

## Quick Start Installation Guide



Venting

# Venting

## General

1. The Nortec GSTC are classed category I and III fan assisted gas appliances. This allows two methods of venting.
2. Listed below are instructions for both venting systems, followed by specific requirements for each system.
3. Review the requirements for both category I and III installations and select the venting method best suited for the installation.
4. The maximum flue temperature is 400°F for category I and category III installations. Normal operating range is 360 to 380°F.
5. Category I and III class can be used with sealed combustion option.
6. Category III class must be used with direct vent option.

## General Requirements

1. The vent systems shall be listed to UL or UL/CSA standard and meet the installation requirements of the national fuel code in the USA (ANSI z223.1) and the Canadian standards CSA B149.1 installation codes. Any local jurisdictions reflecting changes to the above codes should be observed.
2. In applying the codes, reference should be given to the venting manufactures instructions, the serving gas supplier regulations, and the specific instructions provided in this manual.
3. This appliance must be installed to comply with national regulations and codes. A qualified technician, competent with these codes and the local requirements of the jurisdiction must carry out the installation.
4. Proper removal of combustion gases must be assured, and building materials must be protected from degradation by flue gases.
5. Never mix venting types (B to BH or vice versa.) Never use two different manufacturer's equipment for the same chimney.
6. All vent runs should be as direct as possible with no more than 6 elbows in the system. Maintain an upward slope of ¼" per ft on all horizontal vent pipe runs.
7. This appliance shall not be connected to a chimney flue servicing a separate appliance designed to burn solid fuel.
8. This appliance may not be used in conjunction with a power venter or draft inducer.
9. For any vent lengths over 20 feet long, insulate the vent pipe to reduce the amount of condensate that could form in the flue gases.
10. When the venting passes through a cold area or location that has large amounts of air passing over the venting, it should be insulated to prevent condensation from forming inside the venting.
11. Vent pipe passing through walls, floors, and ceilings, must be installed with the proper clearances from combustible materials, and venting manufactures fire stop equipment.
12. The venting shall not pass through any circulation air duct or plenum.
13. A drip "t" should be used for condensate removal. When a condensate drain is used it will be necessary to install a trap to prevent flue gases from escaping. Install a trap with a minimum 12" standing water column.
14. Prior to activating the appliance, ensure that the trap is filled with water and that the drain terminates in accordance with local plumbing codes.
15. Never vent into an unlined masonry or concrete chimney unless the chimney is sized and installed according to the provisions of the national fuel code in the USA (ANSI z223.1) or the Canadian standards CSA B149.
16. Chimney or vent should extend at least 3' (1 m) above a roof and at least 2' (.6 m) above any ridge within 10' (3 m) of the chimney. Local codes apply.
17. Install venting so as to prevent accumulation of condensate and have a means for condensate removal.
18. Plastic, PVC, CPVC and HTPV special gas vents are not approved for use with this appliance.
19. Select vent material and clearance according to the max vent gas temperature.
20. All horizontal runs must be adequately supported with hangers or straps to prevent sagging.
21. The vent must terminate at a sufficient height above the roof to prevent blockage by expected snowfall.

### NOTE

Be sure to follow any local codes or regulations.

Refer to the Installation Manual for venting guidelines and configurations.

