



ALWAYS HOT

Installation Guide

3" PVC Concentric Vent Termination

Model: VK3-H-PVC



WARNING

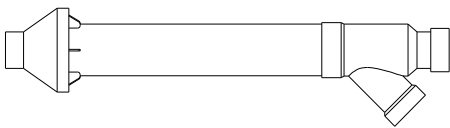


WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

Installation must conform with local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54- latest edition and/or CSA B149.1, Natural Gas and Propane Installation Code

Included Parts

The following parts are supplied in the concentric vent kit. Check for any missing items before starting the installation.

Parts	Shape	Quantity
PVC Concentric Vent Termination		1
Bird screen		1
Installation Manual		1

Introduction

This manual covers the installation of the Noritz 3" PVC Concentric Vent Termination for the NRC111-DV and NCC199-DV model tankless water heaters. The model type can be verified from the rating plate located on the front cover of the water heater. Read these instructions completely before attempting installation.

Parts/Tools Required:

- 3" or 4" PVC Pipe and Fittings – Schedule 40 PVC/CPVC
- PVC Primer
- PVC Solvent Cement
- Stainless Steel Screw / Screwdriver (optional)

NOTE: All pipe, fittings, primer, and solvent cement MUST conform to ANSI and ASTM standards. Refer to the table below for approved piping materials.

Item	Pipe & Fitting Material	United States	Canada
Exhaust Vent/Air Intake	Schedule 40 PVC	ANSI/ASTM D1785	ULC S636 Certified Materials Only
	PVC-DWV	ANSI/ASTM D2665	
	Schedule 40 CPVC	ANSI/ASTM F441	
Pipe Cement/Primer	PVC	ANSI/ASTM D2564	
	CPVC	ANSI/ASTM F493	
Note: Do Not Use Cellular Foam Core Pipe			

TABLE 1: Pipe and Fitting Specifications



Solvent cements for cement pipe are flammable liquids and should be kept away from all sources of ignition. Do not use excessive amounts of solvent cement when making joints. Good ventilation should be maintained to reduce fire hazard and to minimize breathing of solvent vapors. Avoid contact of cement with skin and eyes.

Special Venting Requirements for Installations in Canada

Special Venting Requirements for Installations in Canada

Installation in Canada must conform to the requirements of CSA B149 code. Vent systems must be composed of pipe, fittings, cements, and primers listed to ULC S636. This concentric vent termination kit has been certified to ULC S636 for use with those IPEX PVC vent components which have been certified to this standard. In Canada, the primer and cement must be of the same manufacturer as the vent system; do not mix primers and cements from one manufacturer with a vent system from a different manufacturer. Follow the manufacturer's instructions in the use of primer and cement and never use primer or cement beyond its expiration date.

The safe operation, as defined by ULC S636, of the vent system and this termination kit is based on following these installation instructions, the vent system manufacturer's installation instructions, and proper use of primer and cement. Acceptability under Canadian standard CSA B149 is dependent upon full compliance with all installation instructions. Under this standard, it is recommended that the vent system be checked once a year by qualified service personnel.

The authority having jurisdiction (gas inspection authority, municipal building department, fire department, etc.) should be consulted before installation to determine the need to obtain a permit.

