

Installation Instructions



Ventinox®

DuraFlex® Pro

DuraFlex® SW

DuraFlex® 316

DuraFlex® 304

TherMix®

ProFoil®

DuraVent
Member of & M&G Group

FLEXIBLE CHIMNEY LINERS

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

IMPORTANT:

Read through all of these instructions before beginning your installation. Failure to install this product as described in these instructions will void the manufacturer's warranty, may create a fire or other safety hazard, and may affect your homeowner's insurance and safety listing of your appliance.

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 and I'll make sure that someone responds directly back to you.

Send your emails to:
president@duravent.com

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

Or email us at:
techsupport@duravent.com



LISTED
MH45609

Installation Instructions

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

CONTENTS

Introduction; Inspecting and preparing the chimney. 4

Factory-Built Chimneys; Determining Liner Size 5

Fitting Liners into Masonry Chimney; Tools & Supplies 6

Preparing Thimble Area; Determining Liner Length. 7

Chimney Lining Systems; Ventinox; Universal Take-Off; Closing the Thimble
Thimble Area 9

Installing Liner in Fireplace Applications. 10

Finishing Top of Lined Chimney. 11

Insulating Liners. 12

Attaching Ceramic Blankets; Connecting the Appliance. 14

Inspection and Maintenance; Cleaning. 15

Warranty 16

READ THESE INSTRUCTIONS COMPLETELY BEFORE ATTEMPTING TO INSTALL ANY DURAVENT FLEXIBLE CHIMNEY LINING SYSTEM

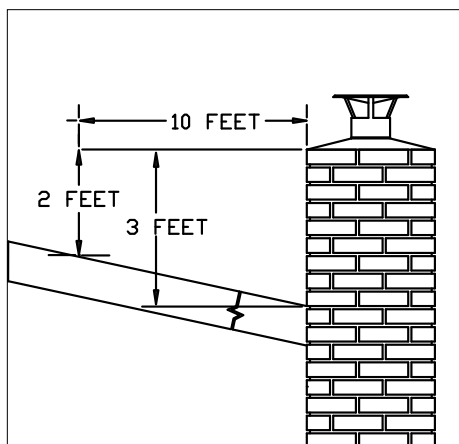
INTRODUCTION

DuraVent Flexible Chimney Liners are intended to service residential heating appliances burning wood, wood pellets, oil fuel, natural gas or propane gas (Category I or draft-hood equipped appliances), or other appliances listed for use with Type B gas vents. DuraVent Liners should not be used to vent unlisted gas or oil appliances, unlisted wood or coal burning appliances, Category II, III and IV Gas appliances (unless specifically listed to UL 1738 or ULC-S636 in Canada) or gas appliances listed for use only with Type BW vent. **DuraVent Liners must be installed by an experienced professional, familiar with the operation and maintenance of heating appliances and chimneys.**

Every vent system must be properly planned and installed for optimum performance and safety. Refer to the appliance manufacturer's instructions to determine venting requirements and limitations with respect to installation and use of the appliance. **It is the responsibility of the installer to contact local building and fire officials concerning any installation restrictions and/or inspection requirements that may apply.** Permits may be required before commencement of the installation. These products must be installed in accordance with local building code requirements.

DuraVent Chimney Liners are made from highly corrosion-resistant stainless steel

alloys. It is common, however, for indoor air to contain chlorides given off from carpeting, paints, paint thinners and laundry detergents. When combustion air for the heating appliance is drawn from the house, these contaminants can combine with flue gas condensates to form aggressive chemicals, such as hydrochloric acid that can attack and degrade connector pipes and chimney liners. Since it is difficult to determine if contaminants are present, the venting system should be designed to minimize the potential for condensation (i.e. insulate the liner and use B vent type double wall connectors) and to supply outside combustion air directly to the appliance. Refer to the appliance manufacturer's instructions and local codes for methods of providing outside air.