# Installation As A Category I Appliance

## General

1. The Nortec GS Series humidifiers have a fan-assisted combustion which operates with a non-positive vent static pressure when installed with the appropriate vent diameter.
2. Category I appliances must be vented vertically or nearly vertical.
3. This category appliance is restricted to vertical venting installations with limits placed on horizontal lengths and vent diameters. Refer to the tables in local and/or national codes. No sidewall termination is accepted.
4. Vent piping must be UL or UL/CSA listed Type B. Required clearance for Type B vent is piping is 1" (25 mm).
5. A minimum equivalent vent length of 7 feet must be connected to the humidifier. Vent lengths must not exceed 70' (21 m). Each 90° elbow is equivalent to 10' and each 45° elbow equals 5'. The vent run should be as direct as possible with no more than 6 elbows in the system. Contact Condair Technical Services if you have any questions.
6. The vent pipe exiting the humidifier is sized for category III installations. A field supplied adapter is required to increase the pipe immediately at the exit of the humidifier. The vent pipe must be expanded to the minimum sizes listed below for each model, increasing as code requires.
  - a. Nortec GS 100 4" minimum diameter
  - b. Nortec GS 200 5"
  - c. Nortec GS 300/400 7"
  - d. Nortec GS 500/600 8"
7. The termination at the humidifier is a male connection. Standard venting hook-ups require a female path. It is highly recommended that a female to female adapter be assembled onto the humidifier to establish the proper venting sequence. Consult with the venting manufacturer for proper hook up.
8. Vent connectors shall not be connected into any portion of a mechanical draft system operating under positive pressure.
9. Use only double wall (aluminum inner wall) b vent. Single wall venting cannot be used due to the increased wet time in the lining. If the vent connector attaches to a lined masonry chimney, the chimney must be sized and installed according to the provisions of the national fuel gas code or Canadian CSA B149.1 standards. An approved venting manufacturer's termination cap for the stack outlet must be used.
10. When the category I installation is selected it may be commonly vented with other listed gas fired appliances. Total input rates of all appliances will determine the vent size; the chimney must be sized and installed according to the provisions of the national fuel gas code or Canadian CSA B149.1 standards.
11. A maximum of 4 gas appliances may be common vented on the same floor. Multiple story common venting is not recommended.
12. Refer to the vent manufacturer's instructions for proper clearances to combustibles.

# Installation As A Category III Appliance

## General

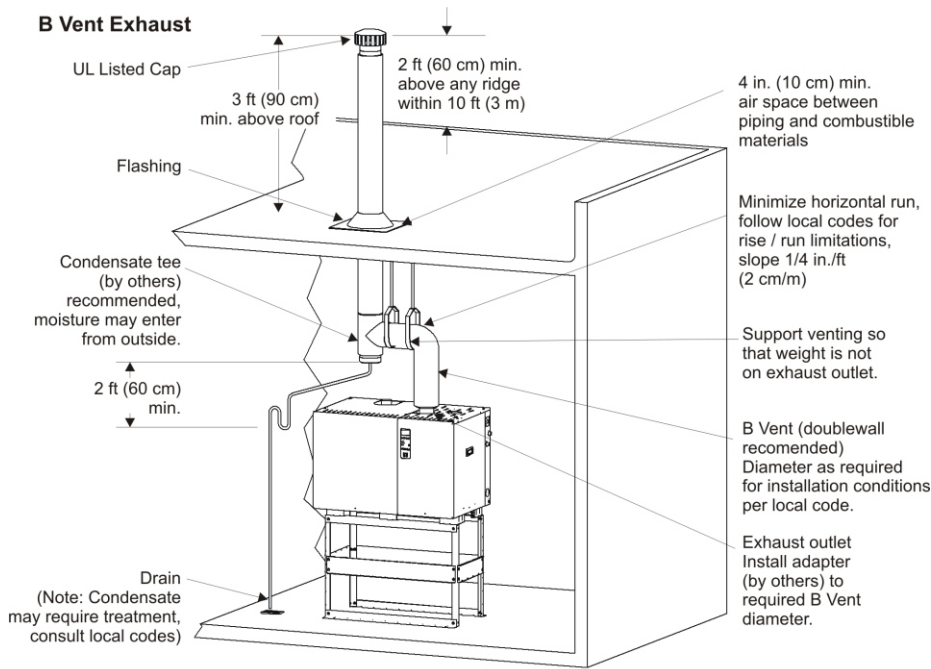
1. This venting system can be installed horizontally or vertically and can terminate on a rooftop or sidewall provided the NFGC (Nation Fuel Gas Code) and CAN/CGA- B149 codes are followed. The venting manufacturer instructions must also be followed.
2. Venting must be UL or UL/CSA listed, tested to ULC-5636 standard. Venting may be BH, L vent or Special Gas Vent. The vent shall be listed and installed in accordance with the terms of the vent listing and the manufacturer's instructions. The instructions listed below should be followed as well.
3. A minimum equivalent vent length of 7 feet must be connected to the humidifier. Vent lengths must not exceed 70' (21 m). Each 90° elbow is equivalent to 10' and each 45° elbow equals 5'. The vent run should be as direct as possible with no more than 6 elbows in the system. Contact Condaire technical service if you have any questions This category installation may not be common vented with any other natural draft gas appliance or power assist appliance.
4. All joints must be sealed using high temperature rtv silicone.
5. The gas humidifier is supplied with the following exhaust outlets.
  - a. Nortec GS 100 3"
  - b. Nortec GS 200 4"
  - c. Nortec GS 300/400 5"
  - d. Nortec GS 500/600 6"
6. The venting must remain the same diameter throughout the installation.