Consignes spéciales pour l'installation de ventilation au Canada

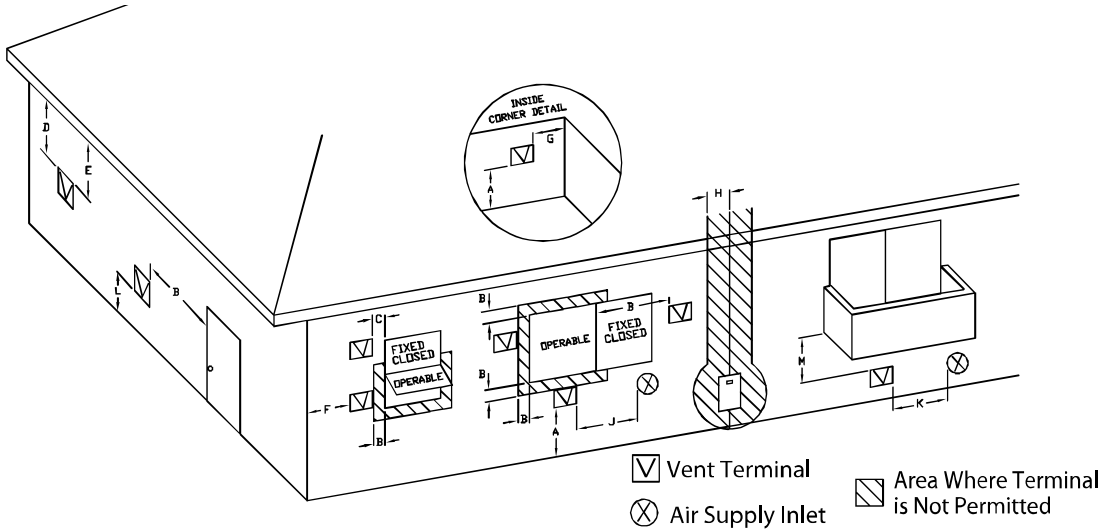
L'installation faite au Canada doit se conformer aux exigences du code CSA B149. Ce système de ventilation **doit** se composer de tuyaux, raccords, ciments et apprêts conformes au ULC S636. Ce système de ventilation concentrique a été certifié ULC S636 pour être utilisé avec les composantes IPEX PVC qui sont certifiées. Au Canada l'apprêt et le ciment **doivent** être du même fabricant que le système de ventilation; ne pas mélanger l'apprêt et le ciment d'un fabricant avec le système de ventilation d'un autre fabricant. Bien suivre les indications du fabricant lors de l'utilisation de l'apprêt et du ciment et ne pas utiliser ceux-ci si la date d'expiration est atteinte.

Le bon fonctionnement de ce système de ventilation est conditionnel à l'installation tel que défini par le ULC S636 c'est à dire: bien suivre les consignes ci-haut mentionnées ainsi que les instructions du fabricant et aussi une bonne utilisation de l'apprêt et du ciment. L'acceptation du standard Canadien CSA B149 est directement relié à l'installation conforme aux instructions ci-haut mentionnées. Le standard Canadien recommande l'inspection par un personnel qualifié et ce, une fois par année.

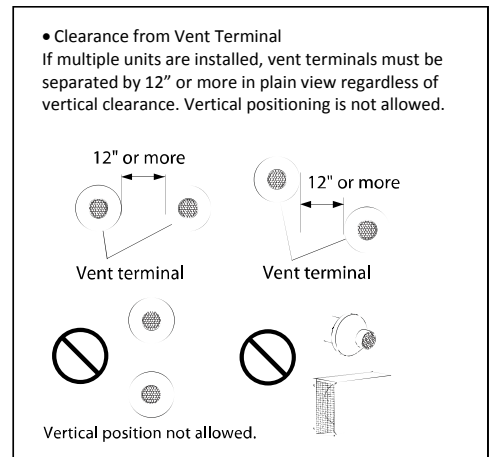
Les autorités ayant juridiction (inspecteurs de gaz, inspecteurs en bâtiments, département des incendies, etc) devraient être consultées avant l'installation afin de déterminer si un permis est requis.

Vent Termination Clearance Requirements

* All clearance requirements are in accordance with ANSI Z21.10.3 and the National Fuel Gas Code, ANSI Z223.1 and in Canada, in accordance with NSCPNGPIC.