INSPECTING AND PREPARING THE CHIMNEY

Inspect the masonry chimney for proper construction and compliance with applicable building codes, authorities having jurisdiction should be consulted before installation to determine the need to obtain a permit. The chimney must meet the following minimum requirements before lining or relining it with

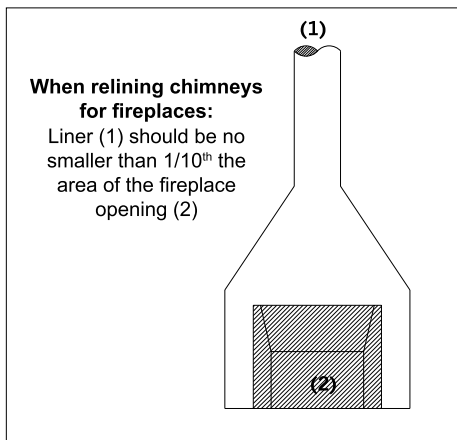
DuraVent Chimney Liners:

- The masonry chimney must have a wall thickness of at least 3.5 inches (4 in. nominal), a minimum height of 10 feet and maximum height of 100 feet.
- In wood burning applications, the chimney must extend at least 3 feet above the highest point where it passes through the roof and at least 2 feet higher than any portion of the building within 10 feet.
- Only one solid fuel heater may be connected into a flue and may not be combined to vent gas or oil burning appliances.
- If the flue's capacity is sufficient, multiple gas and/or oil burning appliances may be vented into one flue. Gas appliances must connect into the flue ABOVE any oil fired heater.
- Oil fired appliances require a base Tee.
- Connector pipes between a heater and chimney must be installed with proper clearance to combustibles as specified by the appliance manufacturer and by any applicable building codes and standards. In the US, refer to the National Fire Protection Association's NFPA 211. In Canada, refer to CSA B365M91 Installation Code for Solid Fuel Burning Appliances and Equipment.

The chimney must be thoroughly cleaned before a liner is installed. Examine the chimney for obstructions, soot or tar, glazed creosote, cracked, loose or missing bricks and eroded mortar joints. Any defects or potential safety problems must be repaired prior to relining the chimney or must be rectified by the installation of a **DuraVent Lining System**.

FACTORY-BUILT CHIMNEYS

This application is only acceptable in Canada installations for gas-fired Category I appliances (not oil, pellets, or solid fuels). Before installing a **DuraVent Lining System** into a factory-built chimney, the chimney must be thoroughly cleaned and checked for structural defects. All parts of the chimney system, such as supports, radiation shields, and fire stops specified by the chimney manufacturer must be installed correctly and, in addition, there must be proper clearances between the chimney and surrounding combustible materials, as specified by the chimney's installation instructions.



DETERMINING THE REQUIRED LINER SIZE

To determine the correct diameter of a liner, refer to the appliance manufacturer's installation instructions, or to local building codes: model code NFPA 211 (wood), model code NFPA 54 (gas), model code NFPA 31 (oil), the GAMA Venting Tables For Category I Central Furnaces (gas) or in Canada, the Installation Code for Natural Gas and Propane Burning Appliances and Equipment, CAN1-B149.1 and .2 and Installation Code for

Oil burning equipment, CSA B139.

Appliance(s) flue outlet must not be larger than the liner are at its smallest point, unless a qualified person has sized the liner to suit the appliance. It is very important that high efficiency appliances with low flue gas temperatures have correctly sized flue liners. Condensation within the flue system and improper venting/appliance performance can result, if flue liners are sized incorrectly.

FITTING DURAVENT FLEX LINERS INTO A MASONRY CHIMNEY

Note: DuraVent Flex Liners are tested and listed as alternative lining materials to standard clay tiles and can be installed into existing clay tiles, or clay tiles may be removed and replaced with a **DuraVent Liner**.

DuraVent Flexible Liners venting gas or oil appliances do not require a minimum clearance or insulation between the outside of the liner and inside of the masonry shell*. Leave enough clearance for the liner to slide into place without difficulty. If round **DuraVent Flex Liners** do not fit a chimney's inside dimensions, they may be ovalized to allow proper fit. When ovalizing a **DuraVent Flex Liner**, its cross sectional area decreases. Refer to L1244 for details or contact your **DuraVent Flex Liner** supplier for assistance. ***When ovalizing DuraFlex SW®, Please refer to Installation Instruction #L1244.*** Instructions available online at www.duravent.com

***Please note:** While insulation is not required for every installation (refer to UL1777 or ULC-S635 for appropriate listings or standards), the performance of the entire heating system is greatly enhanced when installing insulating materials. The venting

system acts and reacts in step with the heating unit's operation. Insulation improves draft and minimizes condensation, helping flue surfaces warm up more quickly to achieve a heater's rated efficiency. Insulation is particularly important for exterior chimneys. Read the sections outlining insulating procedures before beginning the installation.

DuraVent Flex Liners venting solid fuel heaters must be installed with a minimum of one inch of TherMix® or with a 1/2" layer of ProFoil or Flexwrap insulating blanket between the outside of the liner and the inside of the masonry shell to meet the requirements of UL1777 or ULC-S635 at zero clearance to combustibles.

