

Installation Guide

2" & 3" PVC Concentric Termination

Model: PVC-2CT & PVC-3CT



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, explosion or carbon monoxide poisoning 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 Termination		1
Bird Screen		1
Installation Manual		1

Rev. 04/17

Introduction

This manual covers the installation of the Noritz 2" & 3" PVC Concentric Vent Termination Model name PVC-2CT & PVC-3CT for all Noritz condensing tankless water heaters that utilities schedule 40 PVC for venting. Read these instructions completely before attempting installation.

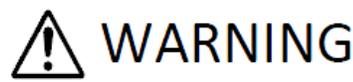
Parts/Tools Required:

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

NOTE: All pipe, fittings, primer, and solvent cement MUST conform to ANSI and ASTM standards. Refer to table 1 below for approved piping materials.

Item	Pipe & Fitting Material	United States	Canada
Exhaust Vent/Air Intake	Schedule 40 PVC	ANSI/ASTM D1785	CSA B137.3
	PVC-DWV	ANSI/ASTM D2665	CSA B181.2
	Schedule 40 CPVC	ANSI/ASTM F441	CSA B137.3
Pipe Cement/Primer	PVC	ANSI/ASTM D2564	ULC S636 Certified Materials Only
	CPVC	ANSI/ASTM F493	
Note: 1. Use of cellular core PVC (ASTM F891), cellular core CPVC, or Radel® (polyphenylsulfone) in non-metallic venting system is prohibited. 2. Canada exhaust vent with exception of fresh air intake must be certified ULC S636 materials only.			

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

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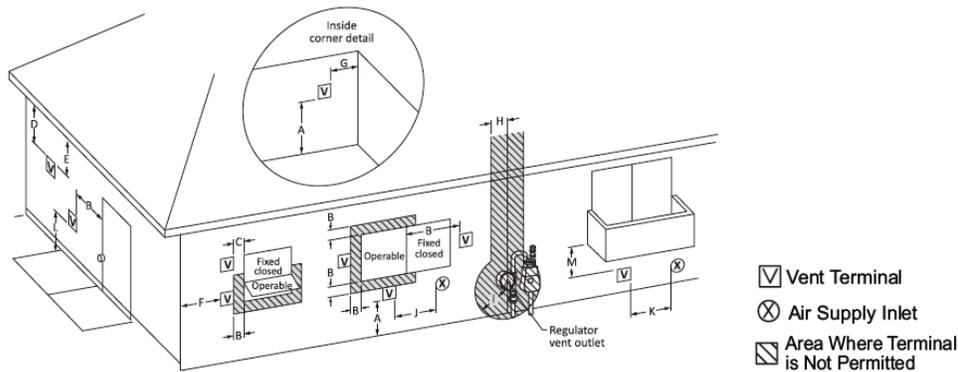
Installation in Canada must conform to the requirements of CSA B149.1 code. Vent systems must be composed of pipe, fittings, cements, and primers listed to ULC S636. This concentric termination kit has been certified to ULC S636 for use with those IPEX PVC vent components which have been certified to 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 B149.1 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.

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 Natural Gas and Propane Installation Code CSA B149.1.



Ref	Description	Canadian Direct Vent Installations ¹	US Direct Vent Installations ²
A=	Clearance above grade, veranda, porch, deck, or balcony	12 in (30 cm)	12 in (30 cm)
B=	Clearance to window or door that may be opened	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in (30 cm) for appliances > 50,000 Btuh (15 kW)
C=	Clearance to permanently closed window	*	*
D=	Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	*	*
E=	Clearance to unventilated soffit	*	*
F=	Clearance to outside corner	*	*
G=	Clearance to inside corner	*	*
H=	Clearance to each side of center line extended above meter/regulator assembly	*	*
I=	Clearance to service regulator vent outlet	Above a regulator within 3 ft (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 ft (4.5 m)	*
J=	Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 12 in (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30 kW), 36 in (91 cm) for appliances > 100,000 Btuh (30 kW)	6 in (15 cm) for appliances ≤ 10,000 Btuh (3kW), 9 in (23 cm) for appliances > 10,000 Btuh (3kW) and ≤ 50,000 Btuh (15 kW), 12 in (30 cm) for appliances > 50,000 Btuh (15 kW)
K=	Clearance to a mechanical air supply inlet	6 ft (1.83 m)	3 ft (91 cm) above if within 10 ft (3 m) horizontally
L=	Clearance above paved sidewalk or paved driveway located on public property	7 ft (2.13 m)†	*
M=	Clearance under veranda, porch, deck, or balcony	12 in (30 cm)‡	*

