion duct furnaces without combustion air and flue gas piping in place or severe personal injury or death may occur!

**▲ WARNING** CARBON MONOXIDE!  
Your venting system must not be blocked by any snow, snow drifts, or any foreign matter. Inspect your venting system to ensure adequate ventilation exists at all times! Failure to heed these warnings could result in Carbon Monoxide Poisoning (symptoms include grogginess, lethargy, inappropriate tiredness, or flu-like symptoms).

- In the United States, vent system installation must be in accordance with the latest edition of ANSI Z223.1 (NFPA 54) National Fuel Gas Code. In Canada, installation must be in accordance with CSA-B149.1 "Installation Code for Natural Gas Burning Appliances and Equipment" and CSA-B149.2 "Installation Code for Propane Burning Appliances and Equipment."
- A Breidert Type L or Fields Starkap, furnished by the customer, must be installed at the termination point of the vent system. See Figures 3a and 3b.
- Each duct furnace MUST have its own vent system. It MUST NOT be connected to other vent systems or to a chimney.
- Use UL 1738 listed single wall pipe for the vent system. For installations in Canada, use UL S636 listed vent pipe conforming with local building codes, or in the absence of local building codes, with current CSA-B149.1 "Installation Codes for Natural Gas Burning Appliances and Equipment" or CSA-B149.2, "Installation Codes for Propane Gas Burning Appliances and Equipment."

**▲ WARNING** Never use pipe of a diameter other than that specified in these instructions! Never use PVC, ABS, or any other non-metallic pipe for exhaust venting! To do so may result in serious damage to the unit and/or severe personal injury or death!

- Any run of single wall vent pipe passing through an unheated space must be insulated with an insulation suitable to 550°F (288°C).
- The vent system must be installed to prevent collection of condensate. Pitch horizontal pipes downward 1/4" per foot (21mm/m) towards the vent cap to facilitate drainage. Vertical vent pipes should be piped as depicted in Figure 3a.
- The equivalent length of the vent system must not be less than 5 feet (1.5m) and must not exceed 50 feet (15.2m). Equivalent length equals the total length of straight pipe plus 10 feet (3.05m) for each 90° elbow and 4 feet (1.22m) for each 45° elbow.
- For horizontal combustion air systems longer than 5 feet (1.5m), the system must be supported from overhead building structures at 4 feet (1.22m) maximum intervals in the United States and at 3 feet (1m) maximum intervals in Canada.
- The exhaust vent system must remain at a minimum distance of 6 inch (152mm) from all combustible materials. Any part of the vent system that passes through a combustible material must be properly insulated.

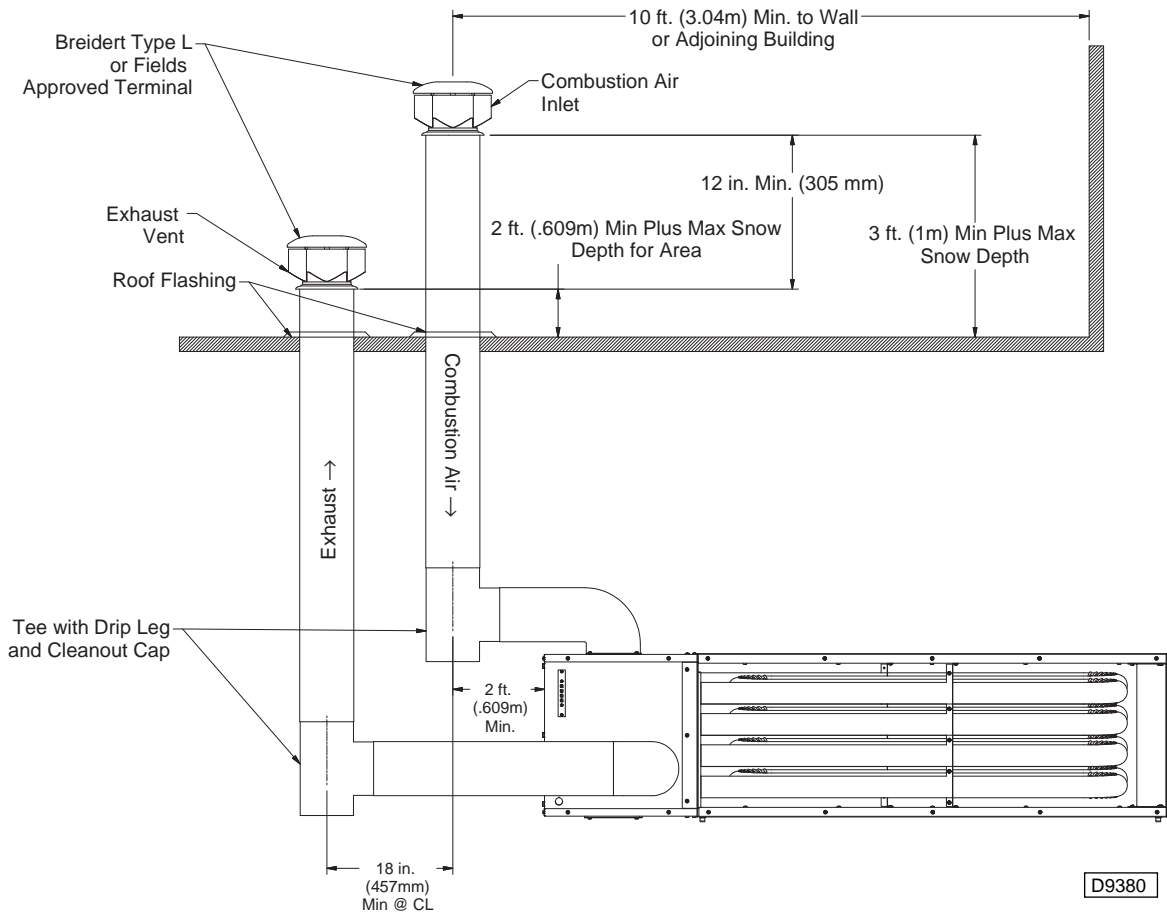
**NOTICE: Increasing the clearance distances may be necessary if there is a possibility of distortion or discoloration of adjacent materials.**