## Additional requirements when venting through a sidewall

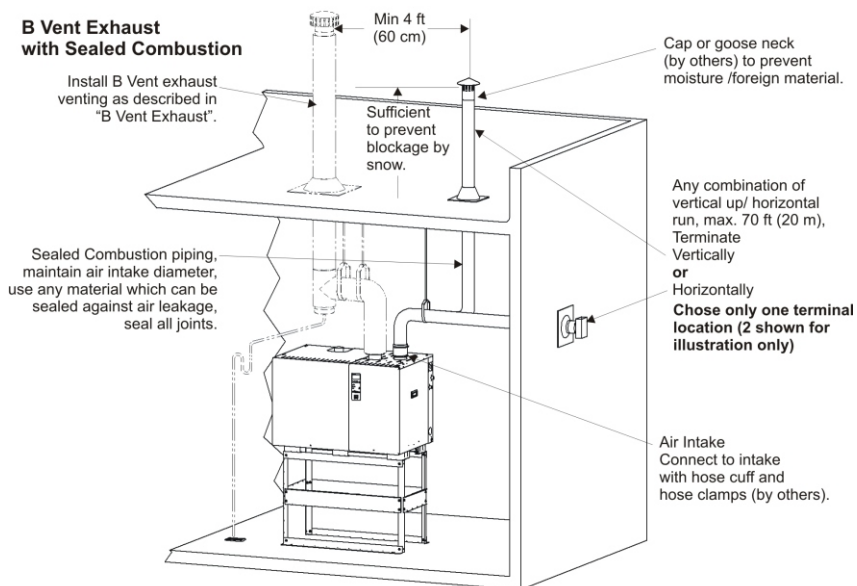
1. For sidewall venting, locate the humidifier as close as possible to the wall being used.
2. Locate the vent terminal at least three feet above any forced air inlet located within ten feet; or at least four feet below, four feet horizontally from, or one foot above any door, window, or gravity air inlet into any building.
3. A minimum horizontal clearance of four feet from electric meters, gas meters, regulator and relief equipment is required.
4. For sidewall vent terminations, the humidifier must be installed with the certified vent terminal that can be purchased from Condaire.
  - a. Nortec GS 100 3" P/N 1502321
  - b. Nortec GS 200 4" P/N 1502322
  - c. Nortec GS 300/400 5" P/N 1507320
  - d. Nortec GS 500/600 6" P/N 1507321
5. Locate the vent terminal at least 7 feet or 2.1 m above grade from public walkways, adjacent buildings, operable windows and building openings, consistent with the National Fuel Gas Code ANSI Z223.1 and/or CSA B149.1 installation codes.
6. Locate the bottom of the vent terminal at least twelve inches above grade or ground, or normally expected snow accumulation level. The snow level may be higher on walls exposed to prevailing winds.
7. Locate terminal at least 4 feet or 1.22 m from electric meter, gas meters, regulators, and relief equipment.
8. Avoid areas where local experience indicates that condensate drip may cause problems such as above planters, patios, or 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. Refer to the vent manufacturer's installation instructions.
9. The vent terminal must be installed in the same atmospheric pressure zone as the combustion air inlet of the humidifier. If this is not possible (as in cases of positive or negative room pressures) the humidifier should be installed with the sealed combustion or direct vent option.

