

# INSTALLATION INSTRUCTIONS

## CONCENTRIC VENT TERMINATION KITS


### NAHA001CV and NAHA002CV

**NOTE:** These instructions cover the installation of the concentric vent termination kits, NAHA001CV & NAHA002CV that are approved for use on International Comfort Products, Category IV, 90% AFUE ratings and above gas furnaces.

#### Safety Considerations

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury, or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing. Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use quenching cloth for brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes, the current editions of the National Fuel Gas Code (NFCG) NFPA 54/ANSI Z223.1, National Electrical Code (NEC) NFPA 70.

In Canada refer to the current editions of the National standards of Canada CAN/CSA-B149.1 and .2 Natural Gas and Propane Installation Codes, and Canadian Electrical Code CSA C22.1.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words; DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

#### 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. The special vent fittings and accessory concentric vent termination kits and accessory external drain trap have been certified to ULC S636 for use with those Royal Pipe and 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 – GVS-65 Primer (Purple) for Royal Pipe or IPEX System 636, PVC/CPVC Primer, Purple Violet for Flue Gas Venting and GVS-65 PVC Solvent Cement for Royal Pipe or IPEX System 636(1)™, PVC Cement for Flue Gas Venting, rated Class IIA, 65 deg C. must be used with this venting 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 is based on following these installation instructions, the vent system manufacturer's installation instructions, and proper use of primer and cement. All fire stop and roof flashing used with this system must be UL listed material. 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.

(1) System 636 is a trademark of IPEX Inc.

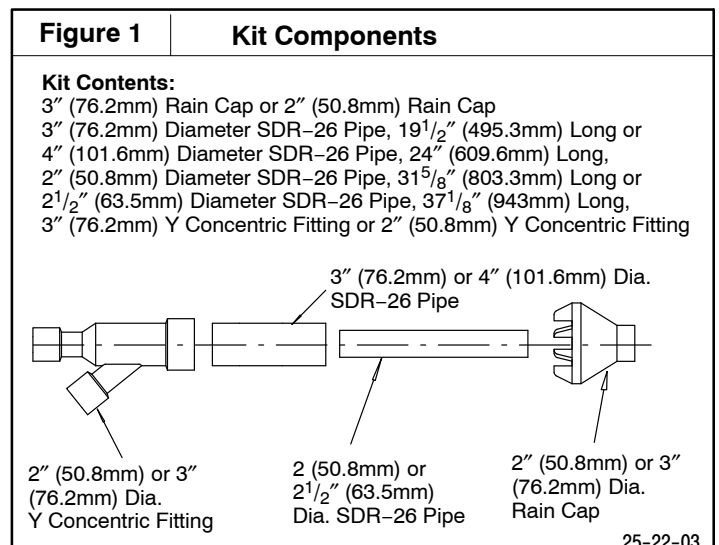
#### Consignes spéciales pour l'installation de ventilation au Canada

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. La tuyauterie de ventilation des gaz, ses accessoires, le terminal concentrique mural ainsi que l'ensemble du drain de condensat extérieur ont été certifiés ULCS 636 pour l'application des composantes Royal Pipe, IPEX PVC qui sont certifiées à ce standard. Au Canada, l'apprêt et le ciment doivent être du même fabricant que le système d'évacuation. L'apprêt GVS-65 (Purple) et le ciment-solvant GVS-65 doivent être utilisés avec les Royal Pipe. Système IPEX 636, apprêt PVC/CPVC, Purple pour évacuation des gaz de combustion et système IPEX 636(1)™, ciment PVC pour évacuation des gaz de combustion, coté classe IIA, 65 deg C. doivent être utilisés avec le système d'évacuation IPEX 636 – Ne pas combiner l'apprêt et le ciment d'un manufacturier avec un système d'évacuation d'un manufacturier différent.

Bien suivre les indications du manufacturier lors de l'utilisation de l'apprêt et du ciment et ne pas utiliser ceux-ci si la date d'expiration est atteinte.

L'opération sécuritaire, tel que définit par ULC S636, du système de ventilation est basé sur les instructions d'installation suivantes, ainsi que l'usage approprié de l'apprêt et ciment. Tout arrêt feu et solin de toit utilisés avec ce système doivent être des matériaux listés UL. L'acceptation du standard Canadien CSA B419 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 gas, inspecteurs en bâtiments, département des incendies, etc) devraient être consultées avant l'installation afin de déterminer si un permis est requis.



