

EXCELDirect®

DIRECT VENT VENTING SYSTEM INSTALLATION AND MAINTENANCE INSTRUCTIONS

EXCELDirect® is a certified venting system designed to be used only with certified direct vent gas fired appliances.

The direct vent gas appliance must be certified for use with the ICC EXCELDirect® venting system. Refer to the manufacturer's labeling and instruction manual to confirm that EXCELDirect® is listed for use with the appliance model you have selected.

WARNING

- The installation must conform with local codes or, in the absence of local codes, with the following code in force:
 - National Fuel Gas Code, ANSI Z223.1 (USA) or,
 - Natural Gas and Propane Installation Code, CAN/CSA B149.1 (Canada).
- A major cause of vent related fires is failure to maintain required clearances (air space) to combustible materials. The venting configurations and clearances requirements are indicated in the Direct Vent gas appliance instructions manual. It is of utmost importance that this venting system be installed only in accordance with these instructions. Do not fill the air space with insulating material.
- A direct vent appliance must be connected to a single venting system. Multiple venting is not allowed.
- Specific requirements for horizontal installation, such as minimum clearances to balcony, window, door, soffit, etc. are detailed in this manual.
- Contact local building or fire officials about restrictions and installation inspection in your area.

Do not begin installing the ICC EXCELDirect® venting system until you have carefully read the appliance and vent system installation instructions.

Use only ICC model EXCELDirect® components. Failure to do so will void the certification and warranty of the product.

Keep these installation and operating instructions in a safe location for future reference.

EXCELDirect® has been tested and listed to the following:

- UL 2112 Standard by Underwriters Laboratories inc. (Listing #MH300439)
- Conforms to ANSI Z21 Std for Direct vent gas appliances and UL Std 2112 by INTERTEK. (ETL Listing # 4005717)
- Certified to CSA Std for Direct vent gas appliances by INTERTEK. (ETL Listing # 4005717)



ICC INDUSTRIAL CHIMNEY COMPANY INC.

400 J.F. Kennedy, St. Jerome
Quebec, Canada, J7Y 4B7

Tel.: (450) 565-6336, Fax: (450) 565-65 19

www.icc-rsf.com

TABLE OF CONTENTS

EXCELDirect® TECHNICAL SPECIFICATIONS..... 2

 Operation and Maintenance 3

 General Installation Notes 3

 Planning your installation 4

 Assembling Notes 5

Installation Instructions..... 6

 Horizontal Installation 6

 Horizontal Installation using a horizontal termination cap 6

 Horizontal Installation - Snorkel Termination 8

 Vertical Installation 9

 Vertical installation – Straight 9

 Elbows and Offsets 12

 Firestops 12

 Supports..... 13

 Attic..... 15

 Masonry Chimney Installation - Co-linear to Co-axial venting 16

 Horizontal and vertical termination location 20

LIMITED LIFETIME WARRANTY..... 21

EXCELDirect® TECHNICAL SPECIFICATIONS		
Materials		
Exterior Casing:	.019" Galvalume Steel or .022" Satin Coated (painted black)	
Interior Flue:	.016" Type 430 Stainless Steel	
Gasket:	Fiberglass on the inner pipe	
Inner pipe diameter	4"	5"
Outside Diameter	6 5/8"	8"
Weight/Foot (lb/ft.)	1.75	2.10
Rough Opening Required		
Supports (CS)	8 3/4" x 8 3/4"	10" x 10"
Supports (SS, RDS)	10" x 10"	11" x 11"
Insulated Wall Thimble (WT)	8 3/4" x 8 3/4"	10" x 10"
Maximum Support capacity		
Ceiling Support (CS)	15'	12'
Round Support (RDS) / Square Support (SS)	50'	40'
Offset support (OS) - Installed Horizontally or Inclined	4'	4'
Offset support (OS) - Installed Vertically	38'	30'
Roof support (SR) - Installed on Framing	50'	40'
Roof support (SR) - Installed on 3/4" plywood	23'	18'
Adjustable Wall Support (WS)	13'	10'
Clearances		
Clearance to combustibles	*	*

* As determined by the gas appliance specifications in its instruction manual.

Operation and Maintenance

Initially inspect the vent system weekly. From this you will learn if your gas appliance needs fine tuning. **KEEP YOUR VENT CLEAN.** When using a Direct Vent gas appliance, we recommend that your vent system is examined annually by a qualified service company for the following:

1. Verify the connection between the vent adapter and the appliance first joint.
2. Ensure that every joint of the venting system is properly fastened and screwed with 3 screws (outer casing).
3. Remove the termination cap to ensure that no obstruction could block the air intake and flue exhaust.
4. Verify if there is sign of corrosion.
5. Verify that the supports, flashing and storm collar are properly in place.

General Installation Notes

1. EXCELDirect® is a complete system, extending from the appliance to the outdoors.
2. Each appliance must have its own separate EXCELDirect® system.
3. Choose a gas appliance that has the label of a recognized Testing Laboratory (such as WH, UL, ULC, CSA and OMNI).
4. Install the gas appliance as described in the Installation Instructions accompanying the gas appliance. **BE CERTAIN TO MAINTAIN THE REQUIRED CLEARANCES TO COMBUSTIBLE CONSTRUCTION.**
5. The maximum height of un-guyed vent above the roof is 5 feet. If you have more than 5 feet use the EXCEL Chimney Roof Brace (XM-ERB).
6. Portions of the vent which extend through accessible spaces shall be enclosed in all cases to avoid personal contact with the vent and damage to the vent.
7. **DO NOT FILL THE AIR SPACE** around the vent with insulation or any other material. Do not fill the factory built supports with insulation. Insulation placed in this area could cause adjacent combustibles to overheat.
8. Do not allow sawdust or construction debris to accumulate around the vent. Clean all areas surrounding the vent before closing up any enclosed areas.
9. In attics, clean the joist area around the vent before installing any type of supports.
10. Horizontal venting terminations shall not be recessed into a wall or siding.

Planning your installation

General

Prior to starting your installation, we suggest you take the following into consideration:

1. There are two possible ways to connect a direct vent venting system to a gas appliance:
 - Horizontal installation (through the wall);
 - Vertical installation (through the roof).Check the appliance manufacturer's installation instructions to see all possible vent configurations.
2. Review all your options for the appliance location and also venting configuration. Try to minimize the alteration and reframing of structural components of the building (wall studs, water pipes, electrical wiring, ceiling joists, roof rafters, etc.). It may be easier to change the location of your appliance than to modify the building structure.
3. Carefully read the appliance and the venting system instruction manuals. Good planning might save you time, work and money.
4. Use only authorized EXCELDirect® listed components unless compatibility with another brand is specified in the appliance manufacturer's instructions. Do not use damaged parts.
5. For a horizontal installation, you will have to take into consideration the distance between the gas appliance adapter to the wall, as well as the wall thickness and a vertical rise (if applicable). The horizontal vent termination on the exterior must be located in accordance with the Installation Codes and Regulations. See "horizontal and vertical terminal location" section on page 20.
6. For a vertical installation, you must consider the distance between the gas appliance outlet and the ceiling, the ceiling thickness, the height of the attic or second floor and allow sufficient vent height above roof line. See Table 1 and Figure 11.
7. For two-story applications, firestops are required at each floor. If an offset is needed in the attic, additional lengths and elbows will be required.
8. Contact your local building authority and/or fire officials for permits, restrictions and installation inspections. You may also wish to contact your house insurance representative.

