

prestige

PVC Concentric Vent/Air Termination Supplement



WARNING

This document is intended to be used by a qualified heating contractor or service technician. Read all instructions within this document and within the PRESTIGE Boiler Installation and Maintenance Manual, before proceeding with the installation. It is recommended to follow the procedures in the steps given, skipping or missing procedural steps could result in severe personal injury, death or substantial property damage.

NOTICE

Installation of this boiler must comply with local requirements and codes and with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations within the U.S. For installations in Canada the installation must comply with CSA B149.1 or B149.2

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DEFINITIONS

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product.

DANGER

Indicates the presence of a hazardous situation which, if ignored, will result in death, serious injury or substantial property damage.

WARNING

Indicates a potentially hazardous situation which, if ignored, can result in death, serious injury or substantial property damage.

CAUTION

Indicates a potentially hazardous situation which, if ignored, may result in minor injury or substantial property damage.

NOTICE

Indicates special instructions on installation, operation or maintenance, which are important to the equipment but not related to personal injury hazards.

BEST PRACTICES

Indicates recommendations made by Triangle Tube for the installers which will help to ensure optimum operation and longevity of the equipment.

INSTALLER

WARNING

Read all instructions as outlined in this manual and in the boiler installation manual. Failure to comply with these instructions in the order presented could result in personal injury or death.

This document is a supplement to the PRESTIGE boiler installation and maintenance manual and venting supplement manual. The purpose of this supplement is for the proper installation of the concentric vent kit to the boiler.

WARNING

All vent and combustion air piping must be installed, terminated and joints sealed as outlined in this manual and/or in the venting supplement. Failure to comply with installation procedures outlined in this manual can result in severe personal injury, death or substantial property damage.

NOTICE

This vent terminations kit is not applicable for use on PRESTIGE 399 venting systems.

HOMEOWNER

- This manual is intended for use by a qualified heating contractor or service technician.
- Please reference the User Information manual for additional information.
- Ensure this document and all pertaining documents are maintained near the boiler to be used by the qualified heating contractor or service technician.

SECTION I - PRE- INSTALLATION ITEMS

Removal of an Existing Boiler from a Common Vent System

DANGER

Do not install the PRESTIGE into a common vent with any other gas or oil appliances. This will cause flue gas spillage or appliance malfunction, resulting in possible severe personal injury, death or substantial property damage.

When an existing boiler is removed from a common venting system, the common venting system is likely to be too large for proper venting of the remaining appliances. At the time of removal of an existing boiler, the following steps shall be followed with each appliance that remains connected to the common venting system. Place each appliance in operation, while the other appliances remaining connected to the common venting system are not in operation.

1. Seal any unused openings in the common venting system.
2. Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
3. Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliance not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.

4. Place in operation the appliance being inspected. Follow the lighting instructions. Adjust thermostat so appliance will operate continuously.
5. Test for spillage at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar or pipe.
6. After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas-burning appliance to their previous condition of use.
7. Any improper operation of the common venting system should be corrected so the installation conforms with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CAN/CGA B149, Installation Codes. When resizing any portion of the common venting system, the common venting system should be resized to approach the minimum size as determined using the appropriate tables in Part 11 of the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and/or CAN/CGA B149, Installation Codes.

DANGER

Do not install the PRESTIGE into a common vent with any other gas or oil appliances. This will cause flue gas spillage or appliance malfunction, resulting in possible severe personal injury, death or substantial property damage.

Vent/Combustion Air Piping and Materials

NOTICE

Installation of the vent and combustion air piping must comply with local codes and requirements and with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations in the U.S. or with CSA B149.1 or B149.2 for installations in Canada.

The PRESTIGE requires a Category IV / Direct Vent venting system which is designed for pressurized venting and condensate.

WARNING

The vent and combustion air materials (piping, fittings and cement) must meet the listed requirements in this manual. Failure to comply with these material requirements could result in severe personal injury, death or substantial property damage.

3" and/or 4" Diameter Vent and Combustion Air Piping and Fittings:

For installation of the concentric vent/air termination kit the vent and air piping must be PVC material only.

PVC Schedule 40 - ANSI/ASTM D1785

PVC-DWV - ANSI/ASTM D2665

Pipe Cement and Primer

For assembly of the concentric vent/air termination kit components the vent and combustion air piping as well as fittings must use PVC cement and primer only.

PVC - ANSI/ASTM D2564

NOTICE

For installations in Canada, all piping, fittings and cement/primer material must be certified and listed to ULC-S636.

NOTICE

Do not use cellular core pipe for venting.

WARNING

DO NOT mix vent components from different vent systems. Use only PVC piping or fittings with the appropriate primer and cement. Failure to comply with this requirement could cause vent failure resulting in leakage of flue products into the living space surrounding the boiler.

The PRESTIGE is certified per ANSI Z21.13 as a Category IV or Direct Vent (sealed combustion) appliance. The PRESTIGE must be installed with the combustion air piped directly from outdoors to the unit as described in this supplement.

WARNING

The concentric vent/air termination may be extended to accommodate height or sidewall restrictions. Replace the two pipes supplied in the kit using the same diameter, solid, single pipe. **DO NOT** use couplings to extend the length of pipes. **DO NOT** extend the length of pipes more than 24 inches from the original length as supplied in the kit and shown in Fig. 1 Failure to comply with these instructions could result in severe personal injury, death or substantial property damage.