1 In accordance with the current CSA B149.1 Natural Gas and Propane Installation Code
 2 In accordance with the current ANSI Z223.1 / NFPA 54 National Fuel Gas Code
 † 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.
 * Clearance in accordance with local installation codes and the requirements of the gas supplier.
 Clearance to opposite wall is 24 inches (60 cm).

Concentric Termination Kit Assembly

1. Once the proper location has been determined, cut a hole in the roof or wall to accommodate the outer pipe. The size of the cut hole should be 1/2" larger than the "C" (outer pipe diameter). See Table 2 for reference.
2. Solvent cement the inner pipe (Exhaust) to the concentric Wye fitting. See Figure B for reference.
3. Solvent cement the outer pipe (Air Intake) to the concentric Wye fitting. See Figure B for reference.
4. Slide the assembly through the roof or wall penetration. (Install flashing if needed).
5. To permanently affix the rain cap, it should be solvent cemented to the inner pipe. For installations where removal of the cap may be required for service or cleaning the cap, it can be fastened mechanically (see instructions below). For either installation method, the outer pipe is only a friction fit with the cap.
6. Once the rain cap is installed, and the kit secured as outlined below, the kit can be connected to the venting system.

Mechanically Fastened Rain Cap

The Rain Cap must be installed with field supplied Stainless Steel bolt and lock nut, and in accordance with the instructions and diagram in Figure A.

1. Locate the drill location dimple (see Figure A 5) on the outside of the rain cap.
2. At location 5 in Figure A, drill through the cap and the inner pipe wall. Ensure that the path of the hole is perpendicular to the inner pipe NOT the outside of the cap. Drill a 3/16" hole.
3. Insert the field supplied screw and tighten the bolt, do not over tighten.