For a VERTICAL vent pipe section that passes through a floor or roof, an opening 4 inch (102mm) greater in diameter is required. The opening must be insulated and flashed in accordance with applicable installation codes. Also see Figures 4a and 5a.

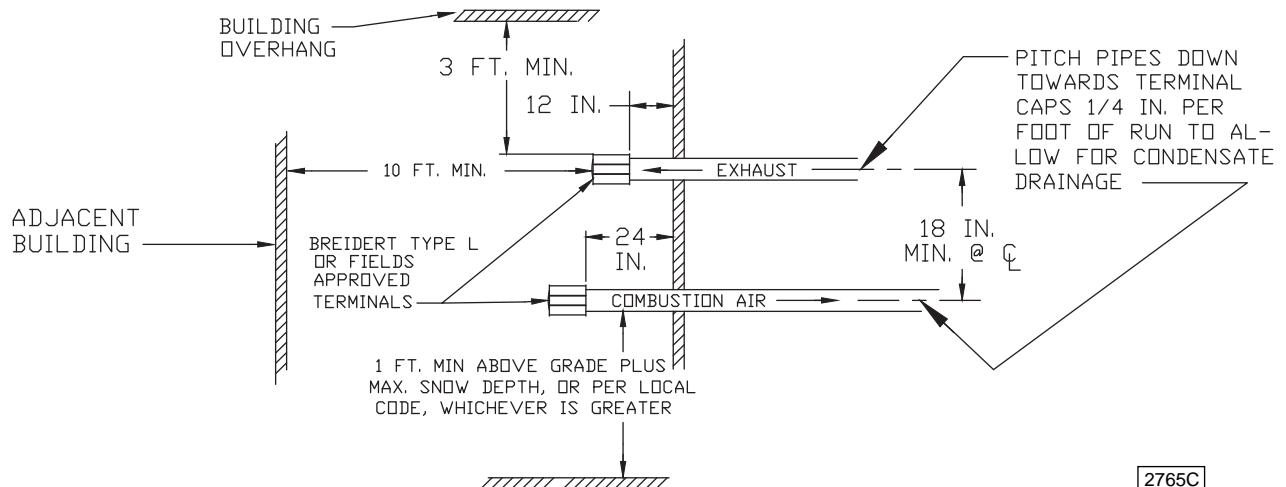
A HORIZONTAL section of an exhaust vent system that passes through a combustible wall must be constructed and insulated as shown in Figures 4b and 5b.