Tool checklist

Tools and equipment you may need for your installation.

- | | | | |
|------------------|----------------|-----------------------------|----------------|
| - Eye protection | - Stud sensor | - Keyhole saw | - Hammer |
| - Gloves | - Square | - Ladder | - Screwdrivers |
| - Tape Measure | - Circular saw | - Level | - Screws |
| - Extension cord | - Hand saw | - Pliers | - Plumb Bob |
| - Marking pencil | - Drill | - Caulking gun | - Cold chisel |
| - Nails | - Drill bits | - Hi temp. Silicone sealant | |

Rules of Safety

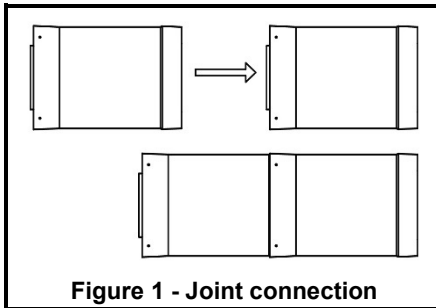
1. Wear gloves when handling metal parts with sharp edges.
2. Wear safety glasses.
3. Electrical tools must be grounded.
4. If a ladder is required, it must be in good condition, installed on a firm surface, and leveled.
5. When cutting a wall, floor or ceiling, be careful not to damage wiring, gas or water pipes. If these elements need to be relocated, work should be done by a qualified person.

Assembling Notes

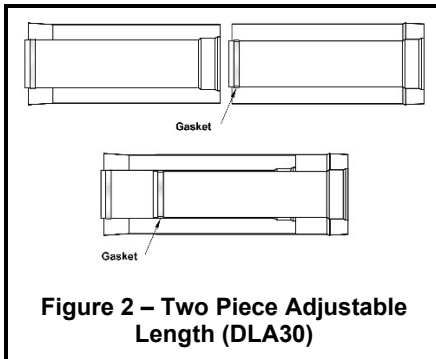
Use of sealant

EXCELDirect® does not require sealant on the flue. The inner liner has a factory installed high temperature gasket on each length that will make a sealed connection. It is not required to apply sealant on any inner liner joints, even if sealant is specified by the appliance manufacturer. The outer casing has a tapered friction seal which seals tightly, but requires sealant if the appliance manufacturer requires sealant on the exterior casing.

Joint connection



The outer casing of EXCELDirect® is tapered to make connection easy. Simply slide one length onto another and press firmly. The inner liner joint will be automatically sealed. Once the lengths are firmly joined, fasten the joint with the three #6 x 3/8" screws provided. All lengths are assembled this way.



Slip length (DLS1, DLS1B, DLS2, DLS2B)
EXCELDirect® slip lengths add 2"- 9" or 2"- 21" to a straight length.

Two-Piece adjustable length (DLA30, DLA30B)

EXCELDirect® two piece adjustable lengths are adjustable from 18" to 30". Two sections are included which telescope together and can be installed anywhere in a system.

Installation Instructions

Horizontal Installation

Horizontal Installation using a horizontal termination cap

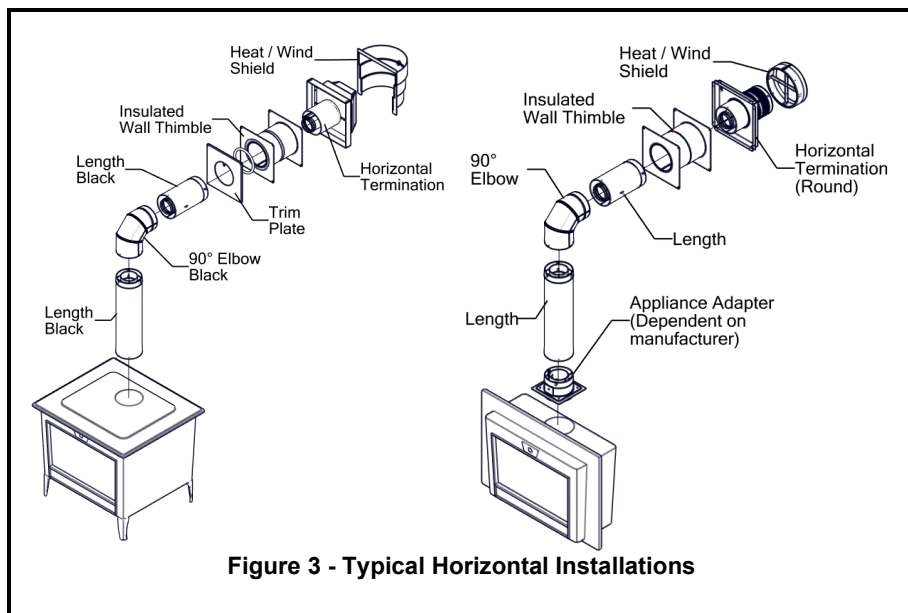
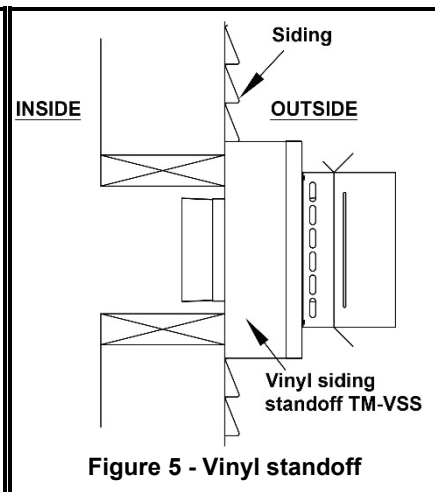
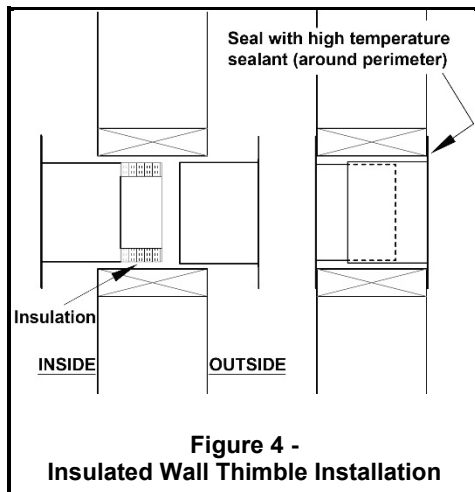


Figure 3 - Typical Horizontal Installations

1. Determine a location for the appliance, venting, and termination that agrees with both the codes and appliance manufacturer's requirements. See "Planning your installation" on page 4.
2. Venting configurations are specific to each gas appliance. Manufacturer's installation instructions will provide restrictions regarding maximum and minimum vent runs, number of elbows, as well as the relationships between lengths of vent run to vent rise.
3. EXCELDirect® fits most standard appliance outlet collars without an adapter, but appliance adapters are required for certain brands and applications. Insert the first length or adapter on the appliance outlet and fasten it to the appliance using the three #6 x 3/8" sheet metal screws provided. See appliance manufacturer's requirements if sealant is required for the first length.
4. Install and fasten the remaining vent components to achieve the desired layout.
5. Slide a Trim Plate (TP), or larger Trim Ring (TR) over the last vent section before penetrating the wall if the vent will remain exposed. The o'ring provided is intended to be installed between the trim and the wall thimble.