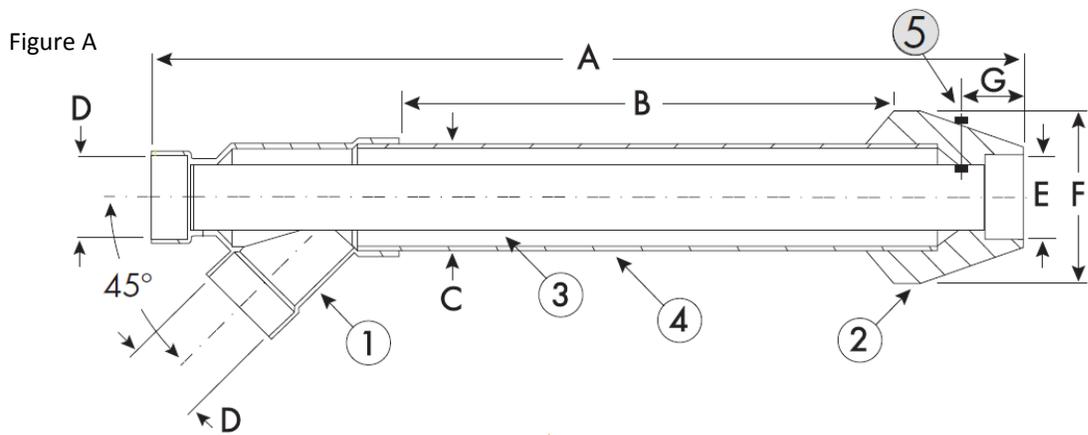


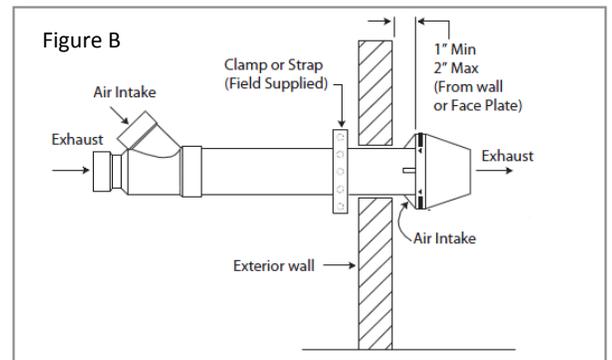
TABLE 2

Part #	Dimension (Inches)						
	A	B*	C†	Nominal Pipe Size		F	G
				D	E		
PVC-2CT	41.0	28	3.5	2	2	7.38	1.75
PVC-3CT	48.1	32	4.5	3	3	8.75	2.25
1 Wye - (Concentric)	B* Dimension be may be shortened to a minimum of 12". Inner pipe (item 3) must remain "F" inches longer than the outer pipe (item 4). Cut pipe ends square and solvent cement as outlined in the <i>IPEX Volume I, Vinyl Process Piping System Technical Manual</i> . C† Installation cutout should be at least 1/2" larger than dimension "C". Lengthening the units is not permitted.						
2 Rain Cap							
3 Exhaust Vent Pipe (Inner)							
4 Fresh Air Intake Pipe (Outer)							
5 Stainless Steel Screw & Nut							

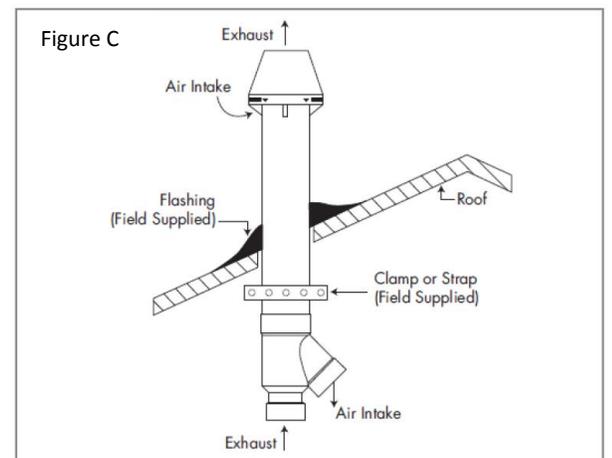
Installation / Procedure

1. Kits must be securely fastened to structure.
2. Straps are field supplied. Use straps, clamps or equivalent that will not score or damage the pipe. Expansion and contraction should be addressed between appliance and termination point.
3. All penetrations must be sealed according to local building codes. Caulking for side wall terminations and flashing for roof penetrations are typical. Use only PVC/CPVC compatible sealing material.
4. The weight of the concentric kits must be supported by the clamps/straps and not by the vent system it connects to.
5. Insulating exhaust piping in unconditioned space to prevent freezing may be required by code.
6. For multiple horizontal installations, keep Concentric Vent Kit gaps close (up to 4" apart) or over 24" apart. To prevent flue gas from recirculating, Noritz recommends installing multiple concentric kits as follows:
 2 concentric vent kits: either maintain a 24" minimum distance apart, or have the rain caps no more than 4" apart
 3 concentric vent kits: Option 1 - keep all 3 kits at least 24" apart. Option 2 - group 2 kits close together up to a maximum of 4" apart and the third kit over 24" apart.
 4 or more concentric vent kits: Option 1 - keep all concentric kits at least 24" apart. Option 2 – group the CVK's in pairs, having 2 kits close together to a maximum of 4" apart, keeping the next grouping of 2 kits over 24" away. As per Figure D.
 The dimensions shown in Fig. D, are distances between the edges of the rain caps.
7. The pipe length of the concentric vent kit can be shortened; providing that the cutting and cementing procedures adhere to the IPEX Flue Gas Venting Systems (FGV) guidelines.
8. Contact Noritz America at 866-766-7489 for additional information should additional pipe length need to be added to the termination..