Overall Kit Dimension: 39"

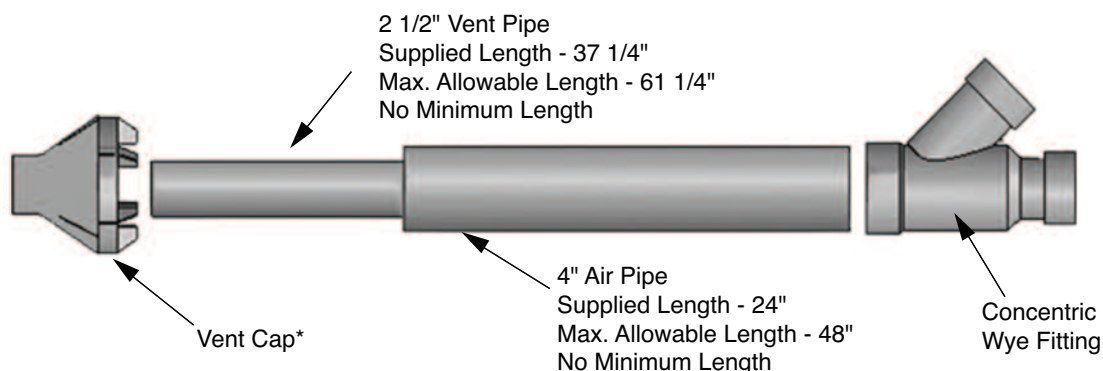


Fig. 1: Concentric Vent/Air Termination Components

*Bird Screen and Screws not Shown

Combustion Air Contamination**WARNING**

On a concentrically vented PRESTIGE the combustion air must be piped directly from the outdoors to the boiler. If the combustion air inlet is located in any area likely to cause or contain contamination, or if products, which would contaminate the air cannot be removed, the combustion air must be repiped and terminated to another location. Contaminated combustion air will damage the unit and its burner system, resulting in possible severe personal injury, death or substantial property damage.

DANGER

Do not operate a PRESTIGE if its combustion air inlet is located near a laundry room or pool facility. These areas will always contain hazardous contaminants.

Pool and laundry products, common household and hobby products often contain fluorine or chlorine compounds. When these chemicals pass through the burner and vent system, they can form strong acids. These acids can create corrosion of the heat exchanger, burner components and vent system, causing serious damage and presenting a possible threat of flue gas spillage or water leakage into the surrounding area.

Please read the information listed below. If contaminating chemicals are located near the area of the combustion air inlet, the installer should pipe the combustion air inlet to an area free of these chemicals.

Potential contaminating products

- Spray cans containing chloro/fluorocarbons
- Permanent Wave Solutions
- Chlorinated wax
- Chlorine - based swimming pool chemicals / cleaners
- Calcium Chloride used for thawing ice
- Sodium Chloride used for water softening
- Refrigerant leaks
- Paint or varnish removers
- Hydrochloric acid / muriatic acid
- Cements and glues
- Antistatic fabric softeners used in clothes dryers
- Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms
- Adhesives used to fasten building products and other similar products

Areas likely to contain these products

- Dry cleaning / laundry areas and establishments
- Beauty salons
- Metal fabrication shops
- Swimming pools and health spas
- Refrigeration Repair shops
- Photo processing plants
- Auto body shops
- Plastic manufacturing plants
- Furniture refinishing areas and establishments
- New building construction
- Remodeling areas
- Garages with workshops

SECTION II - INSTALLING VENT TERMINATION KIT

Vertical - Through the Roof

NOTICE

Installation of the vent and combustion air piping must comply with local codes and requirements and with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations in the U.S. or CSA B149.1 or B149.2 for installations in Canada.

WARNING

A gas vent extending through a roof should not terminate near an adjacent wall or below any building extensions such as roof eaves, balconies or decks. Failure to comply with the required clearances could result in severe personal injury, death or substantial property damage.

Determine Termination Location

Locate the vent and combustion air termination using the following guidelines:

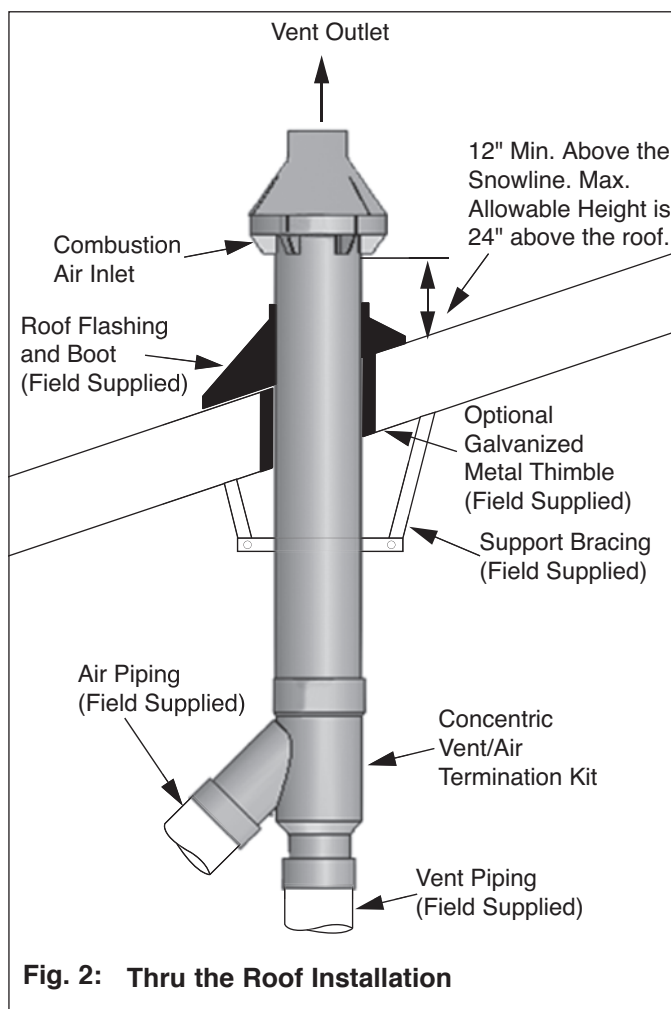
1. The total length of the vent or combustion air piping must not exceed the limits given in Table 1 on page 13.

NOTICE

Include the two concentric vent/air termination piping length when determining the total length of pipe.

2. The concentric vent/air assembly must terminate vertically and must be located 12 inches minimum above the projected snowline with a maximum of 24 inches above the roof as shown in Fig. 2.
3. The vent and combustion air piping connected to the concentric vent/air assembly must comply with the instructions listed in this supplement.
4. The following should be considered when determining the location of the vent and combustion air termination:
 - a. Locate the vent termination where flue vapors will not damage surrounding shrubs, plants or air conditioning equipment or be objectionable to the homeowner.

- b. The flue products will form a noticeable plume as they condense in colder air. Avoid terminating the vent in areas where the plume could obstruct window views.
- c. Prevailing winds could cause freezing of flue condensation and a buildup of water / ice on surrounding plants, building surfaces or combustion air inlet.
- d. Avoid locations where prevailing winds could affect the performance of the boiler or cause recirculation of the flue gases, such as inside corners of buildings or near adjacent buildings or vertical surfaces, window wells, stairwells, alcoves, courtyards, or other recessed areas.
- e. Do not terminate the vent above any doors or windows: flue condensate could freeze causing ice formations.
- f. Locate or guard the vent termination to prevent possible condensate damage to exterior finishes.
- g. Avoid locations of possible accidental contact of flue vapors with persons or pets.



5. The vent termination must also maintain the following clearances; as shown in Fig.6, page 10.
 - a. At least 3 feet from adjacent walls
 - b. No closer than 3 feet below roof over hangs
 - c. At least 7 feet above any public walkways
 - d. At least 3 feet above any forced air intake within 10 feet (does not apply to the combustion air inlet of a direct vent appliance).
 - e. No closer than 12 inches below or horizontally from any door or window or gravity air inlet.
 - f. Must be at least 4 feet from any electric meters, gas meters-regulators, relief valves or other equipment. Never terminate the vent above or below any of these items within 4 feet horizontally.
 - g. A minimum 12 inches horizontal spacing from other fan assisted appliance vents such as clothes dryer vent, kitchen exhaust vent etc. Never terminate the vent above or below any fan assisted vent within 12 inches horizontally.
6. Locate the vent termination and combustion air inlet in a manner to protect them from damage by foreign objects, such as stones or balls or subject to buildup of leaves or sediment.
7. Do not connect any other appliance to the vent pipe or multiple boilers to a common vent pipe.

Vent Installation - Through the Roof

1. Roof Penetration
 - Cut a single 5 inch diameter hole through the building structure.
2. The installer must comply with all local codes for isolating the vent pipe as it passes through floors, ceilings and roofs.
3. The installer should provide adequate flashing and a sealing boot sized for the vent pipe and combustion air pipe.
4. Mount the termination assembly as shown in Fig. 2 page 5.

Termination Assembly Support

1. If assembly needs to be extended to meet height requirements the two pipes supplied in the kit may be replaced using the same diameter, solid, single PVC pipe.

WARNING

When extending the assembly length, DO NOT exceed the length of pipe supplied in the kit by more than 24 inches. DO NOT use couplings to extend the length of the termination assembly. Failure to comply could result in severe personal injury, death or substantial property damage.

2. Support the termination assembly at the roof penetration as shown in Fig. 2 page 5
 - Use support bracing to support the termination assembly and to prevent vertical slippage or horizontal movement.
 - Any clamps or bracing used to support the termination assembly must be such that it does not penetrate the assembly piping or cause stress and potential cracking of the assembly piping.

Multiple Installation - Through the Roof

1. On installations of multiple PRESTIGE boilers, install the concentric vent/air termination assemblies as described in this manual.
2. The roof penetration of the termination assemblies should be such that the vent outlet is a minimum 12 inches between centerlines from the adjacent termination assembly of the other boiler for installations in the U.S. as shown in Fig. 3. For installations in Canada, provide clearances as required by CSA B149.1 or 149.2.

