

Installation Manual: *Direct Vent System* for 110C, 310C, and 510C Models

This direct vent system is designed and approved for use only with the non-condensing tankless water heaters, model numbers **110C**, **310C**, and **510C**.

General Guidelines

WARNING: Property damage, personal injury or death can result if the vent system is not installed properly. *Direct vent system* installation instructions are a guide for professional installers generally familiar with the installation and maintenance of heating equipment and related vent systems.

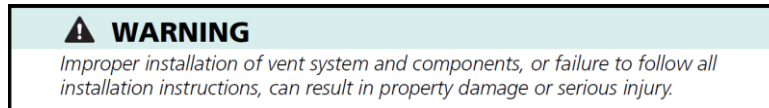
All installations must conform to all relevant Local, State and National codes. In the US: National Fuel Gas Code **ANSI-Z223.1**, **NFPA 54**, **NFPA 211**. In Canada: **CAN/CGA-B149.1** or **CAN/CGA-B149.2**. Permits may be required before an installation can begin. Before installation, each vent component must be inspected for possible shipping damage and correct seal placement. These installation instructions must be read, understood and complied with.

As part of regular equipment maintenance, check for vent system integrity and blockage.

Refer to the appliance manufacturer's installation instructions for clearance to combustibles, terminations, and maximum allowable vent length.

Do not mix with other vent manufacturer's products.

Appliances can be operated immediately after a vent system is installed and inspected.



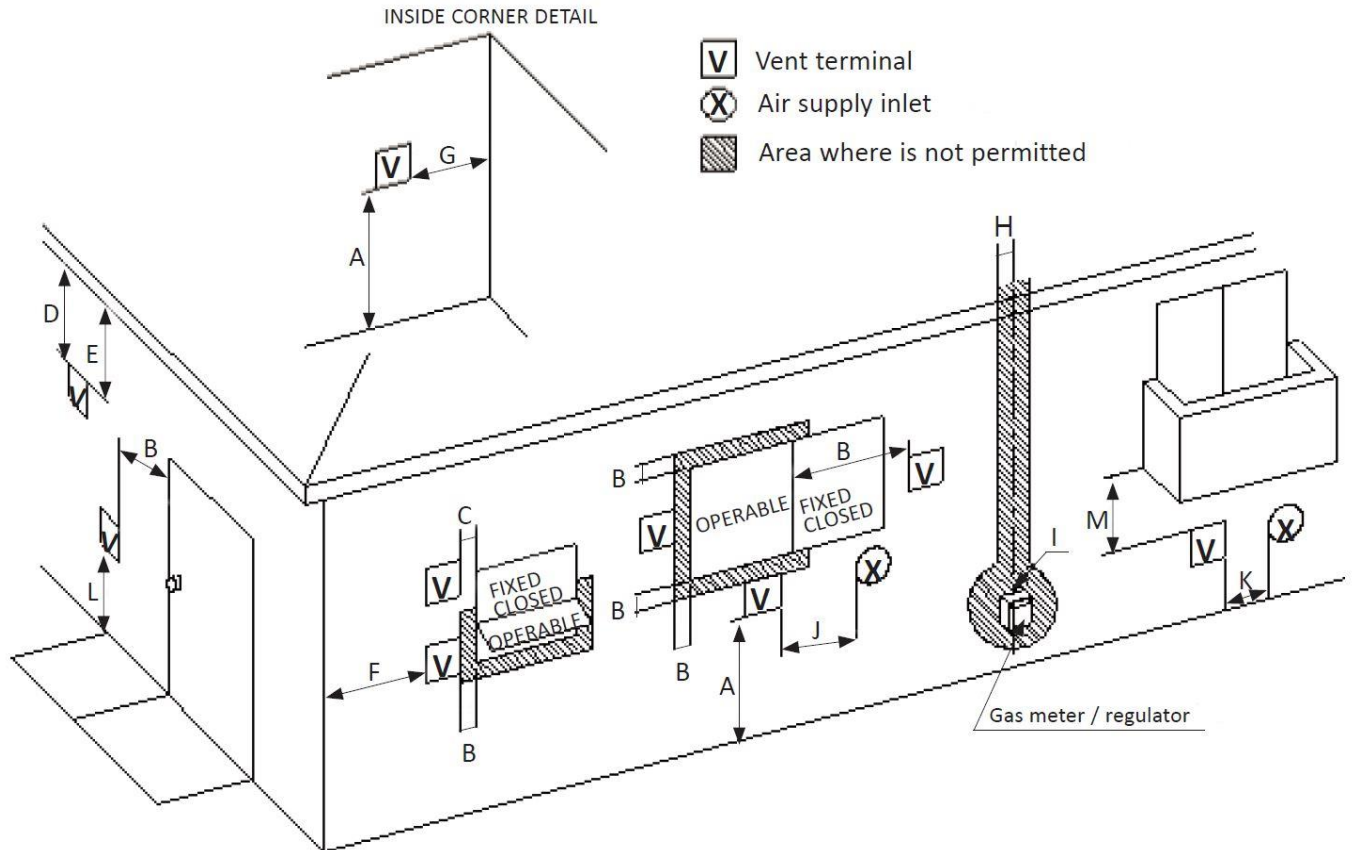
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1. Read and Follow Appliance Manufacturer's *Direct Vent Systems* Instructions