6. Move the gas appliance into its final position and mark the dimensions of the rough opening on the wall where the vent will pass: 8 3/4" x 8 3/4" for a 4" diameter vent or 10" x 10" for a 5" diameter vent. See the appliance manufacturer's installation instructions for exact clearance requirements to the insulated wall thimble. Cut and frame a hole in the interior and exterior wall making sure that the center of the hole is aligned with the center of the horizontal vent. The horizontal vent run must be level or have 1/4" rise per linear foot of run towards the termination. Never allow the vent to run downward.



Note: The EXCELDirect Insulated Wall Thimble (WT) is certified by OMNI test laboratory for zero clearance in all applications through a wall. This includes installations on Direct Vent appliances that specify more than standard clearance (e.g. 3") or have special adapters that would otherwise be required.

7. Install the interior and exterior portions of the Insulated Wall Thimble (WT) and screw (or nail) them to the framed opening. The wall thimble is insulated and will provide 1" clearance to combustible material as the vent passes through the wall. The insulated portion goes inside the house (see Figure 4).
8. Seal the perimeter of the exterior wall thimble using high temperature silicone sealant to prevent water infiltration.

Note: The wall thimble will fit wall thickness from 5 3/4" to 10 1/2". For wall thickness less than 5 3/4", cut both sleeves as required. Once installed, an overlap of 1" minimum is necessary. For wall thickness greater than 10 1/2", the Wall Thimble Extension (WTE) can be used, and will accommodate walls up to 20 3/4" thick.

9. The vent portion of the Horizontal Termination is a slip length which provides up to 6" of adjustment. If the wall is less than 6" thick you may

have to paint the slip portion of the termination as it will be visible in the home.

- From outside, fasten the Horizontal Termination (HT, DHT or RHT) using four #8 x 2" wood screws. The horizontal termination can accommodate siding up to 1 ½" deep. An optional Vinyl Siding Standoff (VSS) is available for deeper siding (Figure 5). Seal the perimeter of the Horizontal Termination using silicone sealant to prevent water infiltration.
- Optional Horizontal Wind/Heat Shield (HTS, RHTS) are available that can improve cap performance in high winds and provide heat protection which may be required with some appliances.

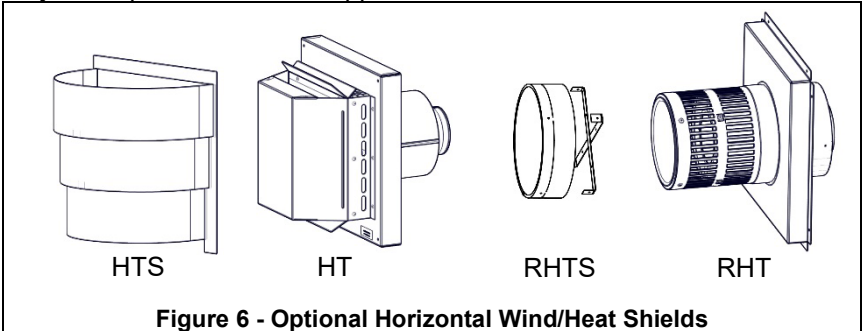


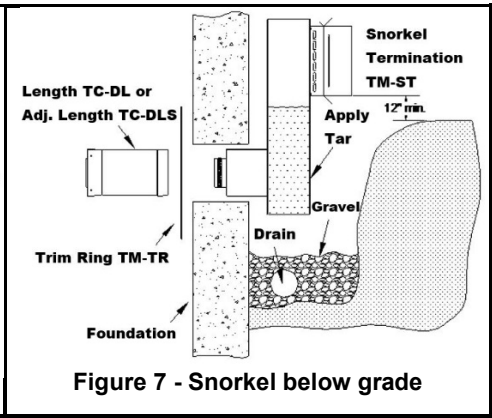
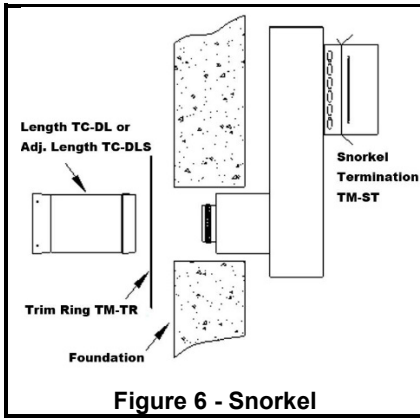
Figure 6 - Optional Horizontal Wind/Heat Shields

- From inside, move the gas appliance into its final position making sure the vent pipe will fully engage with the termination. If the connection between the vent and termination is in the wall and not accessible, fastening the together is not required.
- Fasten the Trim Plate (TP), or larger Trim Ring (TR) to the wall and to the vent.

Horizontal Installation - Snorkel Termination

When the horizontal termination is too close to the ground or a vertical rise is required, 14" and a 36" tall snorkel terminations are available. See Figure 6.

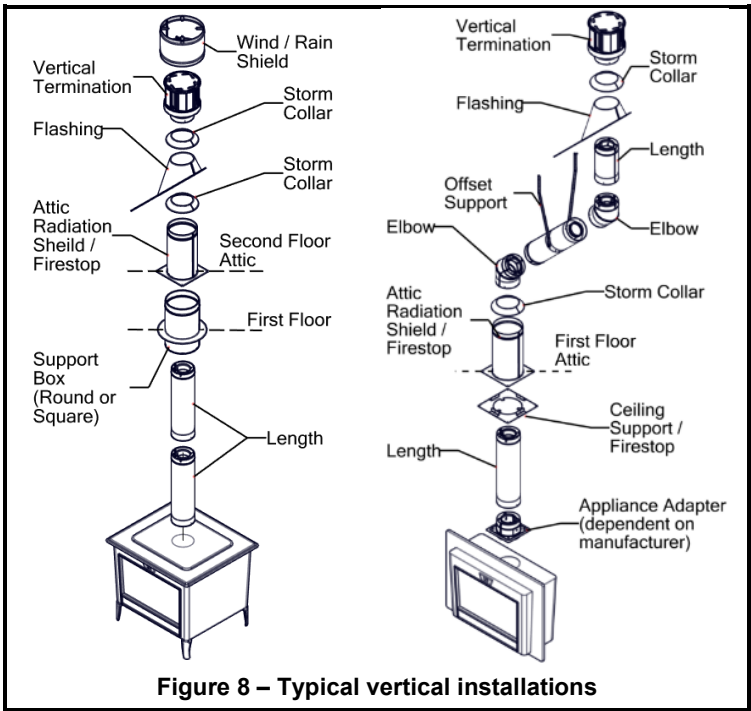
Follow the same instructions as described in the "horizontal termination" section.