WARNING

All vent outlets of the termination assemblies must be of the same height to avoid flue gas recirculation and the possibility of severe personal injury, death or substantial property damage.

NOTICE

The combustion air inlet of the PRESTIGE is defined as being part of a direct vent system. It is not considered as a forced air intake. The required clearance of an adjacent boiler vent to a forced air inlet does not apply in a multiple installation of PRESTIGE boilers.

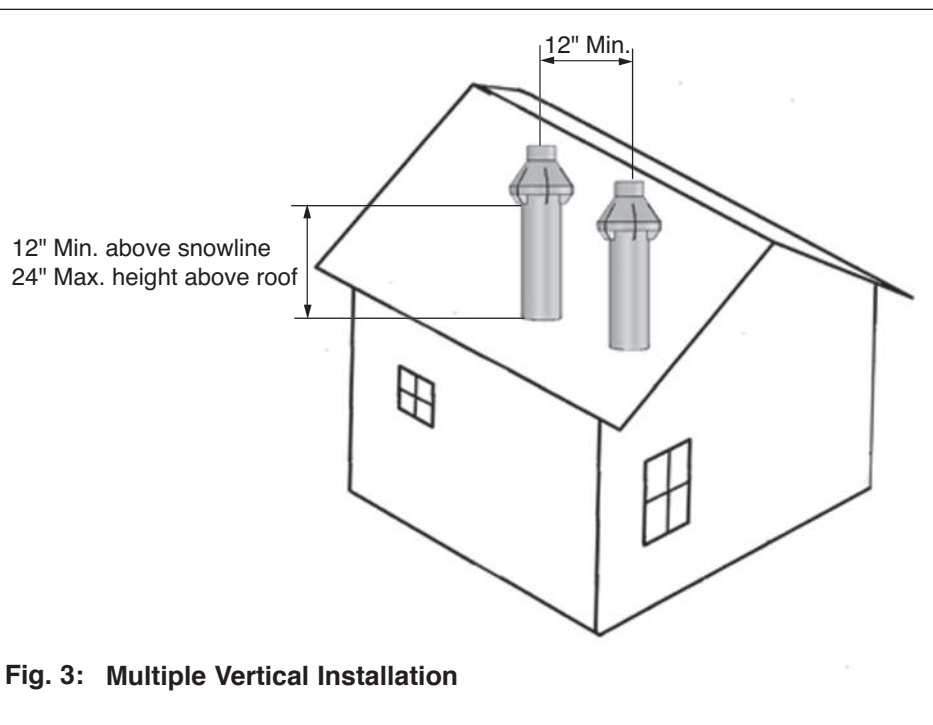


Fig. 3: Multiple Vertical Installation

Horizontal - Sidewall

NOTICE

Installation of the vent and combustion air piping must comply with local codes and requirements and with the National Fuel Gas Code NFPA 54, ANSI Z223.1 for installations in the U.S. or CSA B149.1 or B149.2 for installations in Canada.

WARNING

A gas vent extending through a sidewall should not terminate near an adjacent wall or below any building extensions such as roof eaves, balconies or decks. Failure to comply with the required clearances could result in severe personal injury, death or substantial property damage.

Determine Termination Location

Locate the vent and combustion air termination using the following guidelines:

1. The total length of the vent or combustion air piping must not exceed the limits given in Table 1 on page 13.
2. The concentric vent/air termination assembly must be installed 12 inches above grade or projected snowline as shown in Fig. 4

3. The vent and combustion air piping connected to the concentric vent/air termination assembly must comply with the instructions listed in this supplement.

WARNING

Do not extend the vent pipe outside the sidewall beyond the given dimensions shown in Fig. 4. Extended exposure of the vent pipe could cause condensate to freeze and block the vent pipe.

4. The following should be considered when determining the location of the vent and combustion air termination:
 - a. Locate the vent termination where flue vapors will not damage surrounding shrubs, plants or air conditioning equipment or be objectionable to the homeowner.
 - b. The flue products will form a noticeable plume as they condense in colder air. Avoid terminating the vent in areas where the plume could obstruct window views.
 - c. Prevailing winds could cause freezing of flue condensation and a buildup of water / ice on surrounding plants, building surfaces or combustion air inlet.