**IN ORDER TO MEET THE TERMS
OF THE LISTING AND
DuraVent's WARRANTY
REQUIREMENTS, THESE
INSTALLATION INSTRUCTIONS
MUST BE FOLLOWED
COMPLETELY.**

TOOLS AND SUPPLIES

The following tools and supplies may be required when installing **DuraVent Chimney Liners**:

Hammer
Key Hole Saw(s)
Screwdriver w/Hex head
Reversible Electric Drill
Cold Chisel
Mortar Mixing Trough
Tin Snips
Silicone Caulk
Trowel
Refractory Mortar
Measuring Tape
Ladder

Eye Protection
Pliers
Work Gloves
Rope
Dust Respirator
Hack Saw
Masonry Drill Bit(s)
Ovalizing Machine

DuraVent Flex Liners are available in 3, 4, 5, 5.5, 6, 7, 8, 9, 10, 11, and 12 inch diameters.

Ventinox Liners can also be ovalized to assume many different cross-sectional shapes



Ventinox® components are made from various stainless steel alloys. When ordering, match liner and component materials. Components are fastened to **DuraVent Flex Liners** by tightening the built-in draw band. Pre-drilling liners or using pop rivets is not necessary.

For the complete list of Ventinox® Components, please refer to DuraVent's Product Catalog (L820) or visit the Literature Library on our website, www.duravent.com, click on the catalogs and instructions link.

Liner and component arrangements depend on the size and configuration of the

chimney structure and the type, number and location of the appliances that are to be vented into the chimney. For assistance, review the manufacturer's instructions for appropriate codes and standards, or contact your **DuraVent Liner** supplier or DuraVent Customer Service at 800-835-4429.

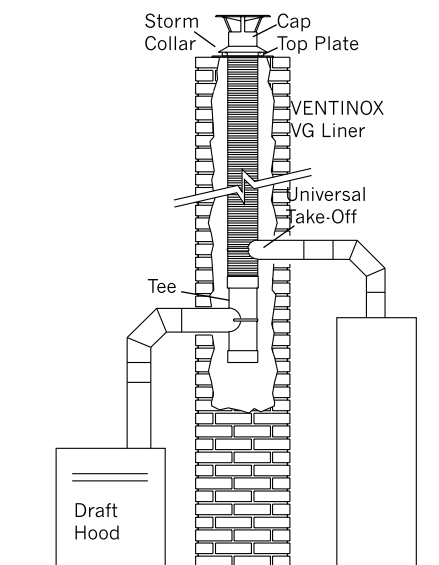
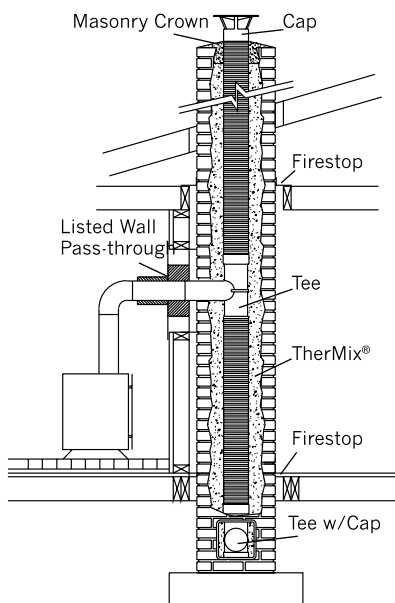
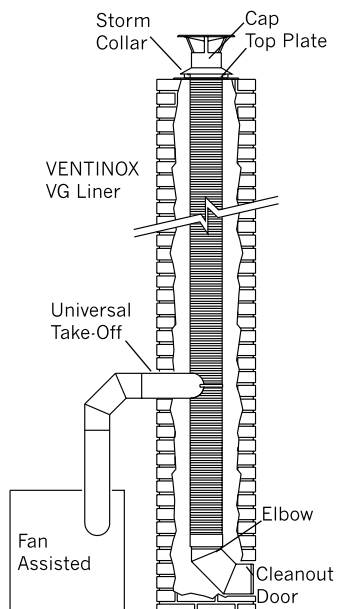
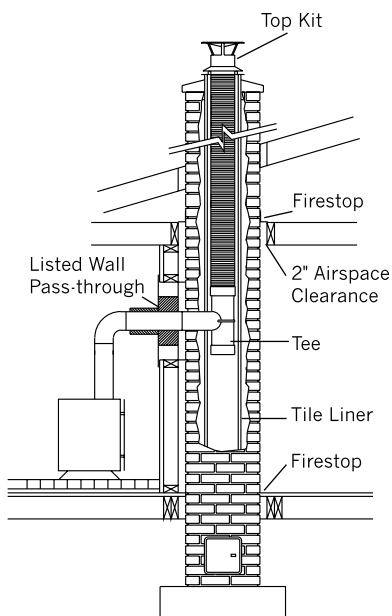
NOTE: The safe operation of a venting system depends on the proper installation and use of all materials and parts supplied by the manufacturer and proper use and operation of the connected heating equipment.