If the base of the snorkel is below grade (i.e. basement installation), proper drainage is required to prevent water from entering in the snorkel. The portion of the snorkel that is below grade must be coated with tar to prevent corrosion. See Figure 7.

Vertical Installation

Vertical installation – Straight



1. Determine a location for the appliance, venting and termination that agrees with all the codes and appliance manufacturer's requirements. See "Planning your installation" on page 4.
2. Venting configurations are specific to each gas appliance. Manufacturer's installation instructions will provide restrictions regarding maximum and minimum vent runs, number of elbows, as well as the relationships between lengths of vent run to vent rise.
3. Place the gas appliance in its final position. Hold a plumb bob from the ceiling and align it with the centerline of the appliance flue outlet (or the first elbow if the appliance has a horizontal outlet). Mark the position on the ceiling. If there is an obstruction (e.g. framing), an offset will be required. Refer to the section "Elbows and Offsets" on page 12 to determine the components required for the offset.
4. Refer to the "Supports" section on page 13 to choose the appropriate support for your application. The maximum support capacity is indicated in the table "EXCELDirect® Technical Specifications", on page 2.
Important: A firestop is required at each floor, installed from below.
5. Cut and frame a hole in the ceiling to the dimensions indicated in the "EXCELDirect® Technical Specifications" table on page 2. Dimensions will vary depending on the type of support used. See the appliance manufacturer's installation instructions for exact clearance requirements.
6. EXCELDirect® fits most standard appliance outlet collars without an adapter, but appliance adapters are required for certain brands and applications. Insert the first length or adapter on the appliance outlet and fasten it to the appliance using the three #6 x 3/8" sheet metal screws provided. See appliance manufacturer's requirements if sealant is required for the first length.
7. Continue adding and fastening vent components until the vent passes through the support at the ceiling.
8. Place a mark on the length that passes through the support at the location where it meets the support. This is where the Universal Support Collar will be installed. Remove the length for the support collar to be installed.
9. Pre-assemble the support collar (for either 6 5/8" or 8" outer casing) as shown in Figure 9. Install the collar on the length of vent that will pass through the support and tighten the locking bolt at your mark. Permanently fasten the collar using three metal screws. Install the vent length in the support and connect it to the length below using the screws provided.
10. Proceed the same way if you have to pass through supports on other floors.

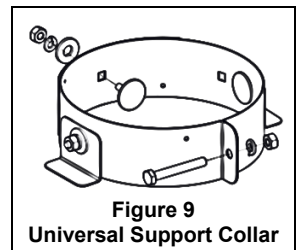


Figure 9
Universal Support Collar

11. At the attic level, if the vent is not enclosed, see the "Attic" section in this manual for the installation alternatives offered to you. If the vent is enclosed in the attic, always keep at least 1" clearance to combustibles unless the gas appliance manufacturer's installation instructions specify different clearances.
12. Continue adding vent lengths through the roof until the required vent height extends to a point above the roof which complies with local or national code requirements and with the gas appliance manufacturer's installation instructions. See Figure 11 and Table 1. The maximum height of un-guyed vent above the roof is 5 feet. If you have more than 5 feet use the EXCEL Chimney Roof Brace (XM-ERB).

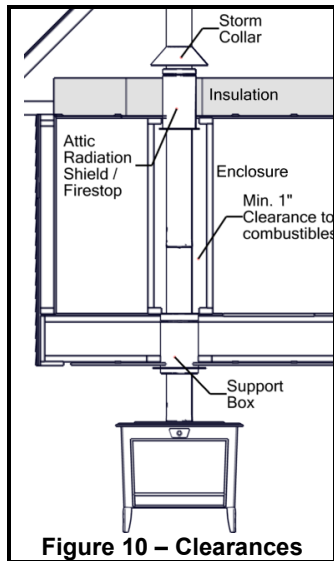
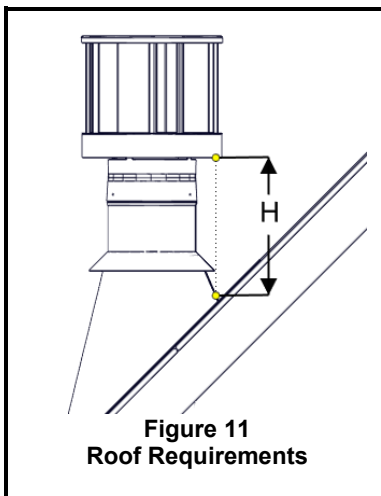


Figure 10 – Clearances

13. Install the appropriate roof flashing for your roof pitch: Seal the joint between the roof and the flashing with roofing tar or silicone sealant. For pitched roofs, place the flashing under the upper shingles and on top of the lower shingles - approximately half of the flashing should be under the shingles. Nail the flashing to the roof using roofing nails. Place the storm collar over the vent and the flashing. Bend the tab on the collar in the appropriate slot. Seal the storm collar to the venting with silicone sealant.



**Figure 11
Roof Requirements**

Table 1 - Minimum Recommended Vent Height		
Roof Pitch	Minimum Height (H)	
	Feet	Meter
Flat to 7/12	1' - 0"	0.3
Over 7/12 to 8/12	1' - 6"	0.46
Over 8/12 to 9/12	2' - 0"	0.61
Over 9/12 to 10/12	2' - 6"	0.76
Over 10/12 to 11/12	3' - 3"	0.99
Over 11/12 to 12/12	4' - 0"	1.22
Over 12/12 to 14/12	5' - 0"	1.52
Over 14/12 to 16/12	6' - 0"	1.83
Over 16/12 to 18/12	7' - 0"	2.13
Over 18/12 to 20/12	7' - 6"	2.29
Over 20/12 to 21/12	8' - 0"	2.44

14. Install a vertical termination cap (SVT) on top of the vent. Fasten it using three #6 x 3/8" sheet metal screws provided.
15. An optional Vertical Wind/Heat Shield (SVTS) is available that can improve cap performance in high winds.

Elbows and Offsets

If the vent cannot pass directly above the stove, an offset will be required. Use Figure 12 and Table 2 to determine the parts required. Whenever possible, use 45° elbows instead of 90° elbows because they offer less restriction.