- Installation and maintenance instructions for these *direct vent systems* are packaged with the main components (horizontal / vertical terminations).
- Accessories can be installed according to common building practice.
- If you have questions regarding the water heater, contact technical service at 1-877-737-2840.
- If you have questions on correct vent installation, contact Centrotherm Eco Systems (877.434.3432 or info@centrotherm.us.com)

2. Vent Termination Clearances

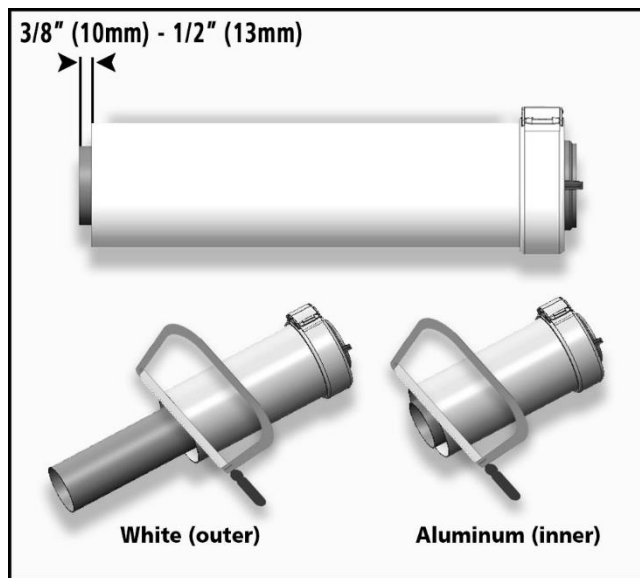


	Canada Direct-vent	USA Direct-vent
A Clearance above grade, veranda, porch, deck, or balcony	1' (30 cm)	1' (30 cm)
B Clearance to window or door that may be opened	3' (91 cm)	1' (30 cm)
C Clearance to permanently closed window	*	*
D the vent terminator within a horizontal distance of 2 feet (61cm) from the center line of the terminator	*	*
E Clearance to unventilated soffit	*	*
F Clearance to outside corner	*	*
G Clearance to inside corner	2' (61 cm)	2' (61 cm)
H Clearance to each side of center line extended above meter/regulator assembly	3' (91 cm)	*
I Clearance to service regulator vent outlet	3' (91 cm)	*
J Clearance to non-mechanical air supply inlet to building or the combustion air inlet to any other application	3' (91 cm)	1' (30 cm)
K Clearance to mechanical air supply inlet	6' (1.83 m)	3' (91 cm)
L Clearance to above paved sidewalk or paved driveway located on public property	7' (2.13m)	*
M Clearance under veranda, porch deck, or balcony	1' (30 cm)	*

**For clearances not specified in ANSI Z223.1 / NFPA 54 or CAN/CSA-B149.1, please use clearances in accordance with local installation codes and the requirements of the gas supplier.*