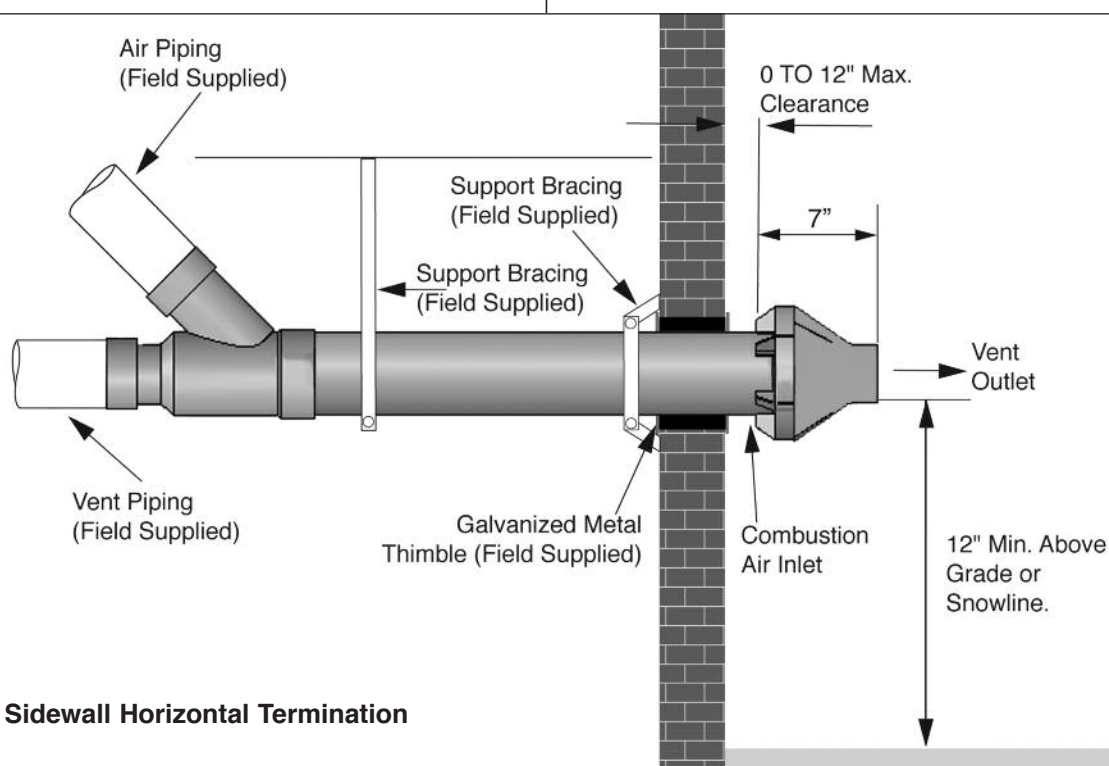


Fig. 4: Sidewall Horizontal Termination

- d. Avoid locations where prevailing winds could affect the performance of the boiler or cause recirculation of the flue gases, such as inside corners of buildings or near adjacent buildings or vertical surfaces, window wells, stairwells, alcoves, courtyards, or other recessed areas.
 - e. Do not terminate the vent above any doors or windows: flue condensate could freeze causing ice formations.
 - f. Locate or guard the vent termination to prevent possible condensate damage to exterior finishes.
 - g. Avoid locations of possible accidental contact of flue vapors with persons or pets.
5. The vent termination must also maintain the following clearances; as shown in Fig.6, page 10.
- a. At least 3 feet from adjacent walls
 - b. No closer than 3 feet below roof overhangs
 - c. At least 7 feet above any public walkways
 - d. At least 3 feet above any forced air intake within 10 feet (does not apply to the combustion air inlet of a direct vent appliance).
 - e. No closer than 12 inches below or horizontally from any door or window or gravity air inlet.
 - f. Must be at least 4 feet from any electric meters, gas meters-regulators, relief valves or other equipment. Never terminate the vent above or below any of these items within 4 feet horizontally.
 - g. A maximum of 12 inches beyond the exterior wall.
 - h. A minimum 12 inches horizontal spacing from other fan assisted appliance vents (see page 6)
6. Locate the vent termination and combustion air inlet in a manner to protect from damage by foreign objects, such as stones or balls or subject to buildup of leaves or sediment.
7. Do not connect any other appliance to the vent pipe or multiple boilers to a common vent pipe.

Vent Installation - Sidewall

1. Sidewall Penetration
- Cut a single 5 inch diameter hole through the building structure.
2. The installer must comply with all local codes for isolating the vent pipe as it passes through floors and walls.
3. The installer should seal all exterior openings with an exterior silicon caulk.

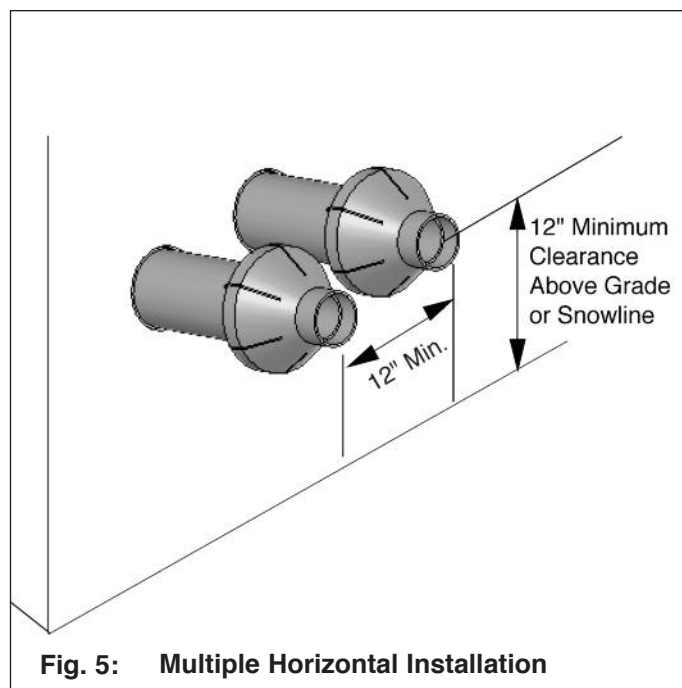
Termination Assembly Support

1. If assembly needs to be extended to meet wall thickness requirements the two pipes supplied in the kit may be replaced using the same diameter, solid, single PVC pipe.