PREPARING THE THIMBLE AREA

A Tee with Tee Cap is the most common way to terminate a lining system at the bottom. Elbows or Universal Take-offs may be used as well. If necessary, enlarge the thimble area(s) to accommodate the fittings. Make sure that proper clearances between connector pipes, heating appliances and combustibles are maintained after the liner and heating appliances are installed. If penetrating a combustible wall, **be sure to install an approved wall penetration device.**

DETERMINING THE REQUIRED LINER LENGTH

Measure the distance from the thimble to the top of the chimney. Add 6 inches to allow for the installation of the chimney crown and Rain Cap. Subtract the length of the bottom Tee and any other system components. In a chimney with offsets, add one foot for each offset. Mark the liner, then cut with a hacksaw or reciprocating saw with a metal cutting blade. ***When cutting DuraFlex SW® to length, it is important to use an Angle Grinder with a masonry cutting blade (Refer to Installation Instruction #L1244).***



Typical system layouts for chimneys serving one or more Category I appliances.

DURAVENT FLEXIBLE CHIMNEY LINING SYSTEMS WITH A TEE AT THE THIMBLE

Prepare the liner assembly. Slide the expanded end of the Tee body onto the liner and tighten the draw band. Attach the Tee Cap to the Tee Body in the same fashion. Do not attach the Tee Snout at this time.

Note: DuraFlex SW® must be installed with the arrow imprinted on the liner pointing AWAY from the appliance! The rough side should face towards the appliance.

Lower the liner into the chimney from the top until the Tee reaches the thimble area. With the draw band of the Tee Snout fully extended, push the Snout through the thimble into the chimney. Lower the liner and feed it through the draw band of the Snout. Rotate the liner until the Snout and Tee are aligned and tighten the draw band securely.

VENTINOX® ONLY

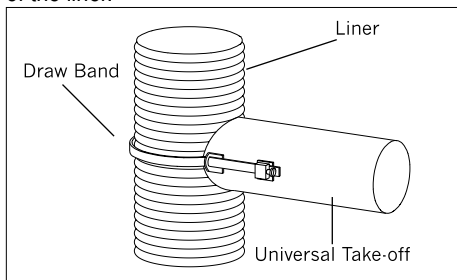
In tight chimneys or chimneys with offsets, it may be difficult to insert the liner with the Tee attached. In such cases, feed a rope through the hole of an appropriately sized VIC Installation Cone, tie a knot in the end of the rope and thread the Cone into the liner. Slide the liner down the chimney until it reaches the offset and the rope extends through the thimble. Pull on the rope while a second person at the top of the chimney pushes downward and turns the liner clockwise. When the liner reaches the thimble, remove the installation Cone and install the fully assembled Tee onto the liner.

UNIVERSAL TAKE-OFF (TO) INSTALLATION

Use when additional gas or oil appliances need to be vented into the **DuraVent Liner**

(common vent), or it is used with an ovalized liner instead of a round Tee section. When a TO is installed into a round **DuraVent Liner**, the liner must be at least one inch larger in diameter than the diameter of the TO.

Cut an access hole into the masonry chimney at the point where the TO is to be joined into the liner. Use an appropriate diameter hole saw (with pilot drill bit) and a reversible drill, to make a pilot hole through the liner. Before the main hole is cut, switch the drill into reverse and press lightly but firmly against the liner to cut the main hole. Remove the cutout portion of the liner.