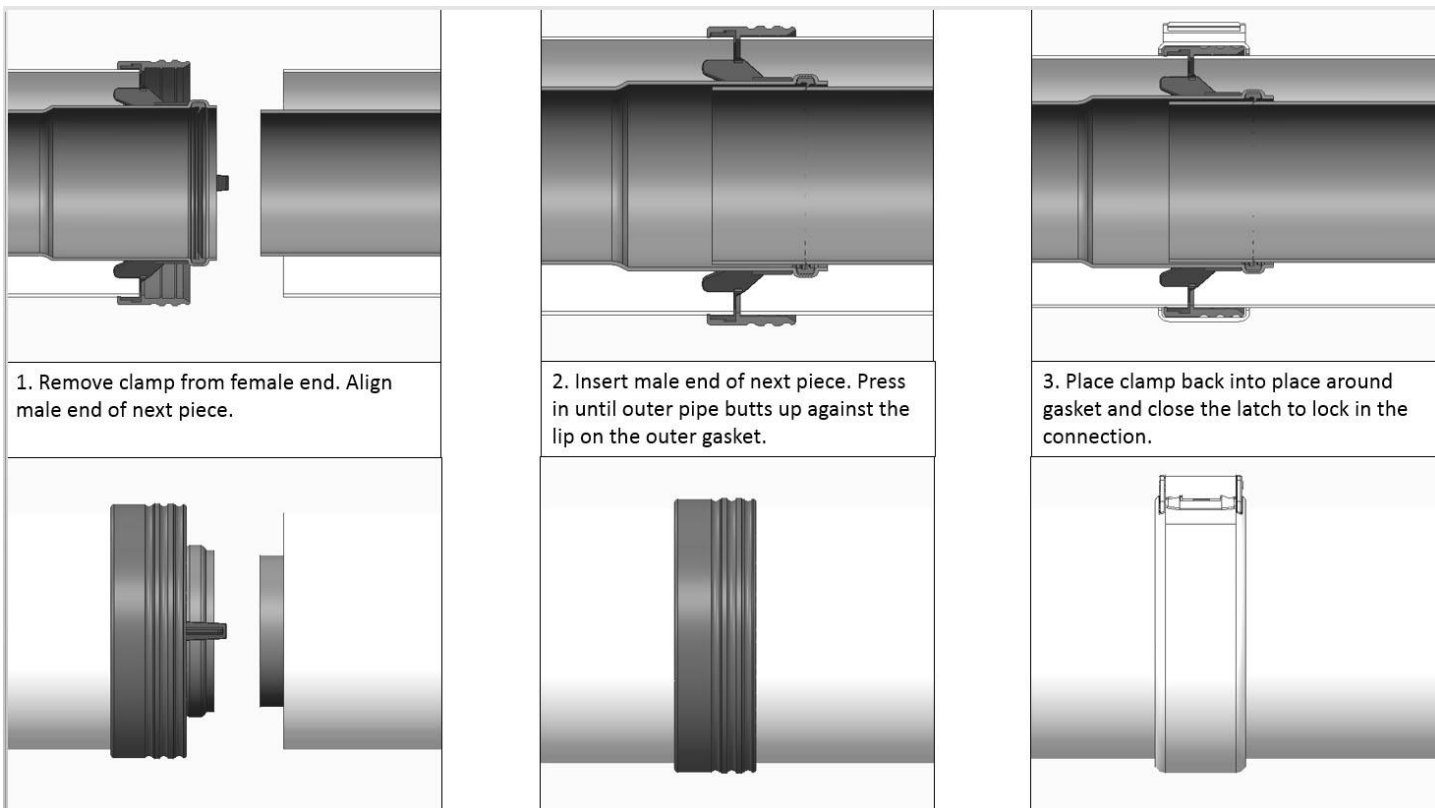
3. Shorten Sections

- The inside pipe should always extend $3/8"$ (10 mm) – $1/2"$ (13mm) beyond white outside pipe on the male end of the vent extension.
- Always cut the male end of the vent pipe extension. **Do not attempt to cut the female end.**
- Inner and outer pipes **must be** cut perpendicular to assure proper seal.
- Cut inner pipe with fine tooth metal saw (hack saw).
- **Deburr both** air intake (outer) and exhaust (inner). Failure to do so may result in gasket damage.