# VENTING FOR SEPARATED COMBUSTION DUCT FURNACES (CATEGORY III) (CONTINUED)

**Figure 3a – Vertical Inlet/Vent Locations, Separated Combustion**

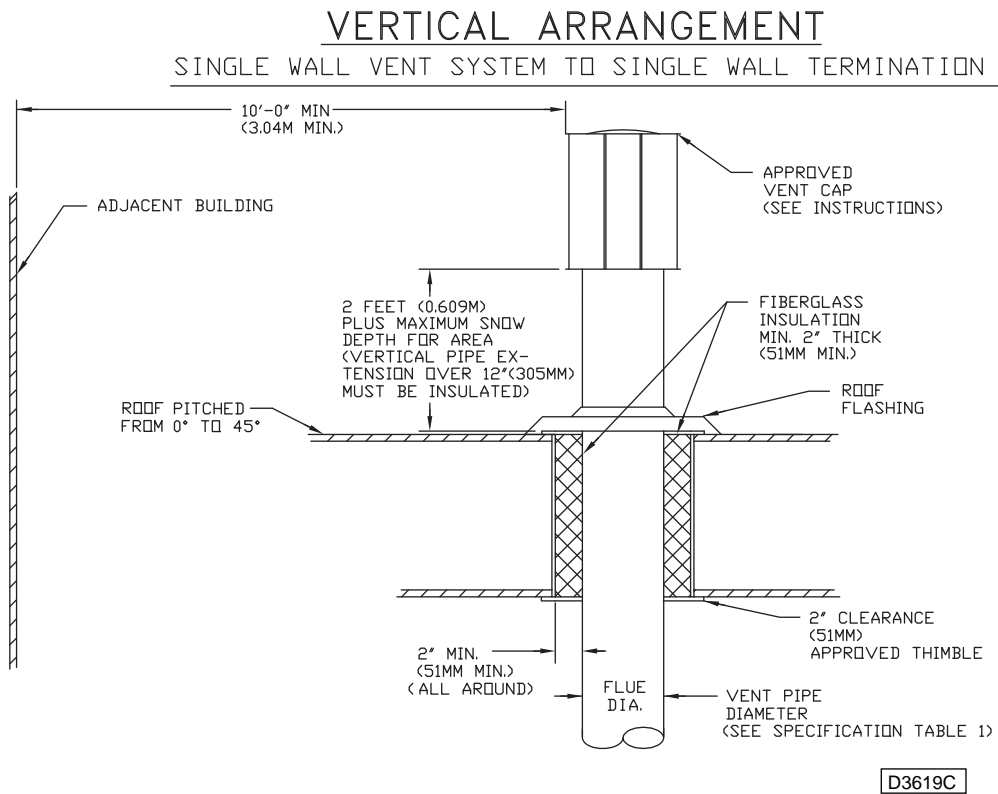


**Figure 3b – Horizontal Inlet/Vent Locations, Separated Combustion**

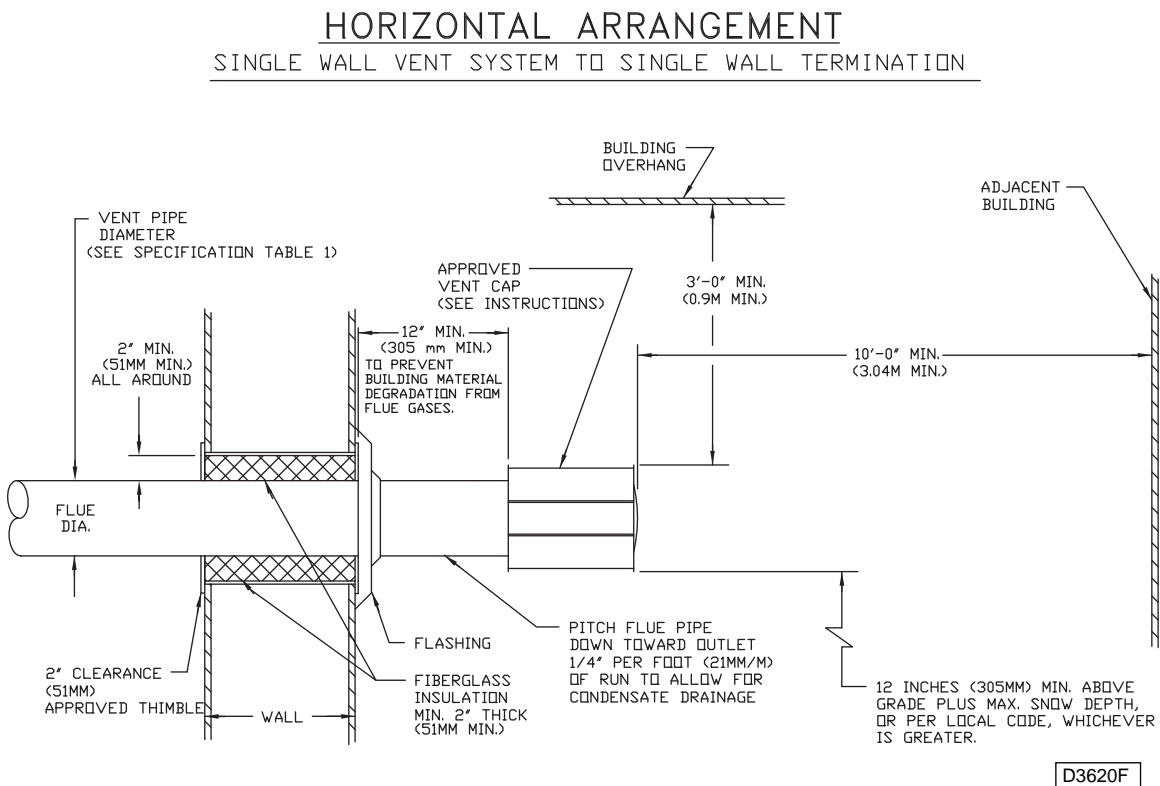


# VENTING FOR SEPARATED COMBUSTION DUCT FURNACES (CATEGORY III) (CONTINUED)

**Figure 4a – Vertical Arrangement, Single Wall Vent