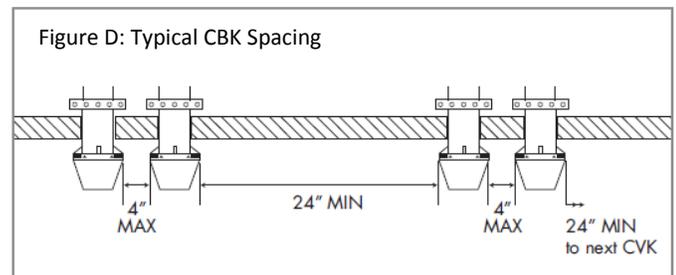
Wall Termination



Roof Termination



Sidewall Termination for Multiple Horizontal Concentric Vent



PVC Concentric Termination

- The concentric termination may be shortened, but not lengthened from its original factory supplied length.
- 2" (50mm) or 3" (75mm) PVC or CPVC pipe may be used with the concentric termination. Maintain the same vent pipe diameter from the water heater flue to the termination.
- Do not exceed the maximum vent lengths according to the unit model Installation Manual.
- There must be a 1" (25mm) to 2" (50mm) clearance between the outside wall and the air intake section of the termination as illustrated below.
- Install a securing strap to prevent movement of the termination.
- Terminate at least 12" (300mm) above grade or above snow line.
- For vertical installation, terminate at least 3' (0.9m) from the combustion air intake of any appliance and any other building opening.
- Slope the horizontal vent 1/4" upwards for every 12" (300mm) toward the termination.
- 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. Please refer to Technical Bulletin TB 010606 for full installation instructions