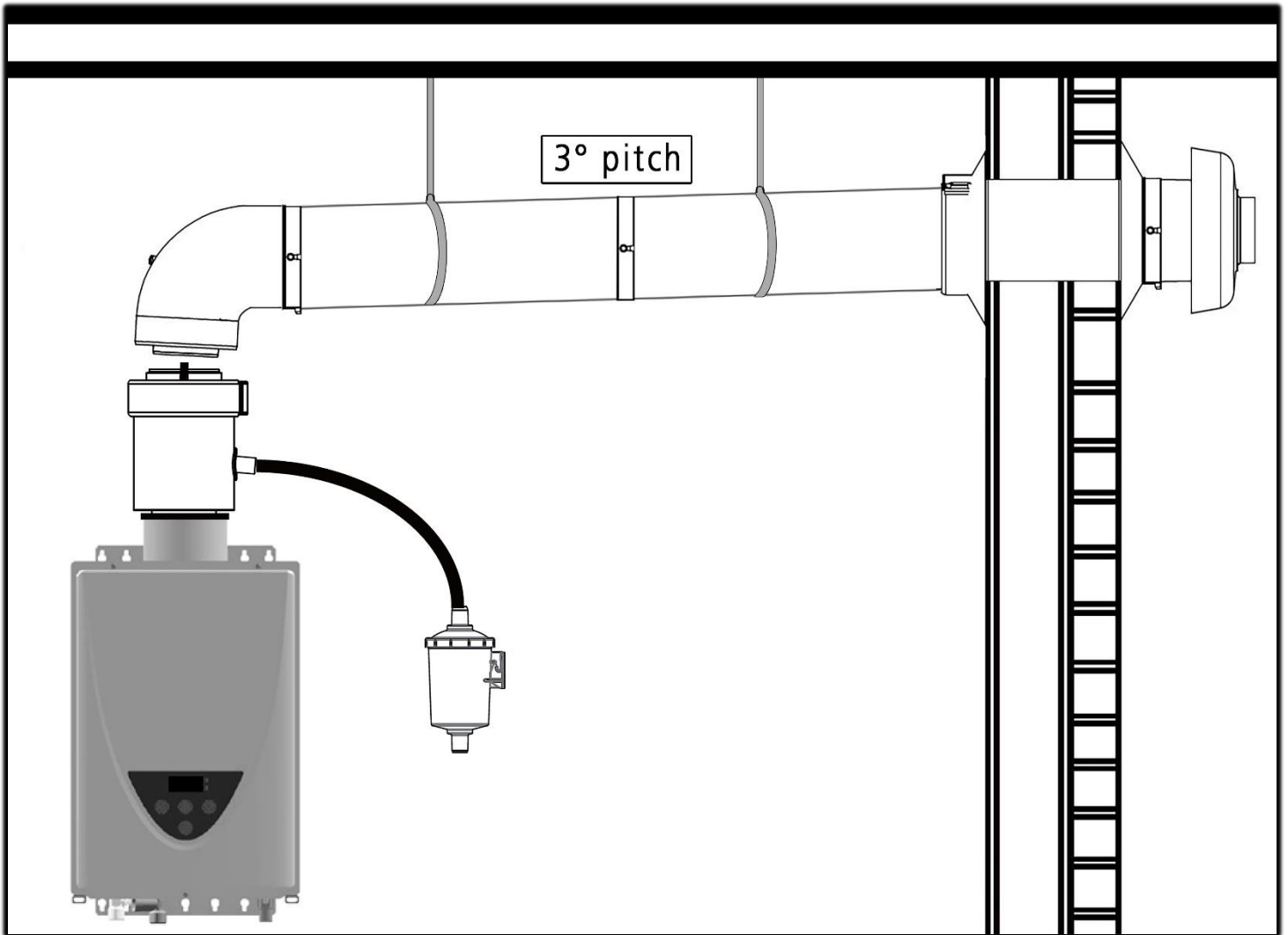


4. Secure Joints

- Gasket is pre-lubricated. **DO NOT** use any oil, grease, or other lubricant.
- Insert the tapered male end into the flared female end using enough pressure to completely seal the connection.
- **DO NOT** attempt to make up length by joining sections partially.
- **DO NOT** use screws or pop rivets when joining these *direct vent systems*. Use only the included latch.