# Venting Options

## Vertical with B-Vent

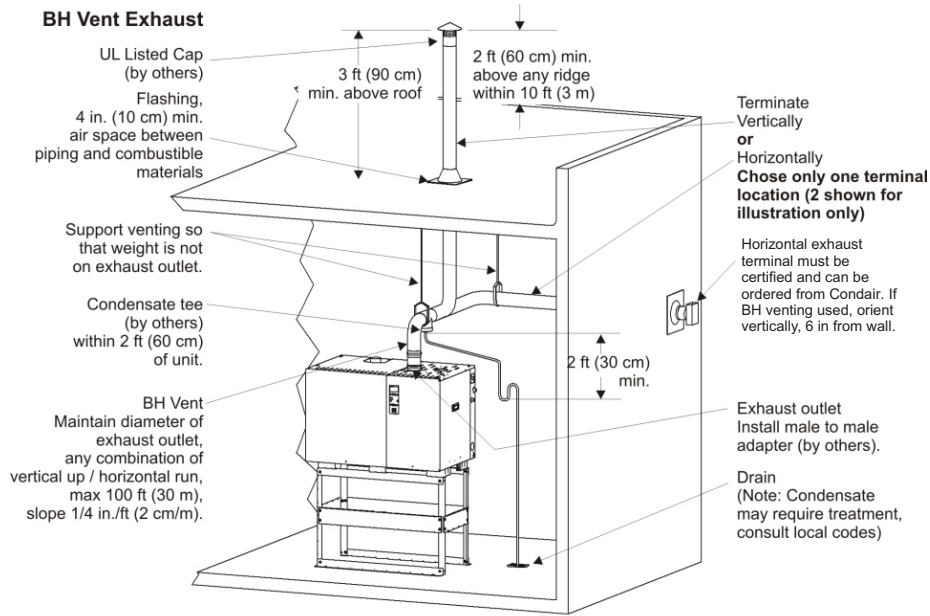


## Vertical with B-Vent and Sealed Combustion

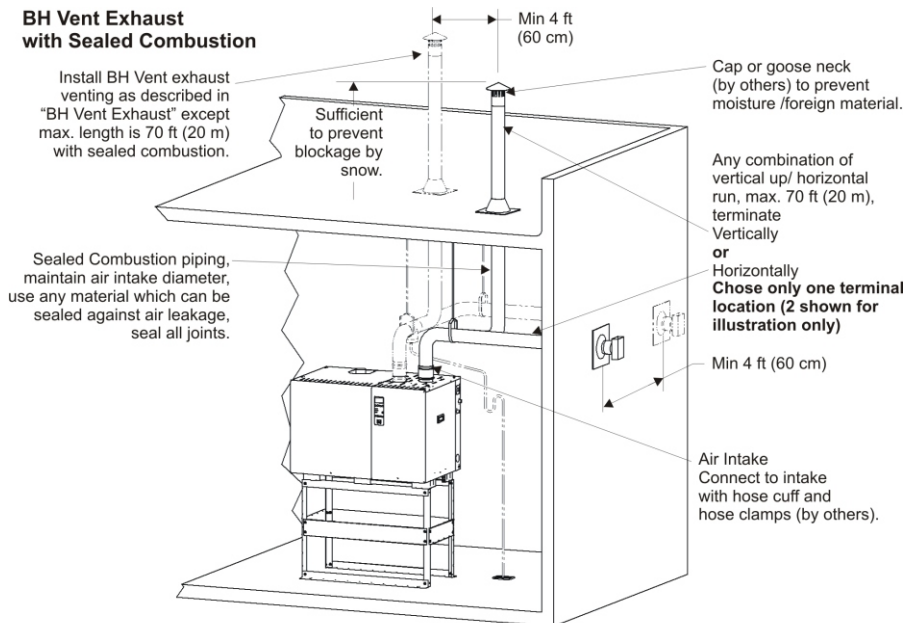


# Venting Options

## Vertical or Horizontal with BH-Vent



## Vertical or Horizontal with BH-Vent and Sealed Combustion

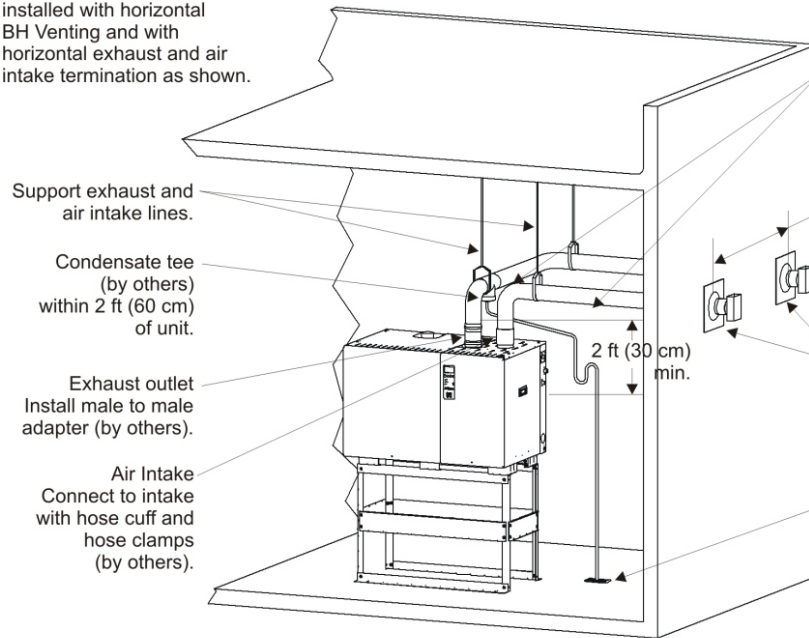


# Venting Options

## Direct Vent

### Direct Vent Installation

Direct Vent may only be installed with horizontal BH Venting and with horizontal exhaust and air intake termination as shown.