These kits are for vertical or horizontal termination of the combustion air inlet and the exhaust vent pipes on Category IV gas-fired condensing furnaces. The NAHA001CV kit can be used for 3" (76.2mm) diameter pipe systems. The NAHA002CV kit can be used for 2" (50.8mm) diameter pipe system. Refer to Furnace Installation Instructions for the correct pipe size for the furnace. Both the combustion air inlet and the exhaust vent pipes must attach to the termination kit. The termination kit must terminate outside the structure and must be installed per the instructions outlined below for vertical or horizontal termination. Vertical termination is preferred. Field supplied pipe and fittings are required to complete the installation.

## **WARNING**

### **ELECTRIC SHOCK HAZARD/FIRE AND/OR EXPLOSION HAZARD**

Failure to follow this warning could result in personal injury, death, property damage and/or equipment damage.

Turn OFF gas supply at manual gas valve before turning OFF electric power supply and starting installation.

Turn OFF electric power supply at disconnect switch or service panel before starting installation. Tag and lockout shutoff(s) with appropriate device warning labels. There may be more than one disconnect.

## **WARNING**

### **CARBON MONOXIDE POISONING, AND PROPERTY DAMAGE HAZARD**

Failure to follow this warning could result in personal injury, death, property damage.

This kit is to be used for terminating condensing Category IV vent furnaces. DO NOT use kit to terminate Category I, II, or III vent furnaces.

## **WARNING**

### **ELECTRIC SHOCK HAZARD/FIRE AND/OR EXPLOSION HAZARD**

Failure to carefully read and follow all instructions in these instructions could result in personal injury, death, property damage and/or furnace malfunction. Installation or repairs made by unqualified persons could result in hazards to you and others. Installation MUST conform with local codes or, in the absence of local codes, with codes of the country having jurisdiction.

The information contained in these instructions is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.

Follow the furnace installation instructions for locating the furnace, clearances, operation and safety procedures. Use these instructions for installation of the concentric vent termination kit.

Read these instructions completely before attempting installation. Field supplied pipe and fittings are required to complete installation.

**NOTE:** All pipe, fittings, solvent cement, primers and procedures

**MUST** conform to American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) Standards:

Pipe and Fittings: – D1785, D2466, D2661, D2665, F–891, F628, D2665, D2241

PVC Primer & Solvent Cement – D2564 & D2235

Procedure for Cement Joints – D2855

**NOTE:** In order to create a seal that allows future removal of pipe, **RTV sealant MUST be used on the inlet pipe** where it joins to the furnace. PVC, CPVC, ABS and Cellular Core pipe and cement may be used on all other joints.

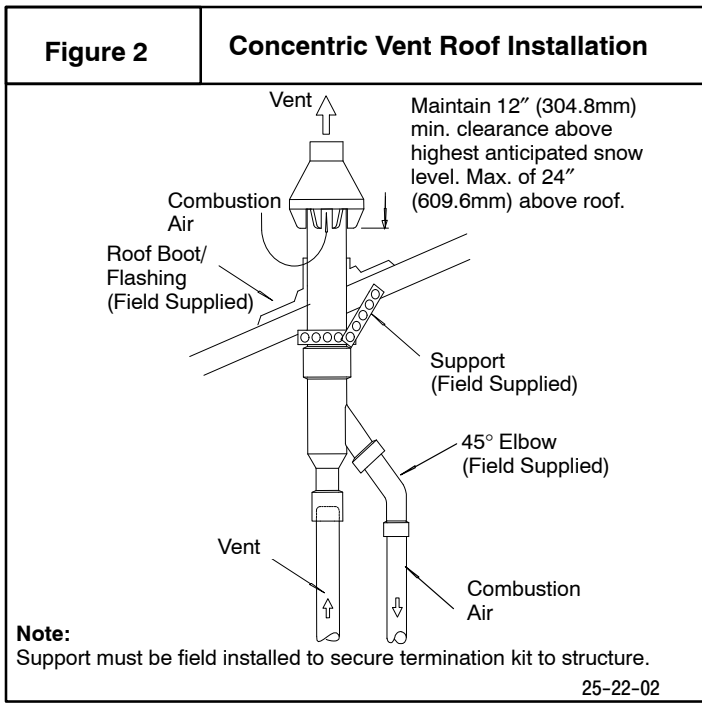
In Canada, refer to Special Venting Requirements for Installations in Canada.