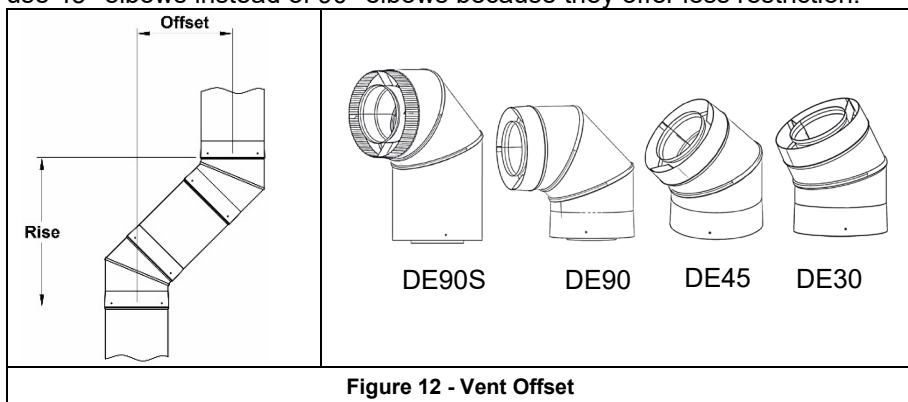


Figure 12 - Vent Offset

Table 2 - Vent Offset Specifications							
Flue Ø	Elbow	Offset & Rise	Length between elbows				
			No Length	6"	12"	24"	48"
4"	30°	Offset	2 7/8"	5"	8"	14"	26"
		Rise	10 3/4"	14 7/16"	19 5/8"	30"	50 13/16"
	45°	Offset	4 3/8"	7 1/2"	11 3/4"	20 1/4"	37 1/4"
		Rise	10 1/2"	13 5/8"	17 7/8"	26 3/8"	43 3/8"
	90°	Offset	10 3/4"	15 1/4"	21 1/4"	33 1/4"	57 1/4"
		Rise	10 3/4"	10 3/4"	10 3/4"	10 3/4"	10 3/4"
5"	30°	Offset	2 7/8"	5"	8"	14"	26"
		Rise	10 3/4"	14 7/16"	19 5/8"	30"	50 13/16"
	45°	Offset	4 7/8"	8"	12 1/4"	20 3/4"	37 3/4"
		Rise	11 3/4"	14 7/8"	19 1/8"	27 5/8"	44 5/8"
	90°	Offset	12"	16 1/2"	22 1/2"	34 1/2"	58 1/2"
		Rise	12"	12"	12"	12"	12"

Firestops

A firestop is required on each floor, ceiling or wall. The only place where a firestop is not required is at the roof level. EXCELDirect® offers different types of firestops to fit all possible applications.

- On a horizontal installation, the Insulated Wall Thimble (WT) acts as a firestop (Figure 4). In cases where the Wall Thimble is not required (only for 100% non-combustible walls), the Trim Plate (TP) or round Trim Ring (TR) can be used as a firestop, otherwise they are simply used as decorative trims.

- On vertical installations the Trim Plate (TP), Trim Ring (TR), Ceiling Support (CS), Round Support (RDS), Square Support (SS), and Attic Radiation Shield (AS) can all be used as firestops.

Supports

EXCELDirect® has different supports for different applications. For convenience, some supports also act as firestops to optimize your installation. The "EXCELDirect® TECHNICAL SPECIFICATIONS" section on page 2 shows the maximum support capacity table for each type of support. Here are different types of installation with supports.

Ceiling Support / Firestop (CS)

The Ceiling Support/Firestop can be used on any floor level. It is the best choice when a structure hides the venting system (enclosed chimney).

Cut and frame a hole to the rough opening dimensions shown in the table on Page 2. Screw the corners of the support to the framing from below with four #8 x 1 1/2" wood screws.

Bend the three tabs in the center of the opening downwards, into the room. Then, using another four #8 x 1 1/2" wood screws, attach the Ceiling Support to the framing through the vertical spacers as shown in Figure 13.

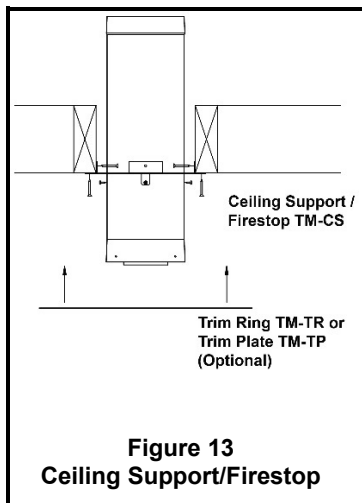


Figure 13
Ceiling Support/Firestop

Pass the venting through the support and then fix the support to the pipe with the three tabs that were previously bent downwards. Use the screws provided.

Round and Square Support / Radiation Shield (RDS & SS)

The Round Support or Square Support / Radiation Shield are used when the venting system is not enclosed and a visual effect is desired (e.g. a freestanding gas stove). These supports are installed from below. Figure 14 shows an example. Screw the support to the framed joist with four #8 x 1 1/2" wood screws or use the support collar supplied with the Round Support. The supports are designed to project below the ceiling for a visual effect into the room (1/4" below the ceiling minimum). Place the Finish Trim around the support and fasten it to the ceiling using the screws provided.

Note: *When the Round Support / Radiation Shield is used, the framing in the ceiling can be square as previously described, but the drywall cut in a circle.*

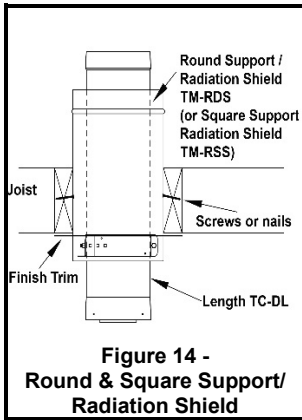


Figure 14 -

Round & Square Support/
Radiation Shield

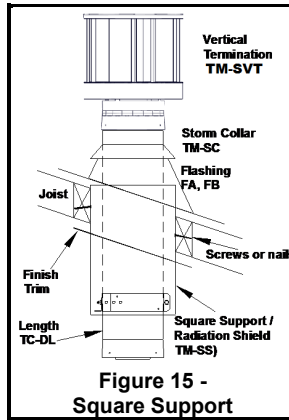


Figure 15 -

Square Support

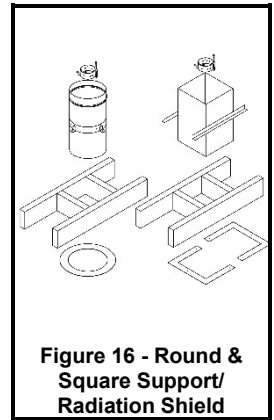


Figure 16 - Round &
Square Support/
Radiation Shield

As shown in Figure 15, the Square Support is designed for cathedral ceilings. From below, push the support into the framed hole. Screw the support to the framed joist with four #8 x 1 1/2" wood screws. Place the two parts of the Finish Trim around the support and fasten it to the ceiling using the four screws provided. The support must project below the ceiling a minimum of 1/4" into the room.