5. Vent System Layout



6. Maintain Proper Slope

- Install with a continuous 3° (minimum) slope to drain the condensate properly.

7. Drain the Condensate

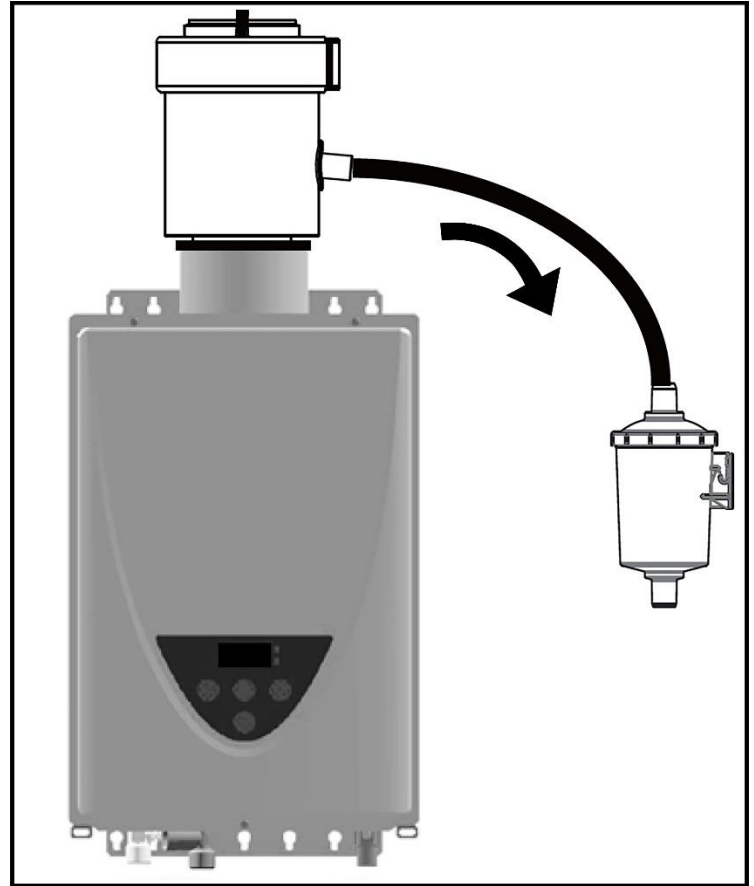
- **Follow** the appliance manufacturer's instructions included with the heater to determine if condensate drain is required.
- The drain should be as close to the appliance flue collar as possible.
- Can be used in vertical orientation only.
- **DO NOT** install drains in areas that could experience temperatures below freezing.
- Condensates can be caustic. Neutralize and/or drain in accordance with local code requirements.
- Clean trap annually.



WARNING:

Always assure drain line stays below the level of the condensate collector drain outlet.

Failure to do so can cause caustic condensates to damage appliance or condensate collector.



8. Provide Adequate Support

- On horizontal runs, support the *direct vent system* **every** section and after each elbow or offset.
- On vertical runs, support the *direct vent system* at a minimum of **every 6'** (1.82 m) of vertical rise at each floor penetration, and at the roof penetration.
- **DO NOT** rest weight of *direct vent system* on the appliance.
- Perforated hanger iron can be used only on horizontal runs.