	Clearance	
A=	Above grade, veranda, porch, deck, or balcony	12" (12")
B=	Window or door that may be opened	12" (36")
C=	Permanently closed window	*
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet from the center of the terminal	*
E=	Unventilated soffit	*
F=	Outside corner	*
G=	Inside corner	*
H=	Each side of center line extended above meter/regulator assembly	3' within a height 15' above meter/regulator assembly
I=	Service regulator vent outlet	3'
J=	Nonmechanical air supply inlet or combustion air inlet to any other appliance	12" (36")
K=	Mechanical air supply inlet	3' above if within 10' (6')
L=	Above paved sidewalk or paved driveway located on public property	(7' ***)
M=	Under veranda, porch, deck, or balcony	* (12"- Canada Only****)



()= indicates clearances required in Canada

*Maintain clearances in accordance with local installation codes and the requirements of the gas supplier.

***A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

****Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

PVC/CPVC Installation

Cementing of joints should be done according to the specifications outlined in ASTM D 2855.

- 1) Use only solid PVC or CPVC Schedule 40 pipe. Cellular foam core piping is not allowed.
- 2) In Canada, plastic vent systems must be certified to ULC S636. The components of the certified vent system must not be interchanged with other vent systems or unlisted pipe/fittings.
- 3) In Canada, specified primers and glues of the ULC S636 certified vent system must be from a single system manufacturer and not intermixed with other manufacturer's vent system parts.
- 4) PVC or CPVC pipe has been approved for use on this appliance with zero clearance to combustibles.
- 5) The pipe shall be installed so that the first 3' of pipe from the appliance flue outlet is readily accessible for visual inspection.
- 6) When preparing and assembling the pipe, follow instructions as provided by the pipe manufacturer. In general, the following practices must be observed:
 - Squarely cut pieces of pipe
 - Remove all burrs and debris from joints and fittings.
 - All joints must be properly cleaned, primed, and cemented. Use only cement and primer approved for use with pipe material as outlined in Table 1.



WARNING

CARBON MONOXIDE POISONING

Failure to properly seal the vent system could cause flue products to enter the living space.

- 7) All piping must be fully supported. Use pipe hangers at a minimum of 3 foot intervals. Do not use the water heater to support the vent piping.
- 8) For the NCC199-DV, a Noritz PVC/CPVC adapter must be used on both the intake and exhaust ports. These adapters are not supplied with the water heater and must be purchased separately. For 4" pipe, use **VP4-ADAPT-PVC** and for 3" pipe, use **VP4x3-ADAPT-PVC**. It is not necessary to use cement or silicone on this adapter as it is self-sealing.
- 9) Included bird screen must be installed on the concentric vent termination to prevent debris or animals from entering the piping.

Joint Cementing Procedure

- 10) Refer to the PVC/CPVC guidelines on the previous page for preparing pipe and fittings for installation.
- 11) After pipe is measured and cut, remove burrs from the end of pipe and then chamfer. If end is not chamfered, rough edges of the pipe may remove applied cement from fitting socket and result in a leaking joint.
- 12) Clean and dry surfaces to be joined.
- 13) Test fit joint and mark depth of fitting on outside of pipe to measure amount of primer and cement needed.
- 14) Apply liberal coat of PVC primer evenly around the inside of the socket surface of fitting and the depth of the fitting socket on the end of the pipe being inserted.
- 15) Promptly apply PVC solvent cement to end of pipe and inside socket surface of fitting. DO NOT allow primer to dry before applying cement. Apply lightly and evenly around the inner portion of the fitting socket (see Figure 1). Apply second coat to end of pipe.