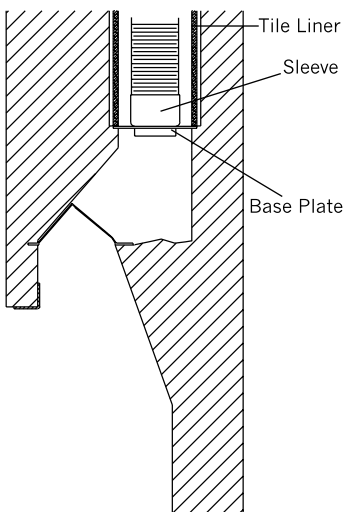
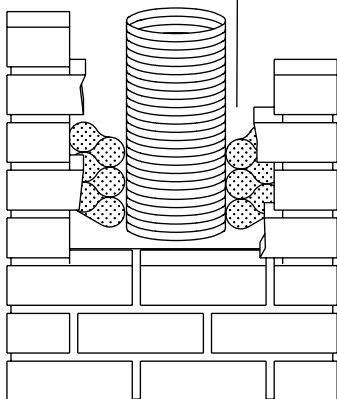
When cutting a TO into a DuraFlex SW® Liner, please read Tech Bulletin #1244.

Feed the TO's draw band around the liner and into the turnbuckle. Tighten the draw band. Apply a bead of High Temp RTV Silicone between the TO and liner.

CLOSING UP THE THIMBLE AREA

Use the Tee Snout or TO to center the liner within the chimney. Fill the space between the Tee Snout or TO and the chimney structure with masonry and mortar to form an airtight seal. Silicone caulking may also be used for this purpose.

Ceramic Fiber Blanket Plug



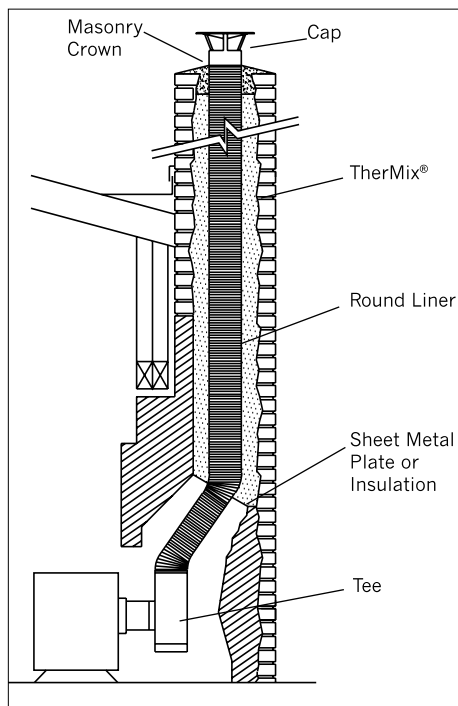
INSTALLING A DURAVENT FLEX LINER IN FIREPLACE APPLICATIONS

Seal the area at the top of the smoke chamber by lacing strips of ceramic blanket insulation with refractory cement and packing them tightly between the bottom of the liner and masonry (sealing plug). Keep the liner centered. Insulate

DuraVent Flex Liners from here to the top.

Alternatively, the Base Plate (BP) and the Sleeve (SL) can anchor the liner at the top of the smoke chamber and seal the gap between the liner and masonry. The BP can be supported by wedging it into mortar joints or by supporting it with steel rods. When trimming the BP, make sure that the hole in the plate is centered in the flue. Attach the SL to the **DuraVent Flex Liner**, then lower it until the male end of the SL is seated in the Base Plate. When venting a stove or insert through a fireplace and into a chimney, a **DuraVent Liner** can provide a continuous flue from the heater to the top:

Ovalize the bottom 4 or 5 feet of the **DuraVent Flex Liner** so that the ovalized portion of the liner fits through the damper and into the firebox (refer to Tech Bulletin L1009 for cross sections). Connect the heater with an oval



Tee or other adaptors. Seal chimney with a Damper Sealing Kit (see instructions for Stove and Fireplace Insert Installation Kits) or a sealing plug at the damper level or at the top of the smoke chamber.

Alternatively, remove portions of the damper frame and smoke shelf so that a round **DuraVent Flex Liner** can be connected to the heater with a standard Tee, Sleeve, Boot or Adapter. Again, seal chimney with a Damper Sealing Kit (see instructions for Stove and Fireplace Insert Installation Kits) or a sealing plug at the damper level or at the top of the smoke chamber. Insulate a **DuraVent Flex Liner** from here to the top.