## Vent Termination Clearances

- The Province of Alberta requires a minimum unobstructed distance of 4 ft. (1.2m) from the foundation to the property line of the adjacent lot for vent termination of any appliance with an input over 35,000 btuh. This means, if there is less than 4 ft. (1.2m) of unobstructed distance to the property line of the adjacent lot, no type of vent termination is permitted for appliances with inputs greater than 35,000 btuh. The Province of Alberta does not interpret any restrictions on unobstructed distances greater than 8 ft. (2.4m). This means that all single, two-pipe and concentric vents may be used, providing all other Code and manufacturer's requirements are adhered to. The requirement is to re-direct the flue gas plume when the unobstructed distance from the foundation to the property line of the adjacent lot is no less than 4 ft. (1.2m) and no greater than 8 ft. (2.4m). In venting situations where the unobstructed distance from the foundation to the property line of the adjacent lot is between 4 ft. (1.2m) and 8 ft. (2.4m), the concentric vent kit cannot be used. The concentric vent kit cannot be modified to attach a tee or elbow to the vent portion of the rain cap. A tee or elbow attached to the rain cap could potentially direct the flue gas plume toward the intake air stream and contaminate the incoming combustion air for the furnace. In a venting situation where the unobstructed distance from the foundation to the property line of the adjacent lot is between 4 ft. (1.2m) and 8 ft. (2.4m), a 2-pipe termination (or single pipe when permitted) must be used.
- With the exception of The Province of Alberta, Canada, determine termination locations based on clearances specified in furnace installation instruction, and following steps as shown in **Figure 2, Figure 5 through Figure 8.**
- The vent termination must be located at least 12" (304.8mm) above ground or normally expected snow accumulation levels.
- Do **NOT** terminate over public walkways. Avoid areas where condensate may cause problems such as above planters, patios, or adjacent to windows where steam may cause fogging.
- The vent termination shall be located at least 3' (.9m) horizontally from any electric meter, gas meter, regulator, and any relief equipment.
- The vent termination is to be located at least 3' (.9m) above any forced air inlet located within 10' (3m); and at least 10' (3m) from a combustion air intake of another appliance, except another direct vent furnace intake.
- In Canada, refer to Special Venting Requirements for Installations in Canada and the Province of Alberta requirements and the *National Standards of Canada, Natural Gas, Propane Installation Codes (NSCNGPIC).*

### Vertical & Horizontal Termination

1. Determine the pipe diameters required for the installation from Furnace Installation Instructions.
2. Determine the best location for the termination kit. See **Figure 2** for vertical termination or **Figure 5** for horizontal termination. Roof termination is preferred since it is less susceptible to damage, has reduced intake contaminants and less visible vent vapor. For side wall termination, consideration should be given to: 1) possible damage from the vapors to plants/shrubs, other equipment and building materials, 2) possible damage to the terminal from foreign objects, 3) wind effects that may cause recirculation of flue products, debris or light snow and 4) visible vent vapor.
3. Cut one 5" (127mm) diameter hole through the structure for the NAHA001CV Kit or one 4" (101.6mm) diameter hole for the NAHA002CV Kit .
4. Dimension D may be lengthened to 60" (1524mm)max. or shortened by cutting the pipes to 12" (304.8mm) min. Dimension A will change according to D dimension. (See **Figure 3**)



**Note:**  
Support must be field installed to secure termination kit to structure.  
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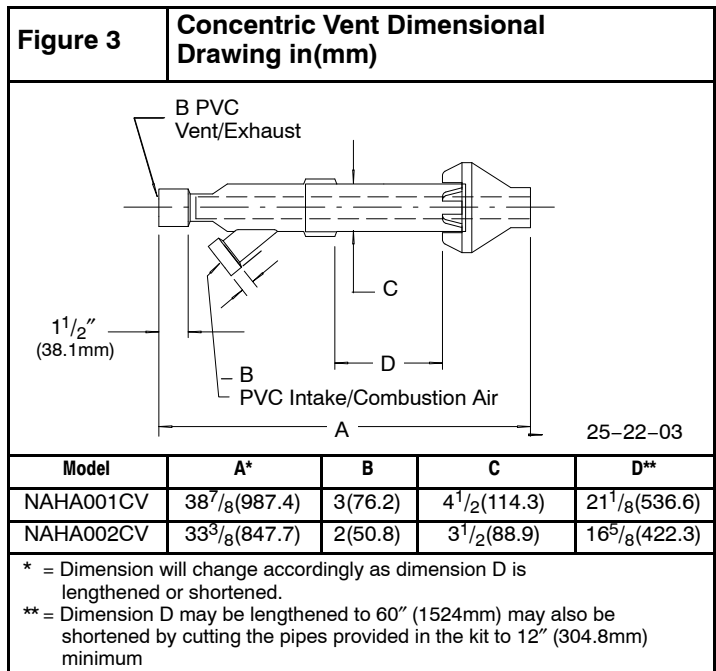
## CAUTION

