

Installation Instructions



Combined Category I and
IV venting for Gas-Burning
Appliances

For the most up-to-date installation instructions, see www.duravent.com

CONTENTS

LISTING.....	3
NOTES / APPLICATION.....	3
CLEARANCES (TABLE 1).....	3
PRIOR TO INSTALLATION.....	3
INSTALLATION OF LINER.....	5
MAINTENANCE.....	7
WARRANTY.....	8

ENS 80/90®

DuraVent®

A MAJOR CAUSE OF VENT RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS. IT IS OF THE UTMOST IMPORTANCE THAT DURAVENT PRODUCTS BE INSTALLED ONLY IN ACCORDANCE WITH THESE INSTRUCTIONS.

! WARNING

CARBON MONOXIDE POISONING HAZARD. Failure to follow the steps outlined below for each appliance connected to the venting system being placed into operation could result in carbon monoxide poisoning or death.

- Examine all components for possible shipping damage prior to installation;
- Read all instructions before beginning the installation and follow these instructions exactly as written.
- Proper joint assembly is essential for a safe installation. Check the integrity of ALL joints upon completion of assembly
- This venting system must be free to expand and contract under normal operation.
- Assure unrestricted vent movement where required through walls, ceilings and roof penetrations.
- This venting system must be supported in accordance with these instructions.
- Do not mix pipe, fittings, or joining methods from different vent system manufacturers. Do not use adhesives of any kind with this venting system. Acceptance of the installed system is dependant on full compliance with these installation instructions.

! WARNING

Risk of carbon monoxide poisoning or fire due to joint separation or pipe breakage.

Keep these instructions for future reference.

Dear Customer, Installer, or End User:

We welcome any comments regarding matters pertaining to our DuraVent products. We welcome any ideas, input or complaints to help improve our product offering.

If you are searching for tech support or product information, please call us at 800-835-4429.

Or email us at:
techsupport@duravent.com



LISTED
MH6357

LISTING

DuraVent's FNS 80/90 Combination Cat I and Cat IV gas vent system is designed and UL listed for use with approved Duravent special gas vent components only! Listed to applicable portions of ULC S636/UL1738, UL1777, and UL441.

GENERAL INSTALLATION NOTES

Read these instructions before beginning.

You must follow these installation instructions when installing the FNS 80/90 system. This is a supplemental instruction to other DuraVent listed instructions that are used during this installation.

APPLICATION

The FNS 80/90 system is a tested and listed exhaust vent for the replacement of one Category I gas fired appliance with a high efficiency appliance in an existing Type B common vent system. In a typical common vent Type B setup (**Fig. 1**), two Category I

(Cat I) appliances vent into one common vent that conveys flue products outside the building. In many appliance retrofits, one Cat I appliance is removed, and replaced with a higher efficiency (typically a Cat IV) condensing appliance. The new Cat IV appliance is **NOT** permitted to be vented with B Vent, but requires a vent system engineered for a different exhaust requirement. Condensing appliances have much lower exhaust temperatures, which create significant amounts of acidic condensate. Using the FNS 80/90 solution, a special stainless steel Cat IV liner is installed within the existing Cat I vent. This flex handles the Cat IV flue products, while the remaining Cat I appliance uses the annular space **around** the liner to exhaust flue products to the outside via natural draft (**Fig.2**). A patent pending termination is engineered to provide separate exhaust exit paths for each appliances's exhaust system (**Fig.2**). The combination of these systems helps both operate more effectively.

! IMPORTANT
The vent system must be installed in accordance with local code requirements and appropriate National Codes: In the US: NFPA 54 / ANSI Z223.1 National Fuel Gas Code or the International Fuel Gas Code.

! WARNING
CARBON MONOXIDE POISONING HAZARD
Failure to follow these installation instructions could result in personal injury or death

Table 1		
Clearance to Combustibles		
	VENT PIPE ORIENTATION	
	Vertical	Horizontal
Type B Gas Vent	Unchanged	Unchanged

PRIOR TO INSTALLATION: RE-LINING COMMON VENTED B VENT SYSTEMS

When relining common vented B-Vent (or other approved factory built vent), special