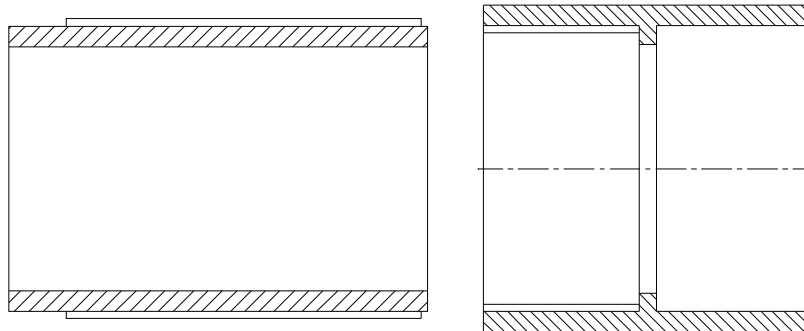


FIGURE 1: Proper Application of Cement

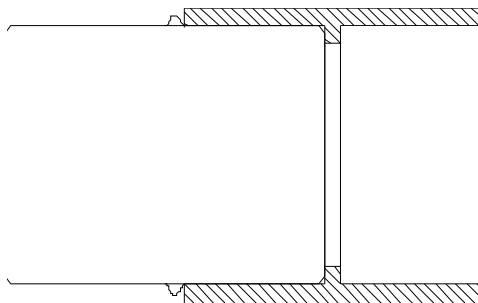


FIGURE 2: Proper Joint with Bead Formed

- 16) Immediately after applying final coat of cement to pipe and while surfaces are still wet with cement, insert the end of pipe into socket. Turn pipe 1/4 turn to distribute cement evenly at the joint before it is fully seated inside the fitting. Do NOT use a hammer to insert pipe into fittings.
- 17) A properly made joint will show a bead around its perimeter. See Figure 2 for illustration of completed joint. Any gaps may indicate insufficient use of solvent cement. Once pipe has been completely inserted into fitting, remove excess cement, including the bead formed by the joint.
- 18) Handle joints carefully until they are completely dry and set.

Installation Procedure

Choosing Installation Site:

- 1) Determine the best area for the vent termination to exit the wall.

NOTE: The concentric vent termination length may be shortened, but not lengthened. Couplings may NOT be used to increase length.



WARNING

CARBON MONOXIDE POISONING

Follow all vent system requirements in accordance with relevant local or state regulation, or, in absence of local or state code, in the U.S. to the National Fuel Gas Code ANSI Z233.1/NFPA 54 – latest edition, and in Canada, in accordance with NSCGPI.

- 2) Maintain the proper clearances to combustibles (see “Vent Clearance Requirements”).
- 3) Install the vent termination so that it is easily accessible for maintenance from both the indoors and outdoors.
- 4) The vent termination should direct all exhaust to the outdoors. The installation should also allow intake air to be taken from the outdoors as well by leaving a minimum of 1” between the termination and the outside wall (see Figure 6).

Preparing Installation:

- 1) Cut one hole approximately 5 inches (127 mm) in diameter in the outside wall.
- 2) Disassemble concentric vent termination into individual components as labeled in Figure 3 below.
- 3) Use proper joint cementing procedure as indicated in the manual to join concentric fitting and 4 inch (102 mm) diameter pipe provided in the kit.
- 4) Place the birdscreen into the opening on the end of the rain cap. Use cement or stainless steel screws (see NOTE on next page) to attach the 2-1/2 inch (64 mm) diameter pipe provided to the rain cap with installed birdscreen. See Figure 3 for proper setup and Figure 4 for finished pre-assembly.