WARNING

When extending the assembly length, **DO NOT** exceed the length of pipe supplied in the kit by more than 24 inches. **DO NOT** use couplings to extend the length of the termination assembly. Failure to comply could result in severe personal injury, death or substantial property damage.

2. Support the termination assembly at the wall penetration as shown in Fig. 4.
 - Use support bracing to support the termination assembly and to prevent horizontal slippage or vertical movement.
 - Any clamps or bracing used to support the termination assembly must be such that it does not penetrate the assembly piping or cause stress and potential cracking of the assembly piping.



Multiple Installation - Sidewall

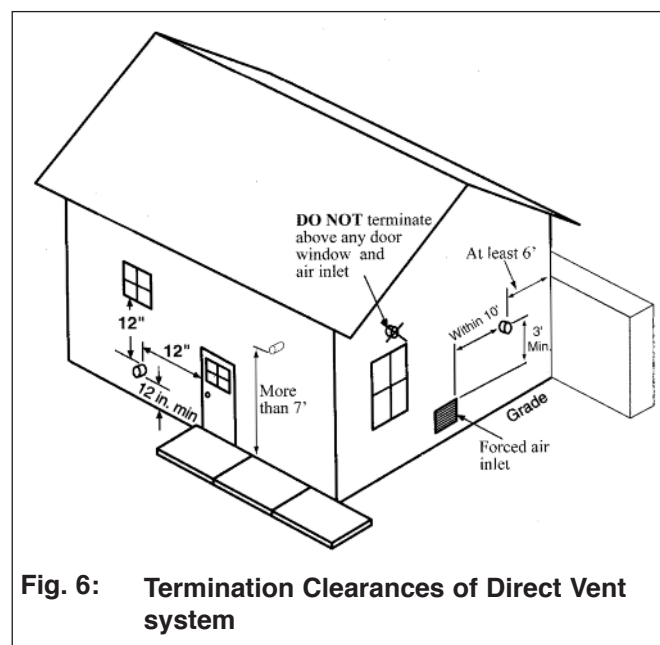
1. On installations of multiple PRESTIGE boilers, install the concentric vent/air termination assemblies as described in this manual.
2. The wall penetration of the termination assemblies should be such that the vent outlet is a, minimum 12 inches between centerlines from the adjacent termination assembly of the other boiler for installations in the U.S. as shown in Fig. 5. For installations in Canada, provide clearances as required by CSA B149.1 or 149.2.

NOTICE

The combustion air inlet of the PRESTIGE is defined as being part of a direct vent system. It is not considered as a forced air intake. The required clearance of an adjacent boiler vent to a forced air inlet does not apply in a multiple installation of PRESTIGE boilers.

NOTICE

Reference Fig. 4 page 8 for the configuration dimensions for the vent and combustion air inlet terminations for each unit installed in a multiple installation. Assembling Termination Components



1. Reference Fig.1 page 3 for component part description and dimensional information.
2. Install factory supplied bird screen between end of vent pipe and vent cap.
3. Begin partial assembly of the termination components in the sequence as shown in Fig. 7 thru Fig. 7B.
 - DO NOT install the vent cap with the bird screen until the assembly has been inserted through the roof or sidewall penetration and all support bracing has been installed.
4. Use the following procedures in preparing and cementing the termination components together:
 - a. Debur inside and outside of the pipe ends.
 - b. To ensure an even distribution of PVC cement when joining the components, chamfer the outside edge of the pipe ends.
 - c. Clean all pipes ends and fittings, dry each component thoroughly.
 - d. Prior to cementing the components, dry assemble the entire vent piping and combustion air piping including the termination assembly.
5. For each pipe and fitting joint:
 - a. Handle the pipes and fittings with care not to contaminate the clean joint surfaces.
 - b. Apply PVC primer in a liberal matter to both joint surfaces (pipe end and fitting socket).
 - c. With the primer still wet, apply a light coat of PVC cement to both surfaces (pipe end and fitting socket) in a uniform matter.
 - d. A second coat of cement should be applied to both surfaces. Avoid using excessive of amount of cement on the surface of the sockets to prevent cement buildup on the inside.
 - e. With the cement still wet, the pipe end should be inserted into the socket of the fitting and twisted 1/4 of a full turn. Ensure the pipe end is inserted fully into the socket of the fitting.
 - f. Any excess cement should be wiped clean from the joint. Inspect the joint to ensure a smooth bead of cement is noticed around the entire joint seam.
6. Secure vent cap to vent pipe with factory supplied screws.