Adjustable Wall Support (WS)

This support (Figure 17) is typically used when you are installing a vertical run near a wall.

1. Pre-assemble the universal support collar to fit either the 6 5/8" or 8" outside vent casing.
2. Install the support collar on the vent. Tighten the collar locking bolt just enough to hold the wall support in place.
3. Fasten the wall support brackets to the wall in a convenient location. First, drive two #8 x 1 1/2" or larger screws into the slotted holes.

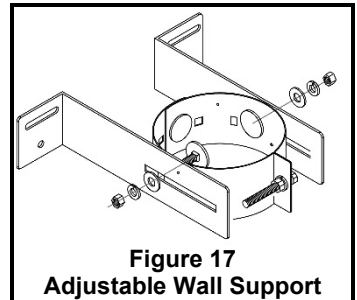


Figure 17
Adjustable Wall Support

When you are certain of the bracket locations, use two #8 x 1 1/2" or larger screws in the round holes to firmly attach the brackets in place. Ensure the screws are solidly fastened to the wall structure. The wall support brackets are slotted to allow them to adjust in and out. Adjust the brackets so that the vent is parallel to the wall at the clearance specified by the appliance manufacturer's installation instructions.

4. Tighten the universal support collar around the vent, and then secure it using three #6 x 3/8" screws provided.

Note: The Adjustable Wall Support can also be used to support horizontal run of venting.

Offset Support (OS)

When an offset is necessary in a vertical venting system (Figure 18), it is important to support the vent to avoid excessive stress on the elbows.

1. Pre-assemble the universal support collar as shown for the correct vent size. The collar is adjustable for the 6 5/8" or 8" outside vent casing.
2. Install the universal support collar on the vent. Tighten the collar locking bolt just enough to hold the collar in place.
3. Fasten the strapping of the offset support to the framing with two #8 x 1 1/2" or larger screws on each straps. See drawing 18.
4. Tighten the universal support collar around the vent then secure it using three #6 x 3/8" screws provided.

Note: The Offset Support can also be used to support horizontal runs of venting.

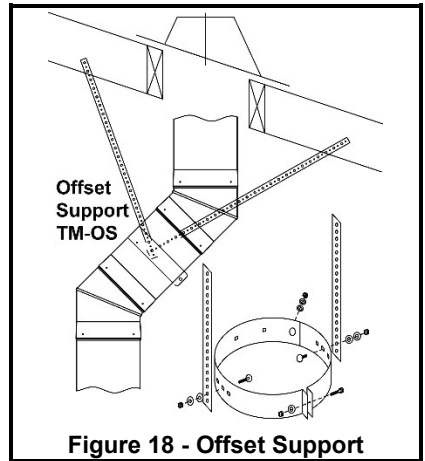


Figure 18 - Offset Support

Attic

If the vent is not enclosed in the attic, the following installation alternatives are possible:

Alternative 1

A Round Support (RDS) with a Storm Collar (SC) on top or a Square Support (SS) with a Square Support Storm Collar (SQSC) on top to prevent loose fill insulation from falling in the space between the direct vent and the support. Figure 19.

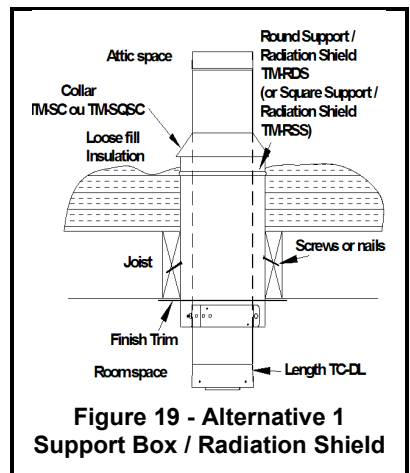


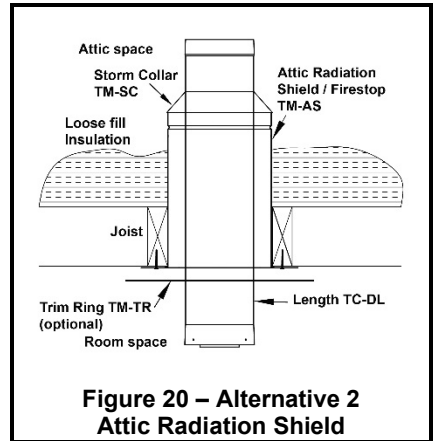
Figure 19 - Alternative 1 Support Box / Radiation Shield

Alternative 2

Attic Radiation Shield / Firestop (AS) installed from below the ceiling if no support is required as shown in Figure 20. A Storm Collar (SC) must be added to prevent loose fill insulation from falling in the space between the direct vent and the shield.

The Trim Plate (TP) or Trim Ring (TR) can be added as a decorative finish at the ceiling.

This alternative does not provide any support.



**Figure 20 – Alternative 2
Attic Radiation Shield**

Masonry Chimney Installation - Co-linear venting

This application is for appliances (normally gas inserts) with two co-linear outlets. We recommend using EXCELDirect® UL/ULC Certified Aluminum Flex. If using an EXCELDirect® masonry termination cap, ensure it is used with a listed flexible lining system that has been certified to the requirements of the ANSI/CSA Appliance Standard. Always refer to the manufacturer's Installation instructions for approval. The following options are available for lining a masonry chimney:

Part Code	Description
<u>ALK33 / ALK43</u>	Standard 35' Co-linear Aluminum Flex Kit 3"x3" or 4"x3" (includes two 35' flex lengths, IVT cap, MFR flashing, hose clamps)
<u>ALT33 / ALT43</u>	Traditional 35' Co-linear Aluminum Flex Kit 3"x3" or 4"x3" (includes two 35' flex lengths, CT3 or CT4 cap, CTF flashing, hose clamps)
<u>ALØ30 / ALØ50</u>	Aluminum Flex Roll (Flex Only) in 3" or 4" diameter 30' or 50' long
<u>IVT</u>	Insert Vertical Termination (fits 3x3 or 4x3 outlets)
<u>CT3 / CT4</u>	Traditional Co-linear Chimney Cap 3x3 or 4x3 outlets
<u>CTS</u>	Rain / Wind Shield for CT3, CT4 & PCT cap
<u>4CAA</u>	Co-Axial to Co-Linear Appliance Adapter
<u>4MAC33</u>	Co-Linear Masonry Adapter 3"-3"
<u>CTA / CTA4</u>	Co-linear Termination Adapter 3x3 or 4x3
<u>CFAA3 / CFAA4</u>	Flex Liner Connector (3" or 4")
<u>MFR</u>	Universal Flashing for Round Caps
<u>MFC</u>	Clay Tile Flashing for Round Caps
<u>MF</u>	Masonry Chimney Flashing (stainless)
<u>CTF</u>	Universal Flashing for Traditional Caps
<u>CTFC</u>	Clay Tile Flashing for Traditional Caps
<u>HC</u>	Hose Clamp Bracket for Clay Tile Flashings
<u>IVTP</u>	Prefab Chimney Top Adapter for IVT

Co-linear Flex Kits (ALK33/43 or ALT33/43)

EXCELDirect co-linear flex kits include two 35' coils of UL certified two-ply aluminum flex, a co-linear cap, a flashing and hose clamps.