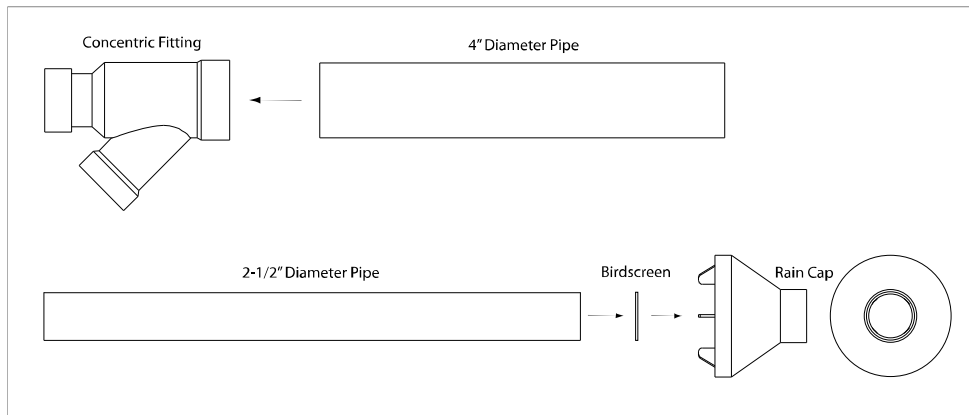


FIGURE 3: Concentric Vent Termination – Individual Components

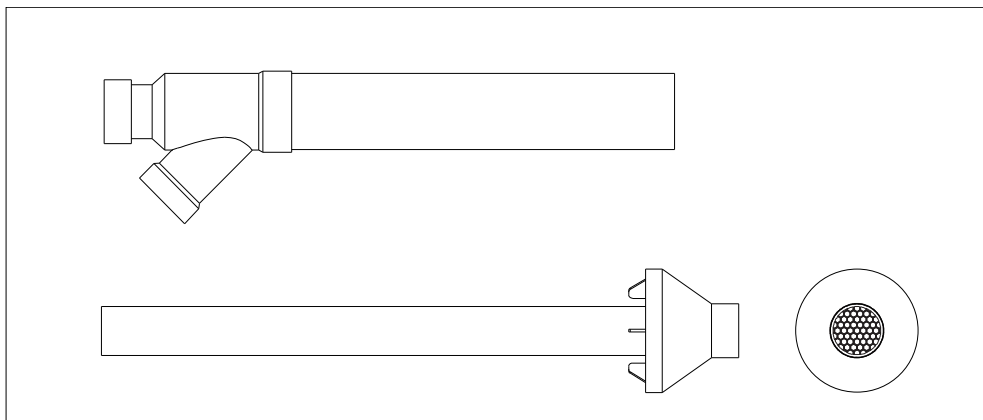


FIGURE 4: Completed Pre-Assembly

NOTE: The 2-1/2 inch (64 mm) diameter pipe may be secured to the rain cap with a stainless steel screw rather than cement to provide access for future maintenance of the vent. See Figure 5 for reference.

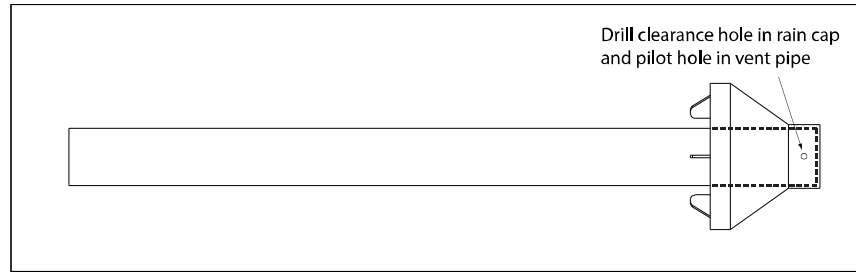


FIGURE 5: Using Stainless Steel Screw for Rain Cap Installation



WARNING

- A clearance hole must be drilled in the rain cap and a pilot hole must be drilled in the 2-1/2 inch (64 mm) vent pipe if the two are going to be joined using a screw. See Figure 5. If these holes are not drilled, the PVC components may crack when the screw is inserted. Failure to follow this procedure may cause recirculation or combustion products which could result in personal injury or death.
- **DO NOT** operate the water heater unless the rain cap has been installed. Products of combustion may be recirculated. Failure to follow this warning could result in product damage or improper operation, personal injury or death.