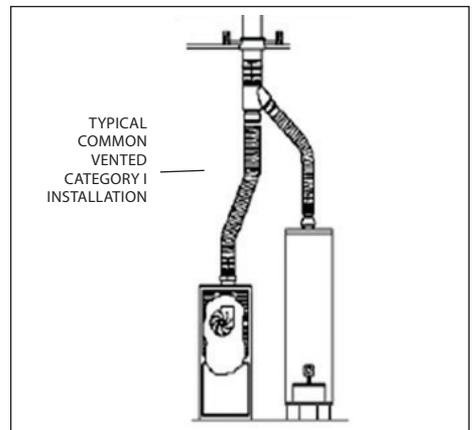


Figure 1

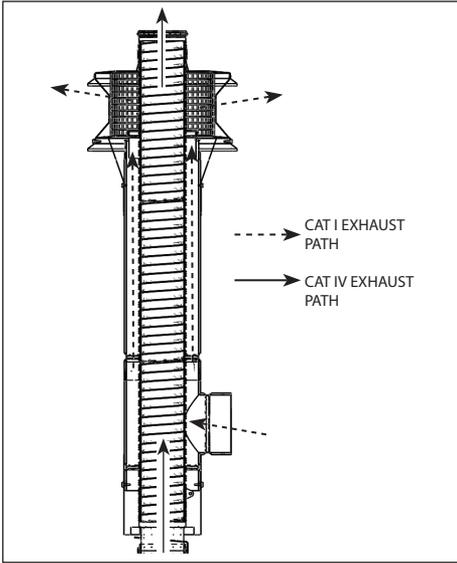


Figure 2

care must be taken. Prior to reline work being started:

Ensure the new proposed vent system is appropriate for the two appliances in question. For the Category IV appliance, reference the OEM Appliance manual for information on min/max vent run and vent diameter requirements. OEM guidance should include maximum number of elbows

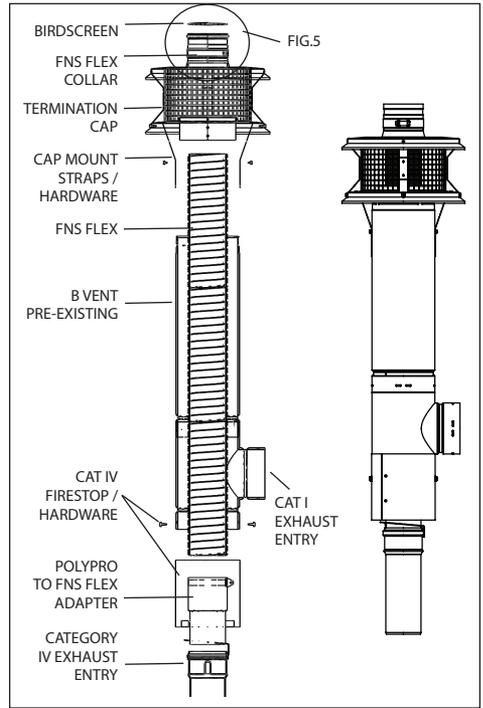


Figure 3

and related pressure-drops. The total vent length from the appliance to the termination should not be greater than the maximum Equivalent Vent Length (EVL) specified by the

Table 2 - Equivalent Length Chart

	2" Equivalent Length	3" Equivalent Length	4" Equivalent Length	5" Equivalent Length
1-ft Rigid Pipe	1-ft	1-ft	1-ft	1-ft
1-ft SS FNS (or Secure Seal)Flex	Same as rigid pipe (or elbows)	Same as rigid pipe (or elbows)	Same as rigid pipe (or elbows)	Same as rigid pipe (or elbows)
1-ft Flex Pipe	0.4-ft (upsized one diameter)	0.6-ft (upsized one diameter)	0.6-ft (upsized one diameter)	N/A
45 Elbow	3-ft	3-ft	5-ft	6-ft
90 Elbow	5-ft	7-ft	12-ft	14-ft
Tee	9-ft	12-ft	19-ft	21-ft

appliance manufacturer. If specific guidance is not offered by the appliance manufacturer regarding EVL for vent components, the general guidelines in **Table 2** may be used for PolyPro, FNS, FNS W2 and Security Chimney Secure Seal product.

For sizing of the remaining Cat I appliance into the B Vent, reference **Table 3**. This Table shows B Vent diameter, inner Cat IV liner diameter, and the resulting annular space in terms of an "Equivalent" diameter. This data takes into account flow restriction on the Cat I flue introduced from the inner flex and has been experimentally confirmed. Ensure this "equivalent" diameter is appropriate for your remaining Cat I appliance via use of Type B Gas Vent sizing tables / NFPA54 (Chapter 13). Treat the connector from the Cat I appliance and the common vent as a single appliance vent with the height, length, offsets, etc and verify that the tables confirm adequate capacity of this annular space before proceeding.

After confirming the combination vent system is appropriate for your installation, inspect the physical condition of existing B Vent. The B vent must be inspected for evidence of damage, internal flue blockage, appropriateness of components including firestops, supports, etc. The inspection must also ensure the original installation meets current codes for termination location, height, etc. Clean and repair as needed to bring the vent system into compliance.