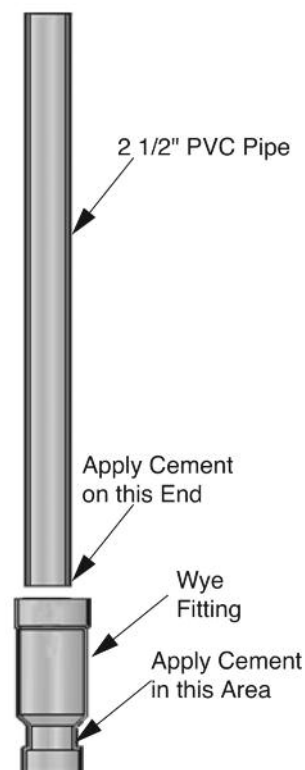


Fig. 7: Assembly of Vent Components - Step 1

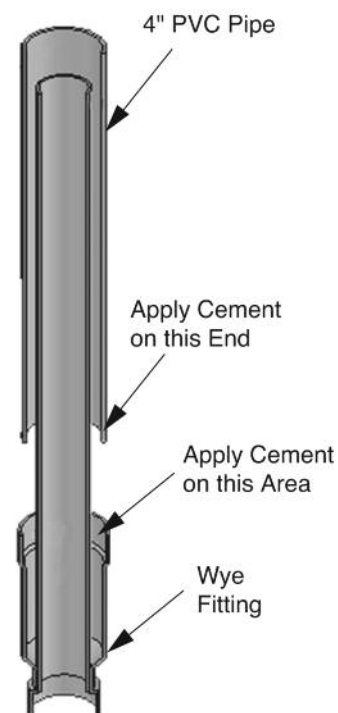
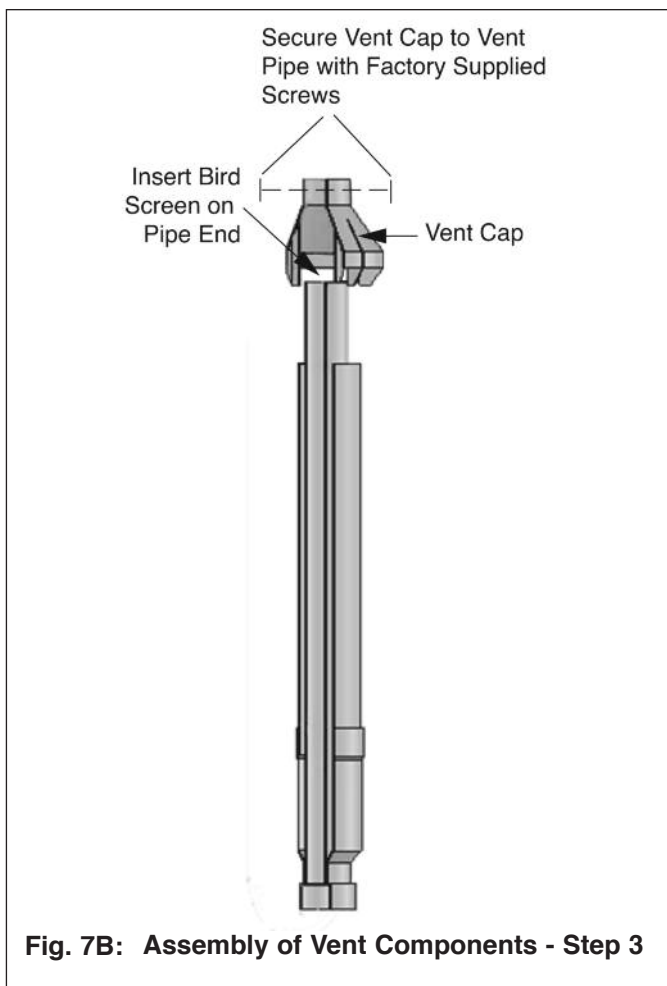


Fig. 7A: Assembly of Vent Components - Step 2



3" to 4" Vent Transition

NOTICE

When venting with 4" diameter pipe, the vent system must transition from the 3" outlet of the boiler to the 4" vent system and then back to 3" at the concentric vent termination.

- The transition from 3" vent system to the 4" vent system must occur within 5 feet of boiler vent outlet.
- The transition from 3" vent to 4" vent from the boiler vent must occur in a vertical run only.

WARNING

Transition of 3" vent to 4" vent in a horizontal run may result in pooling of the condensate resulting in potential vent blockage. Failure to comply can result in death, serious injury or substantial injury.

- The 4" vent system may transition back to a 3" vent system within 5 feet of the concentric vent termination. This transition may occur in a vertical or horizontal run.
- The total equivalent length of the 3" vent and 4" vent combined shall not exceed the length listed for a 4" vent system Table 1, page 13.

Insert Piping to PRESTIGE Adapters

1. The installer must clean, deburr and chamfer the outside of the pipe ends.

WARNING

The pipe ends must be smooth, free of sharp edges chamfer and wiped clean to prevent possible damage to the sealing gasket in the vent and combustion air adapters. Failure to comply with this requirement could result in leakage of flue products causing possible severe personal injury or death.

2. Prior to inserting the piping, inspect the vent and combustion air adapters to verify there are no obstructions or packing material inside the adapter and the gaskets are in place.
3. Ensure the adapter banding strap is loosen prior to inserting the piping.
4. Apply a small amount of silicon grease or water to the insertion end of the pipe to ease insertion into the adapter.
5. Insert the pipe into the adapter until it is fully seated.

WARNING

Do not apply excessive force or twist or bend the adapter or vent / combustion air piping when inserting. The adapter gasket seal could be damaged resulting in possible flue gas leakage.