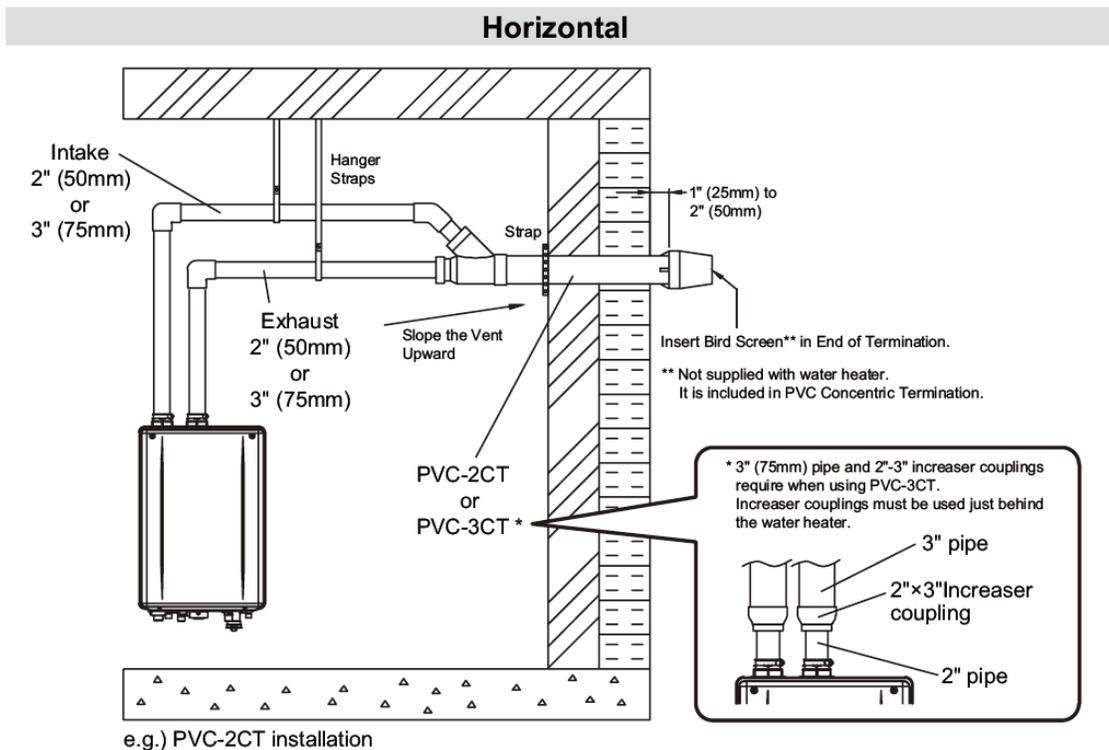


Figure E: Example of Horizontal Termination

Note: Figure E In creaser coupling are for the following models EZ111DV (GQ-C3259WX-FF US), EZ98DV (GQ-C2859WX-FF US), and NCC199CDV (GQ-C3259WZ-FF US). Other models might have 3" PVC flue collars, contact Noritz America at 866-766-7489 for additional questions.

Vertical

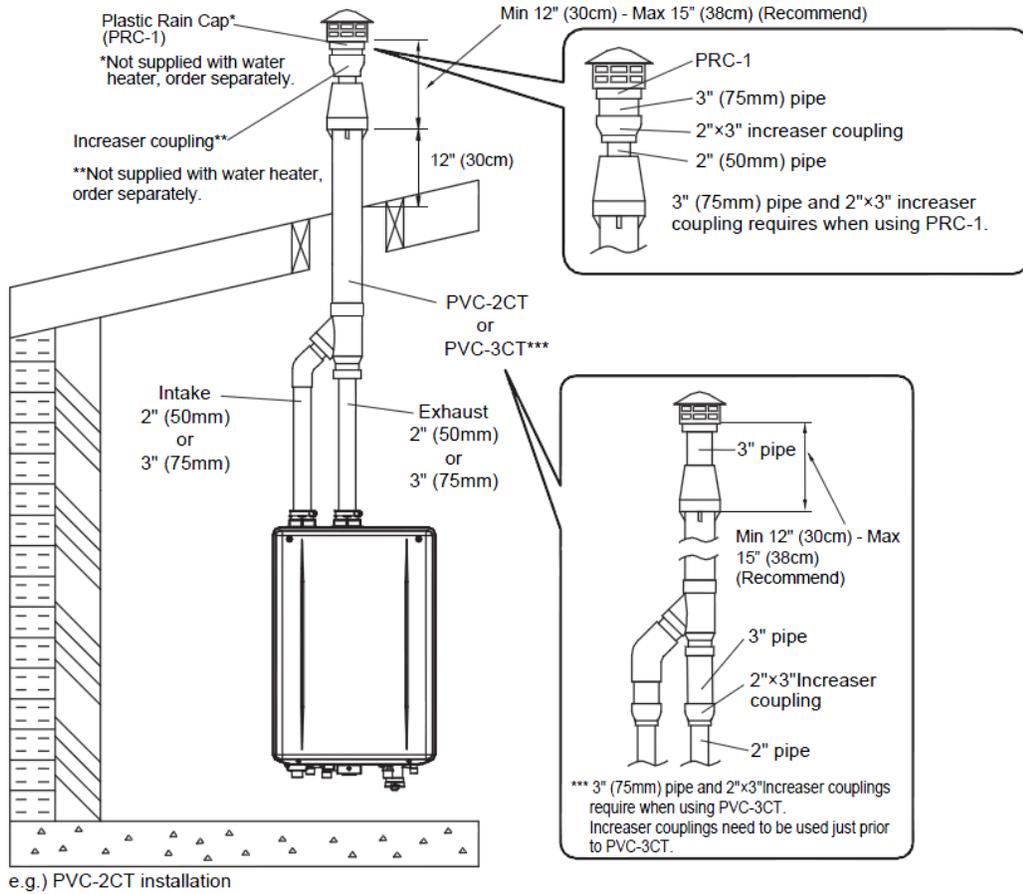


Figure F: Example of Vertical Termination

Note: Figure F Increaser coupling are for the following models EZ111DV (GQ-C3259WX-FF US), EZ98DV (GQ-C2859WX-FF US), and NCC19CDV (GQ-C3259WZ-FF US). Other models might have 3" PVC flue collars, contact Noritz America at 866-766-7489 for additional questions.