9. Side Wall Termination

Horizontal Concentric Vent System

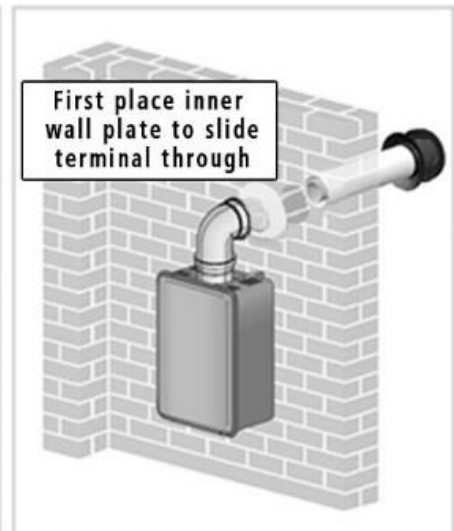
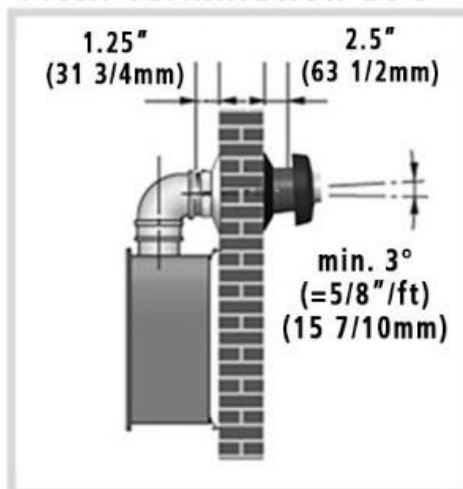
Identify the Vent Location

- Place the 87° vent pipe elbow on the appliance
- Mark the position on wall taking into account 3° pitch
- Cut hole, covering the top of the appliance to prevent debris from entering

Final Installation of Vent System

- After cutting the appropriate length, position the outer wall plate and slide the horizontal termination through the hole in the wall. Position the inner wall plate around the male end of the termination.
- Slide the male end of the termination into the 87° vent pipe elbow.