Use BH Vent for exhaust and direct vent air intake.

- Maintain diameter of exhaust outlet and intake.
- seal joints to meet CSA 2.19.7,
- any combination of vertical up / horizontal run,
- max 70 ft (20 m),
- slope 1/4 in./ft (2 cm/m).

Min 4 ft (1.2 m),  
max 6 ft (1.8 m)

Terminate exhaust and intake horizontally only in same face of building.

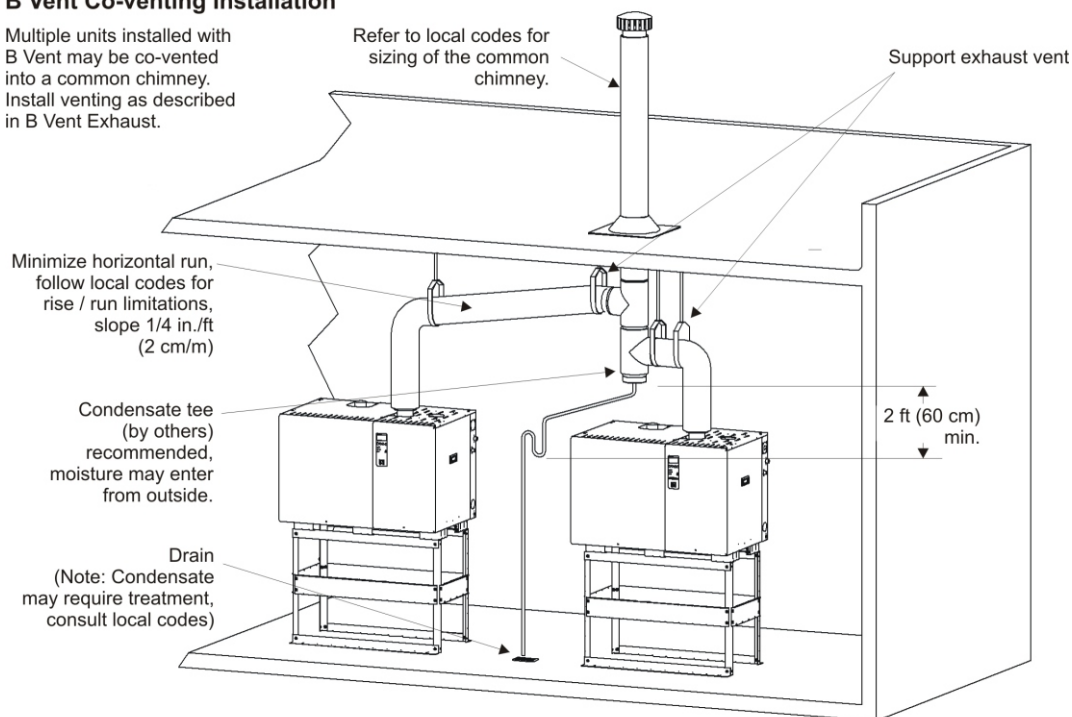
- Install Condaire or by other certified terminals,
- orient vertically,
- 6 in from wall.

Drain  
(Note: Condensate may require treatment, consult local codes)

## Vertical Co-Venting Using B-Type

### B Vent Co-venting Installation

Multiple units installed with B Vent may be co-vented into a common chimney. Install venting as described in B Vent Exhaust.



All information contained in this Quick Start Guide is for general information purposes only. For complete Condair installation/operation recommendations for your Condair equipment, please refer to the installation manual for your specific system, accessories, and components.

All electrical connections must be installed in accordance with local and national electrical code requirements by a licensed electrician.

All water supply and drain line connections must be installed in accordance with local plumbing codes by a licensed plumber.

Condair does not accept any liability for installations of humidity equipment installed by unqualified personnel or the use of parts/components/equipment that are not authorized or approved by Condair.



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The Condair logo features a stylized blue wave icon to the left of the word "condair" in a bold, lowercase, blue sans-serif font.