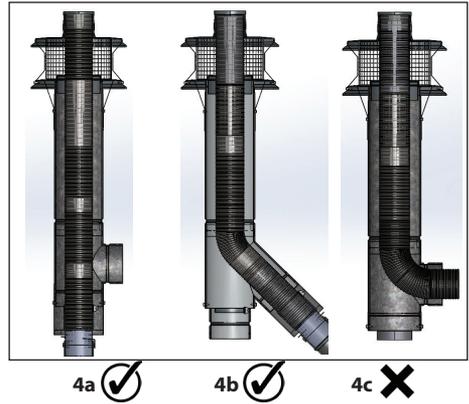


Figure 4

INSTALLATION OF LINER WITHIN B VENT

Reference **Fig.3** for the components required. Inspect the area where the Cat I exhausts come together- typically a "Tee" or "Wye". It is critical that when the Cat IV liner is installed, it maintain a slope of at least 45° downward towards the appliance (**Fig.4**) throughout the vent run- This is to ensure proper flow of condensate back to the appliance / drain. If the inlet end of the existing (common) B vent is a tee, either the flex for the Cat IV appliance vent must route through the bottom end of the tee (**Fig.4a**) or the tee should be replaced with a "wye" (**Fig.4b**), so the flex can route through the inclined snout of the wye (to maintain proper slope). Do not install per **Fig.4c!**

If the lower tee or wye needs to be replaced,

Table 3 - Annular Space- Effective Remaining B Vent Diameter				
	2" Cat IV Liner Dia	3" Cat IV Liner Dia	4" Cat IV Liner Dia	5" Cat IV Liner Dia
5" B Vent	4"	3"	N/A	N/A
6" B Vent	5"	4"	4"	N/A
7" B Vent	6"	5"	5"	4"
8" B Vent	6"	6"	6"	5"

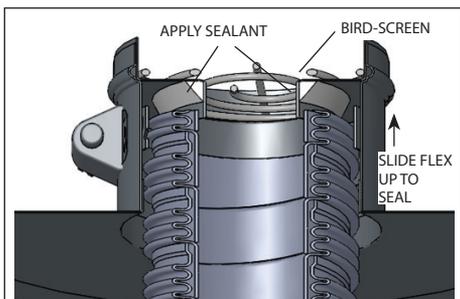


Figure 5a- 2" Flex



Figure 5b- 3"-5" Flex

determine the existing brand of B Vent. If the B Vent is DuraVent, the appropriate Tee or Wye can be purchased and connected as is. If the B Vent is not DuraVent, purchase a "Female Adapter" which allows connection to non-DuraVent B Vent, and the DuraVent tee or wye desired.

1. Remove the Cat I appliance being replaced, the associated B Vent pipe, and existing termination cap.
2. Measure vent run, cut flex to length, ensure 1 ft of excess flex. Remove burrs from flex for ease of install.

TOP (CAP) side of install:

3. Route flex through B Vent, leave 8" excess at top. Ensure flex does not go beyond 45 degree anywhere along the vent run for proper condensate handling. Ensure flex is installed so the arrow goes in direction of exhaust flow
4. Connect flex to termination cap:

4a. If installing 2" Flex: Flip the termination cap upside down and apply a generous amount of high temperature non-hardening silicone around the outer flange edge of the FNS Flex Collar (**Fig.5a**). Once applied, flip the termination cap back upright and carefully lower cap onto flex so that the silicone flange is seated inside the 2" flex. Tighten hose clamp to secure the flex to the termination cap.

4b. If installing 3"-5" flex: Run the flex through the termination cap until flex is 3/4" from exit at the top of the cap. Tighten the hose clamp to secure the flex into position. Apply a generous bead of high temperature non-hardening silicone (**Fig.5b**) to seal flex to the inner diameter of the termination cap.

5. Lower cap to B-Vent and affix with hardware / mount straps to the vent pipe. Strap can be trimmed if desired.
6. Compress / Install Bird Screen Ring into Flex collar groove. (**Fig.5a/b**)
LOWER (Appliance) side of install (Fig.6)

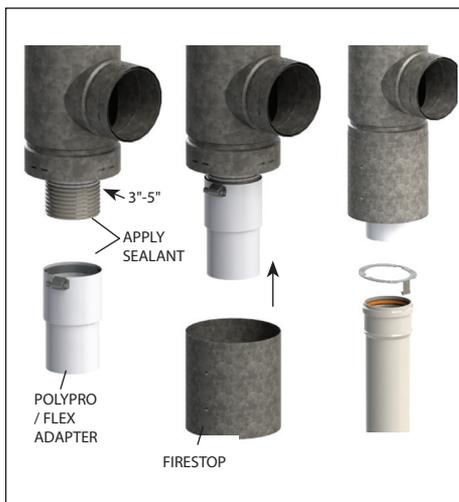


Figure 6- Appliance Side Connection



IMPORTANT

When installing FasNSeal Flex, the direction of exhaust flow is away from the appliance. There is an arrow printed on each section of liner and components that will point in the direction of the exhaust gas. You can confirm the liner is installed correctly by running your fingernails up the inside wall of the liner. If the direction is correct your nails will catch at the seams of the inner wall. If it is incorrect your nails will slide smoothly across the inner surface.