Co-linear Termination Adapter (CTA)

Available for 3" or 4" exhaust, the Co-linear Termination Adapter converts two flexible liners to a standard co-axial vent system and has a built-in flashing.

Additional rigid EXCELDirect® lengths can be added on top of the CTA to increase the system height if necessary (Figure 21).

Traditional Co-linear Termination (CT)

Available for 3" or 4" exhaust, the Traditional Co-linear Termination is rectangular and resembles a traditional masonry cap (Figure 21). Installation of the CT requires a flashing (CTF, CTFC).

Insert Vertical Termination (IVT)

The Insert Vertical Termination is a vertical termination cap with a built-in co-linear adapter at the base. Installation of the IVT requires a flashing (MF, MFR, MFC). The IVT includes connectors for appliances that use either 3" or 4" exhaust (Figure 21).

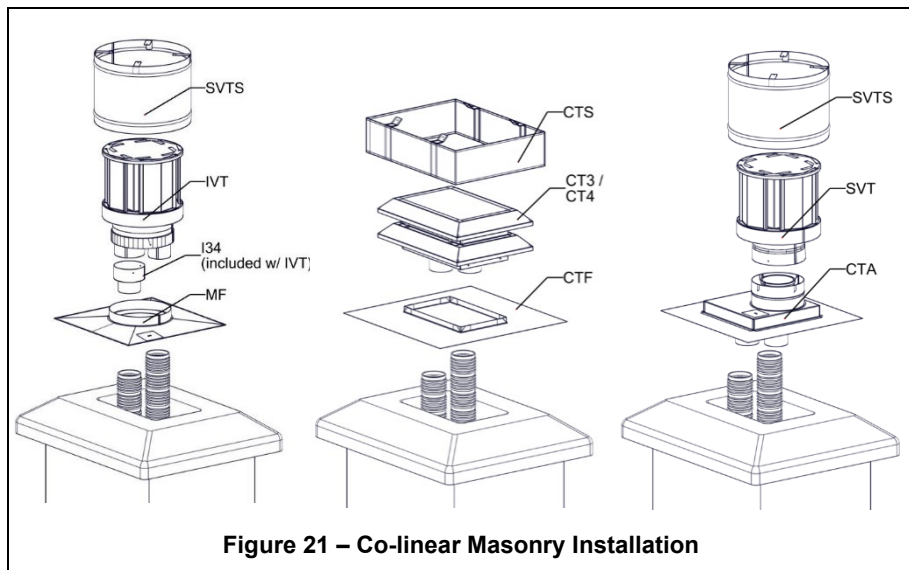


Figure 21 – Co-linear Masonry Installation

Note: The inside of the masonry chimney must be big enough to accommodate the two flex liners (typically 7" I.D., 6"x6", etc.). The existing chimney also needs to be completely cleaned of soot and creosote. Have the masonry chimney inspected by a qualified technician (sweep, building inspector, etc.) for structural integrity.

1. To determine the length of flex liner required, measure the distance between the top of chimney and the gas appliance. Cut two lengths of Listed flex pipe to this length. The flex should already be extended to its nominal length. If the liner is unidentified, mark one of the two liners at the top and bottom as either exhaust or intake to prevent confusion later.
2. Prior to inserting the flex liners, prepare the flashing (or baseplate if using the CTA). If the flashing is larger than the top of the chimney, then cut and fold it as needed to fit. Do not seal it in place yet, set it aside.
3. Slide the two flex liners down through the masonry chimney one by one. Be careful when you pass through the damper not to damage the flex liner.

If you have to join two lengths of flex liner together use the Flex Liner Connector (CFAAØ) as shown in Figure 22.

4. Install the flashing on the top of the chimney. Seal the flashing to the chimney with silicone sealant and masonry bolts before proceeding (Figure 21).
5. Attach the two flex liners to the outlets with hose clamps or screws. High temperature sealant is recommended for the liner (and increaser) that will be used for exhaust (Figure 21).

Co-linear Adapters (4CAA & 4MAC33)

6. Depending upon the type of connection your appliance has, it will require you to connect the two flex liners directly to the appliance or to install a Co-axial to Co-linear Appliance Adapter (4CAA) or Co-linear Masonry Adapter (4MAC33). See Figure 22.
 - a. If the outlet of your appliance consists of two separate outlets at the back of the unit, see the appliance manufacturer's installation instructions for connection details before proceeding to step 7.
 - b. If a Co-axial to Co-linear Appliance Adapter (4CAA) is needed, then fasten the adapter to the appliance using the three sheet metal screws provided before proceeding.
 - c. For a freestanding gas stove, the Co-linear Masonry Adapter (4MAC33) is required. It is possible that the masonry opening may have to be enlarged for a flush fit. Ensure the orientation of the 4MAC33 is such that the flex hose for the exhaust is **above** the flex for the intake. Masonry anchors are not provided.
7. Line up the flex liners with the two outlets on the gas appliance. Ensure that the flex liner connected to the flue side of the termination is connected to the flue of the appliance. Use high temperature sealant and the hose clamps provided to seal the joint of the flue portion. Sealant is not required for the air intake, only a hose clamp, unless otherwise specified in the manufacturer's installation instructions. Do not let the flex liner sag below the level at which it is connected to the gas appliance or adapter. This could allow hot gas to become trapped and potentially become a fire hazard. The flex liner path should always be sloped up toward the termination cap.
8. Move the gas appliance to its final position.