System to Single Wall Termination**

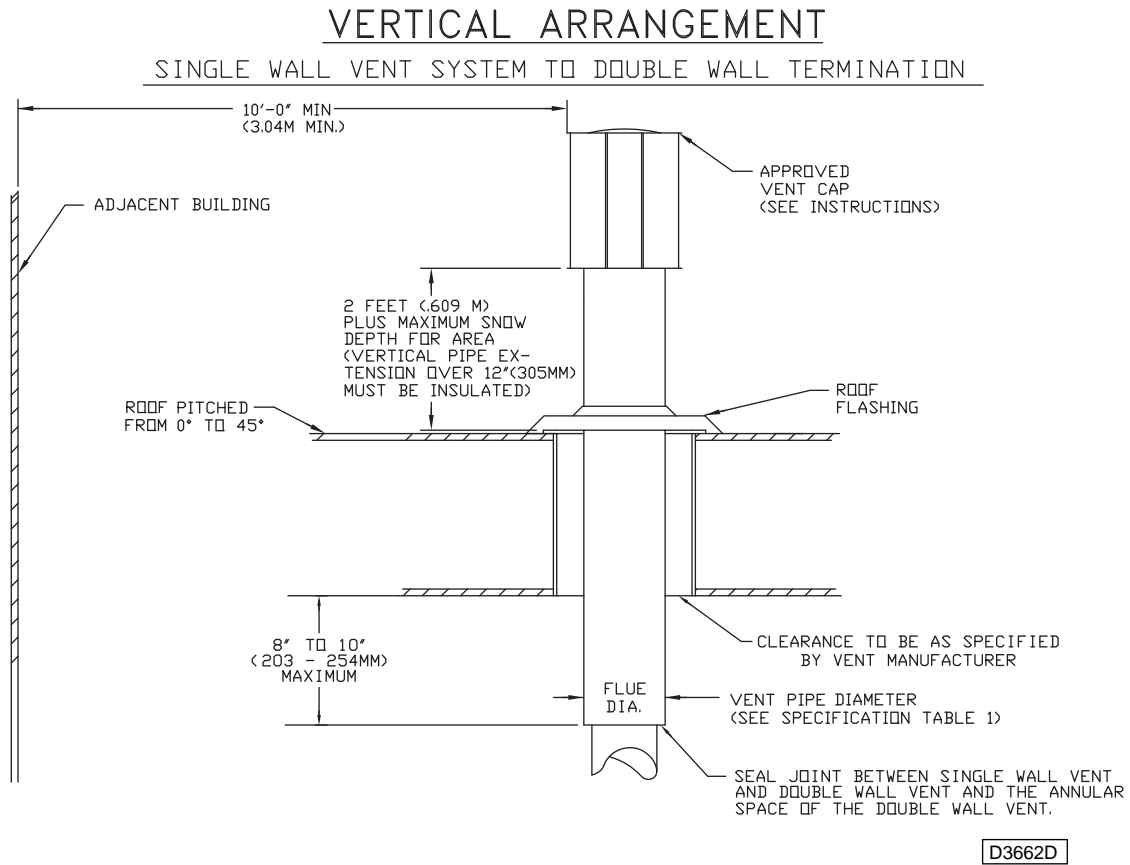


**Figure 4b – Horizontal Arrangement, Single Wall Vent System to Single Wall Termination**



# VENTING FOR SEPARATED COMBUSTION DUCT FURNACES (CATEGORY III) (CONTINUED)

**Figure 5a – Vertical Arrangement, Single Wall Vent System to Double Wall Termination**



**Figure 5b – Horizontal Arrangement, Single Wall Vent System to Double Wall Termination**