Pitch Termination at 3°



10. Vertical Termination Installation

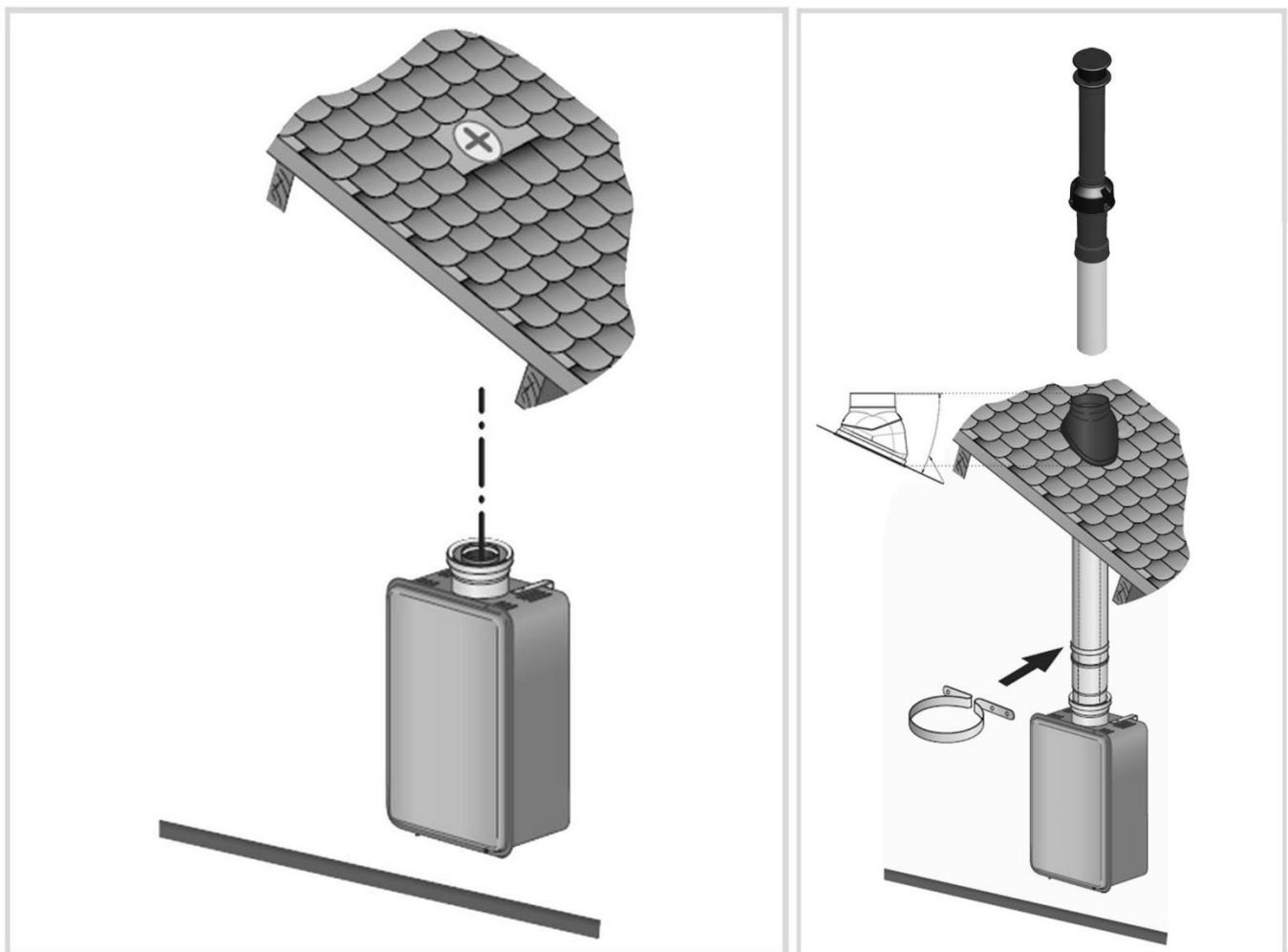
Vertical Concentric Vent System

Identify the Vent Location

- Determine the location where the roof discharge terminal will be installed.
- Taking into account the angle of the roof, cut the hole with a dimension that allows the vertical discharge roof terminal to be installed.

Mounting the Vent System

- Vent connections must be firmly pressed together so that the gaskets form an airtight seal
- Secure termination with supplied support clamp.
- Free standing components (i.e. above the roof) may not exceed a maximum vertical height of 59" (1.5m) without additional support.
- If shorter termination is required, refer to Section 2 for instructions.



11. Components

1. Condensate Collector and Trap



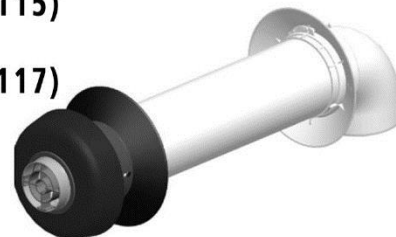
**Collector
(100266140)**



**Trap
(100266139)**

2. Concentric Sidewall Termination Kit

**11 1/2" (292mm)
(100266115)
21" (533mm)
(100266117)**



Includes: One Sidewall Termination, One 90° Elbow,
Two Wall Plates

3. Concentric Roof Termination



**38" (965mm) Roof
Termination
(100266118)**

4. 45° Elbow



(100266119)

5. 87° Elbow



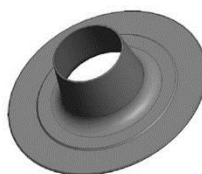
(100266132)

6. Pipe Hanger



**Pipe Hanger
(100266141)**

7. Roof Flashing

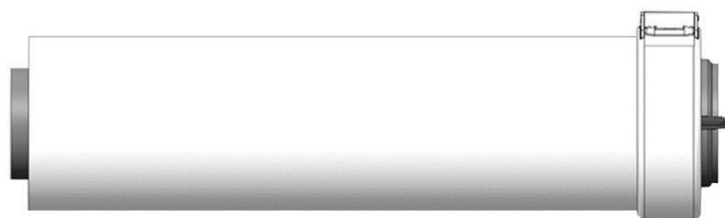


**Flat Roof Flash
(100266187)**



**Tile / Shingle Roof Flashing
1/12 to 6/12 Pitch (100266136)
8/12 to 16/12 Pitch (100266137)
6/12 to 12/12 Pitch (100266138)**

8 Straight Pipe



**10" (254mm) Straight Pipe (100266133)
19.5" (495mm) Straight Pipe (100266134)
39" (254mm) Straight Pipe (100266135)**