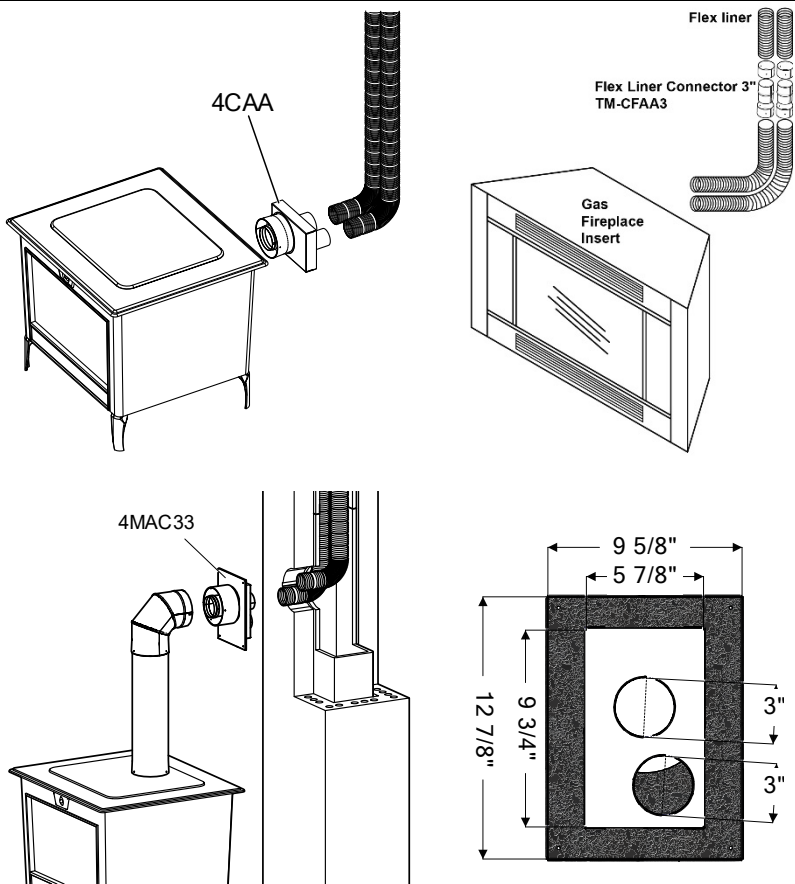


Figure 22 - Appliance connection method for co-linear installation

Horizontal and vertical termination location

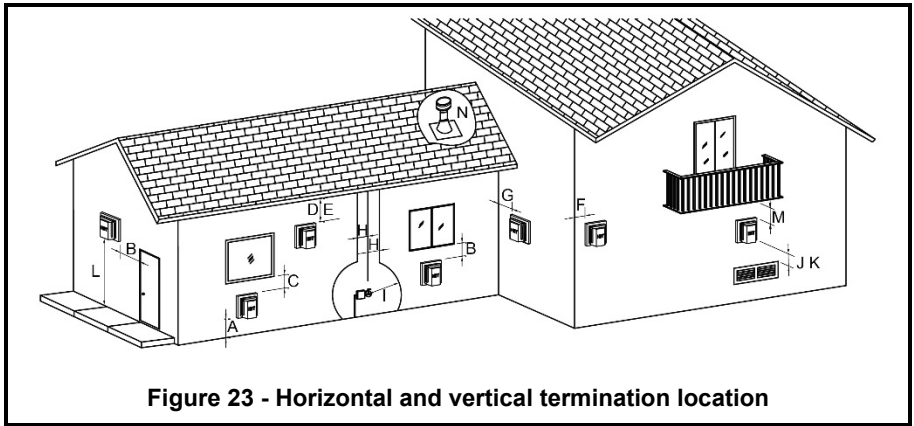


Figure 23 - Horizontal and vertical termination location

INSTALLATION			
	CANADIAN ¹	U.S.A ²	
A	12 in. (30 cm)	12 in. (30 cm)	Clearance above grade, veranda, porch, deck, or balcony.
B	12 in. (305 mm) ³	9 in (23 cm) ⁴	Clearance to a window or door that may be opened.
C	12 in. (30 cm) ⁵	12 in. (30 cm) ⁵	Clearance to a permanently closed window.
D	18 in. (45 cm)	18 in. (45 cm)	Clearance to a ventilated soffit located above the termination within a horizontal distance of 2 feet from the center-line of the termination.
E	12 in. (30 cm)	12 in. (30 cm)	Clearance to an unventilated soffit.
F	As tested by appliance Manufacturer		Clearance to an outside corner.
G			Clearance to an inside corner.
H	36 in. (90cm)	36 in. (90cm) ⁶	Clearance to each side of the centerline extended above the meter/regulator assembly to a maximum vertical distance of 15 feet.
I	36 in. (90cm)	36 in. (90cm) ⁶	Clearance to service regulator vent outlet
J	12 in. (30 cm)	12 in. (30 cm)	Clearance to a non-mechanical air supply inlet to the building or the combustion air inlet to any other appliance
K	6 feet (1.83m)	6 feet (1.83m)	Clearance to a mechanical air supply inlet
L	7 feet (2.13m) ⁷	7 feet (2.13m) ⁶	Clearance above a paved sidewalk or a paved driveway located on public property.
M	12 in. (30 cm) ⁸	12 in. (30 cm) ⁶	Clearance under a veranda, porch, deck or balcony.
N	---	---	Refer to Figure 11 and Table 1 on page 11

¹: In conformity with the current Natural Gas and Propane Installation Code, CAN/CSA B149.1.

²: In conformity with the current National Fuel Gas Code, ANSI Z223.1.

³: 6 in. (15cm) for an appliance ≤ 10 000 BTU/h (3 Kw), 12 in. (30cm) for an appliance > 10 000 BTU/h (3 Kw) and ≤ 100 000 BTU/h (30 Kw), 36 in. (90cm) for an appliance > 100 000 BTU/h (30 Kw).

⁴: 6 in. (15cm) for an appliance ≤ 10 000 BTU/h (3 Kw), 9 in. (23cm) for an appliance > 10 000 BTU/h (3 Kw) and ≤ 50 000 BTU/h (15 Kw), 12 in. (30cm) for an appliance > 50 000 BTU/h (15 Kw).

⁵: Recommended to prevent condensation on windows and thermal breakage.

⁶: This is a recommended distance. For additional requirements, check local code.

⁷: A vent shall not terminate above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings. For additional requirements, check local code.

⁸: Only permitted if veranda, porch, deck, or balcony is fully open on a minimum of 2 sides beneath the floor.

LIMITED LIFETIME WARRANTY ICC EXCELDirect® VENTING SYSTEM

ICC warrants its EXCELDirect® venting system components to be free from functional failure due to defects in material or workmanship for as long as the original consumer owns the vent system. This warranty provides for replacement of any vent components which fails as a result of normal use on a residential appliance. This warranty does not cover smoke damage or damage caused to the building by chimney fires or misuse of the product.

No claims under this warranty will be honored unless ICC is notified of the potential claim and is given the opportunity to have one of its agents examine the vent system prior to replacement.

ICC will only be responsible for repair or replacement of any vent found to be defective under this warranty. In no event shall ICC be responsible for any incidental or consequential damage caused by defects in the EXCELDirect® venting system.

During the first five years of the warranty ICC will provide replacement vent lengths at no charge. During the balance of the warranty ICC will provide replacement vent lengths at 50% of the current retail price at the time of the warranty claim.

ICC will not be responsible for labor of any kind required in the removal or replacement of an EXCELDirect® system replaced under this warranty.

This venting system is designed to vent residential Gas-Fired Direct Vent gas appliances which are certified for use with the EXCELDirect® venting system. This warranty is void if the venting system is used in an application for which it is not designed.

The EXCELDirect® venting system must be installed according to the Installation Instructions included with every system at the time of purchase. If you do not have a set of installation instructions they are available free upon request. This warranty is void if the venting system is not installed according to the installation instructions.

This warranty may not be extended or modified by our agents or representatives. This warranty is in lieu of all other express warranties or guarantees, of any kind.