### UNIT OPERATION HAZARD

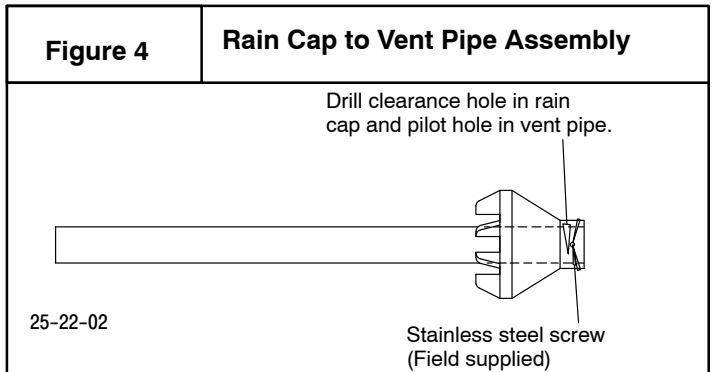
Failure to follow this caution may result in intermittent unit operation.

Do not use field supplied couplings to extend the pipes. Airflow restriction will occur and the furnace pressure switch may cause intermittent operation.

If assembly needs to be extended to meet height or side wall thickness requirement, the two pipes supplied in the kit may be replaced by using the same diameter solid, single (no coupling connections) field supplied SDR-26 PVC (ASTM D2241) pipes. Do not extend dimension D more than 60" (1524mm). (See **Figure 3**)



5. Partially assemble the concentric vent termination kit. Clean and cement the parts using the procedures for Joining Pipe and Fittings section of the furnace installation manual. A) Cement the Y Concentric fitting to the larger diameter kit pipe. (See **Figure 1**) B) Cement the rain cap to the smaller diameter kit part. (See **Figure 1**) **NOTE:** A field supplied stainless steel screw may be used to secure the rain cap to the pipe instead of cementing when field disassembly is desired for cleaning (See **Figure 4**)



## WARNING

### CARBON MONOXIDE POISONING, FIRE AND EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death, and/or property damage.

When using the alternate screw assembly method, drill a clearance hole in the rain cap and a pilot hole in the vent pipe for the screw size being used. Failure to drill adequate holes may cause cracking of the PVC components, allowing flue gases to be recirculated.

# ⚠ WARNING

## CARBON MONOXIDE POISONING, FIRE AND EXPLOSION HAZARD.

Failure to follow this warning could result in personal injury, death, and/or property damage.

Do not operate the furnace with the rain cap removed as recirculation of the flue gases may occur. Water may also collect inside the larger combustion air pipe and flow to the burner enclosure.

6. Install the Y concentric fitting and the pipe assembly through the structure's hole. For vertical termination, install the parts through the field supplied roof boot/flashing. **NOTE:** Do not allow insulation or other materials to accumulate inside the pipe assembly when installing through the structure's hole.
7. Secure the assembly to the structure as shown in **Figure 2** or **Figure 6** using field supplied metal strapping or equivalent material.
 

**NOTE:** Ensure the termination height is above the roof surface or anticipated snow level as shown in **Figure 2** for vertical termination. Ensure the termination location clearance dimensions are as shown in **Figure 5** and **Figure 6** for horizontal termination.

8. Install the rain cap and the small diameter pipe assembly in the Y concentric fitting and the large pipe assembly. Ensure that the small diameter pipe is bottomed out and securely cemented in the Y concentric fitting.
9. Cement the furnace combustion air and vent pipes to the concentric vent termination assembly. See **Figure 2** or **Figure 6** for proper pipe attachment.
10. Operate the furnace through one heat cycle to ensure combustion air and vent pipes are properly connected to the concentric termination connections.

## Multi Vent Termination Clearances

When two (2) or more furnaces are vented near each other, each furnace must be individually vented.

Two (2) vent terminations may be installed as shown in **Figure 7** and **Figure 8**, but the next vent termination or pair of vent terminations, must be at least 36" (914.4mm) away from first two (2) terminations. It is important that vent terminations guidelines are followed to avoid recirculation of flue gases.