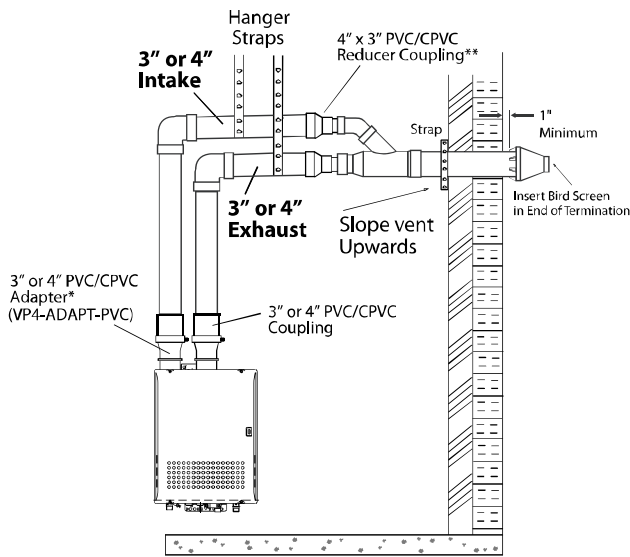
- 5) Run the 4-inch (102 mm) pipe through the wall opening. Use a sheet metal strap to secure the termination to the structure in order to minimize any movement as shown in Figure 6 on the following page. The weight of the termination must be supported by the clamp and sheet metal strap.



IMPORTANT

- Concentric vent termination must extend a minimum of 12 inches (305 mm) above the grade or above the height of average snow accumulation.
- The concentric termination may be shortened, but not lengthened from its original factory supplied length. **DO NOT** use couplings to extend the length of pipes. Airflow will be restricted and unit operation may be interrupted by the pressure change.

- 6) Apply solvent cement to end of 2-1/2 inch (64 mm) diameter pipe and insert pipe (with rain cap attached) into 4-inch (102 mm) pipe. Make sure that 2-1/2 inch (64 mm) pipe is properly seated in concentric fitting. Refer to “Joint Cementing Procedure” section on page 5 for information on how to properly cement pipe to fittings.
- 7) For the NCC199-DV, attach the proper PVC/CPVC Adapter to both intake and exhaust ports on the water heater for connection of PVC piping to the unit. Insert coupling into each adapter to start the vent run.
NOTE: Noritz PVC/CPVC Adapter is not required for the NRC111-DV.
- 8) Connect intake and exhaust vent pipe to the termination assembly. When using 4” pipe, it will be necessary to use 4” x 3” reducing couplings and a short section of 3” pipe to connect to the termination. Use no more than a 6” section of pipe to make the connection between the reducing couplings and the termination (see Figure 6 below). When using 3” pipe, it will be necessary to use 4” x 3” reducing couplings to connect the vent pipe to the water heater flue (NRC111-DV only).
- 9) Provide support for the vent pipe by use of hangers or ties. Make sure to slope the horizontal vent 1/4” upwards for every 12” of vent length and install a condensation drain if necessary.
- 10) Seal wall opening with proper materials in order to prevent flue products from entering the home.
- 11) Continue with installation and initial start-up procedures by following the instructions provided with the water heater.



* Not required for NRC111-DV
 ** For use with 4” pipe only

No. of Elbows	3” PVC/CPVC***	4” PVC/CPVC***
3	10'	30'
2	13'	36'
1	16'	42'

Maximum Vent Lengths for 3” and 4” PVC Pipe

*** Not including the concentric termination

FIGURE 6: Complete Installation of Concentric Vent Termination

Notes:

- The concentric termination may be shortened but not lengthened from its original factory supplied length.
- There must be a minimum of 1” clearance between the outside wall and the air intake section of the termination as illustrated on the left.
- Install a securing strap to prevent movement of the termination.
- Terminate at least 12” above grade or above snow line.
- Terminate at least 7’ above a public walkway, 6’ from the combustion air intake of any appliance, and 3’ from any other building opening, gas utility meter, service regulator etc.
- Terminate at least 3’ above any forced air inlet within 10’, 1’ below, 1’ horizontally from or 1’ above any door, window, or gravity air inlet into any building per National Fuel Gas Code ANSI Z223.1/NFPA 54.
- Slope the horizontal vent 1/4” upwards for every 12”.
- Use a condensation drain if necessary.
- In the Commonwealth of Massachusetts, a carbon monoxide detector is required for all side wall horizontally vented gas fuel equipment.