6. Secure the vent or combustion air pipe by tightening the adapter banding strap. Do not over tighten the strap as the seal is made by the gasket inside the adapter.

Vent and Combustion Air Piping Installation Guidelines

1. The installer should install the vent / combustion air piping working from the boiler to the piping termination. The piping should not exceed the lengths given in Table 1 page 13 for either the vent or combustion air.

2. The installer should cut the pipe to the required lengths and deburr the inside and outside of both ends.
3. The installer should chamfer the outside of the pipe ends to allow even distribution of cement when joining.
4. The installer should dry assemble the vent and combustion air piping prior to assembling any joints to ensure proper fit.
5. The pipe ends and fittings should be cleaned and dried thoroughly prior to assembly of the joint.
6. When assembling a joint the installer should:
 - a. Handle fitting and pipes carefully to prevent contamination of surfaces
 - b. Apply a liberal amount of primer to both surfaces - the end of the pipe and the insert socket of the fitting.
 - c. Apply a light uniform coating of approved cement to both surfaces - the end of the pipe and the insert socket of the fitting, while the primer is still wet.
 - d. A second coat of approved cement should be applied to the mating surfaces. The installer should avoid, however, using too much cement on the socket of the fitting to prevent a buildup of cement on the inside.
 - e. With the cement still wet, the pipe end should be inserted into the socket of the fitting and twisted 1/4 of a full turn. Ensure the pipe end is inserted fully into the socket of the fitting.
 - f. Any excess cement should be wiped clean from the joint. Inspect the joint to ensure a smooth bead of cement is noticed around the entire joint seam.
7. The installer should use perforated metal strap hangers or equivalent pipe hangers to support the piping. The hangers should be spaced at least every 5 feet of horizontal or vertical run of piping. A support should be placed near the boiler and where the vent turns vertical.
8. The vent and combustion air piping should be sloped continuously from the termination back to the boiler with at least 1/4 inch drop per foot of run. Do not allow any sags in the run of piping.
9. Maintain a minimum clearance of 1/4 inch between the vent pipe and all materials, combustible or non-combustible. The installer must seal any wall, floor or ceiling penetrations as per local code requirements.
10. The vent piping does not require any insulation. The installer may opt to insulate the vent piping in those portions of the piping that pass through unheated spaces such as crawl spaces or attics. In these areas the installer may apply fiberglass insulation to the outside of the vent pipe.

WARNING

Do not pitch the vent or combustion air piping away from the boiler. Potential condensate damage to the building exterior or to the surrounding landscape and/or potential risks of icing and blockage of the vent piping could occur.

BEST PRACTICE

It is recommended that the installer uses the same number of elbows and length of piping on the venting system and the combustion air inlet.

NOTICE

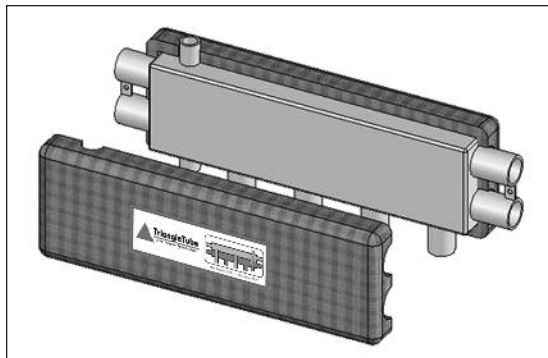
This vent termination kit is not applicable for use on PRESTIGE 399 venting Systems.

TABLE 1

PRESTIGE Model	Maximum Allowable Vent or Combustion Air Piping Length				
	3 Inch Piping		OR	4 Inch Piping	
	Feet	Elbows		Feet	Elbows
110	60*	0	OR	100*	0
175	60*	0		100*	0
250	30*	0		60*	0
399	Not Applicable				

Additional quality water heating equipment available from Triangle Tube/Phase III

PRIMARY / SECONDARY MANIFOLD



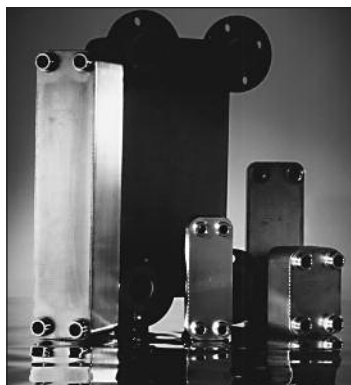
- Combination hydronic separator, pressure equalizer and distribution manifold
- Ensures a proper primary/secondary piping arrangement for up to three zones
- Easy to install and compact

SMART INDIRECT FIRED WATER HEATERS



- Exclusive tank-in-tank design
- Stainless steel construction
- Available in 8 sizes and 2 models
- Limited LIFETIME residential warranty
- 15 year limited commercial warranty
- Self cleaning/self descaling design

TTP BRAZED PLATE HEAT EXCHANGERS



- For domestic water, snow melting, radiant floor, refrigeration
- Plates made of stainless steel, with a 99.9 % copper and brazed, ensuring a high resistance to corrosion
- Self cleaning and self descaling
- Computerized sizing available from Triangle Tube/Phase III
- Available in capacities from 25,000 BTU/hr to 5,000,000 BTU/hr



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