1. Flex should stick outside B Vent minimum 3"; maximum 5" (trim if needed).
2. Apply generous amount of silicone to flex and PolyPro / Flex adapter (or other approved DuraVent or Security Chimneys product). Insert flex into adapter and tighten hose clamp.
3. Install firestop onto adapter, fasten to B-Vent using supplied hardware.
4. Continue vent run to the appliance per the appropriate instruction.

MAINTENANCE

Have your venting system checked annually. This can be done by the same technician who inspects & services the appliance. Recommended areas to inspect are as follows:

- Check areas of the Venting System which are exposed to the elements for wear or damage. If damage is found, the components should be replaced immediately.
- Where possible, look into the Termination Cap to verify no foreign material is there to block the vent. Remove any foreign material found.
- Where practical, inspect joints to verify that no Pipe Sections or Fittings have been



Figure 7- Disassembly of Cap

disturbed, and consequently loosened. Also check mechanical supports such as Wall Straps, support plates, etc for rigidity.

Should the termination need to be removed, loosen flex hose clamp and unfasten from B-Vent. If internal access is needed, the four screws holding the termination top to the termination base may be removed and the termination top will lift off (**Fig.7**).

DURAVENT LIMITED LIFETIME WARRANTY

M&G DuraVent, Inc. ("DuraVent") provides this limited lifetime warranty for all of its products with the exception of Ventinox® (lifetime), and PolyPro® (ten years). Subject to the limitations set forth below, DuraVent warrants that its products will be free from defects in material or manufacturing, if properly installed, maintained and used. DuraVent products are fully warranted if installed only by a professional installer. This Warranty is transferable from the original homeowner to the buyer of the home. This warranty does not cover normal wear and tear, smoke damage or damage caused by chimney fires, acts of God, or any product that was: (1) purchased other than from an authorized DuraVent dealer, retailer or distributor; (2) modified or altered; (3) improperly serviced, inspected or cleaned; or (4) subject to negligence or any use not in accordance with the installation instructions included with the product as determined by DuraVent. Installation instructions are available online at www.duravent.com under Support/Literature and through our Customer Service Department 800-835-4429 or customerservice@duravent.com. This limited lifetime warranty applies only to parts manufactured by DuraVent.

DuraVent provides the following warranties for its products: One Hundred Percent (100%) MSRP 15 years from the date of purchase, and Fifty Percent (50%) thereafter, except for the following limitations on: all Termination Caps and DuraBlack® are warranted at One Hundred Percent (100%) for five years.

All warranty obligations of DuraVent shall be limited to repair or replacement of the defective product pursuant to the terms and conditions applicable to each product line. These remedies shall constitute DuraVent's sole obligation and sole remedy under this warranty. This warranty provides no cash surrender value. The terms and conditions of this warranty may not be modified, altered or waived by any action, inaction or representation, whether oral or in writing, except upon the express, written authority of an executive officer of DuraVent.

Corn, bio-fuels, driftwood or other wood containing salt, preservative-treated lumber, plastic and household trash or garbage, or wood pellets containing such materials must not be burned in the appliance or fireplace. In case of a chimney fire, the chimney must be inspected and approved by a certified Chimney Sweep before reuse. After each annual inspection, maintenance, and cleaning, the certified Chimney Sweep must fill out and date the appropriate section of the warranty card provided with the chimney liner.

LIMITATIONS ON INTERNET SALES: Notwithstanding any other terms or conditions of this Limited Lifetime Warranty, DuraVent provides no warranty for the following specific products if such products are not installed by a qualified professional installer: DuraTech®, DuraPlus® HTC, DuraTech® Premium, DuraChimney® II, PelletVent® Pro, DirectVent® Pro, FasNSeal®, FasNSeal® W2, FasNSeal® Flex, and PolyPro®, and DuraVent's relining products including DuraLiner®, DuraFlex® (SW, Pro, 316, 304), and Ventinox®. For purposes of this warranty, a trained professional installer is defined as one of the following: licensed contractors with prior chimney installation experience, CSIA Certified Chimney Sweeps, NFI Certified Specialists, or WETT Certified Professionals.

DuraVent must be notified and given the opportunity to inspect defective product prior to replacement under the terms of this limited lifetime warranty. All warranty claims must be submitted with proof of purchase. Labor and installation costs are not covered under this warranty. To obtain warranty service contact: DuraVent Warranty Service, 877 Cotting Ct., Vacaville CA 95688, or call 800-835-4429.

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For the most up-to-date installation instructions, see www.duravent.com

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DuraVent®

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