FINISHING THE TOP OF A DURAVENT FLEX LINED CHIMNEY

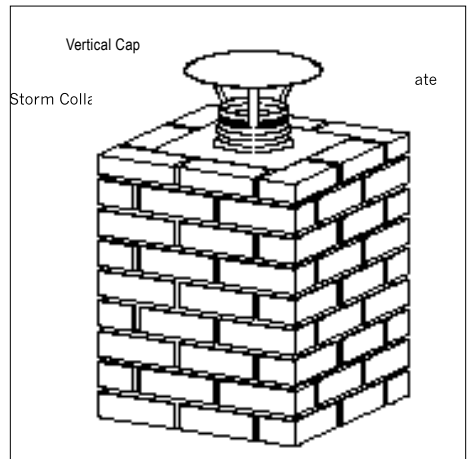
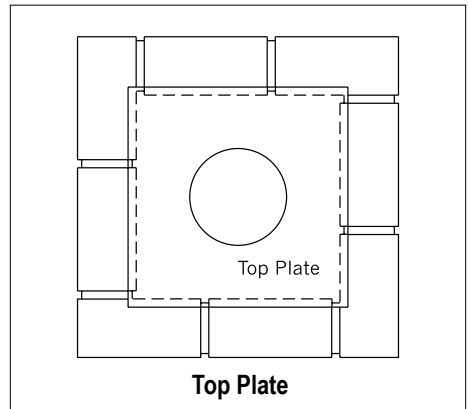
1) **Vertical Cap Kits (-VCK)** include a Top Plate, Storm Collar, and Vertical Cap. These kits and provide one method for terminating a DuraFlex Liner at the top.

Vertical Cap Kits can be used to finish TherMix® or ProFoil insulated chimneys. When the liner is insulated with ProFoil, the Vertical Cap Kit both seals the system and supports the liner.

Slip the Top Plate over the liner and position it on the chimney with the liner centered. Trim as necessary or fold edges over the outside of the chimney. Apply a generous bead of High Temp RTV Silicone under the Top Plate and press it into position. Slip the Storm Collar portion of the Vertical Cap over the liner, position it over the Top Plate and tighten the clamp band. Trim off excess liner flush with the Storm Collar. Re-assemble Vertical Cap.

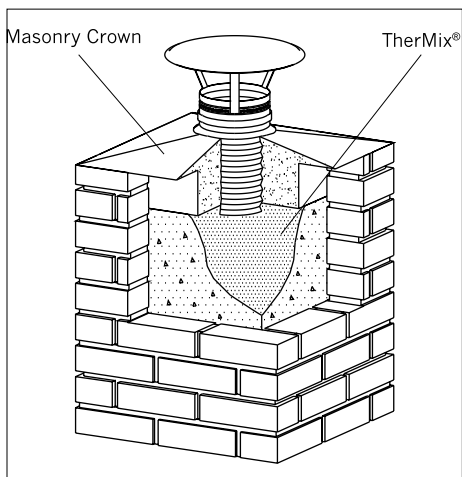
Please Note:

Vertical Caps incorporating bird screens are necessary and/or required in some areas but may be susceptible to blockage through

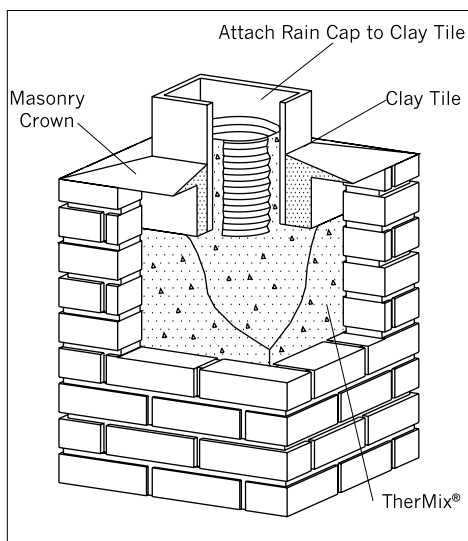


freezing moisture in areas of low ambient temperature. Consult authority having jurisdiction.

2) **Masonry crowns with a Vertical Cap (-VC)** are commonly used to finish TherMix® insulated **DuraVent Flex Liners**. Fill TherMix® to within four inches from the chimney top. Fill the remaining four inches with mortar or crown mix and form a slope from the liner to the outside of the top course of bricks. Attach a Vertical Cap (-VC) to the liner.



Chimney termination using masonry crown



3) Masonry crowns with a clay tile and any UL listed rain cap: Fill TherMix® to within four inches from the chimney top. Slip a full or partial length of any standard clay tile over the **DuraVent Flex Liner**. Fill the gap between the outside of the tile with mortar or crown mix and form a slope to the outside of the top course of bricks. Fill the gap between the **DuraVent Flex Liner** and the tile with TherMix® and seal the last inch with mortar or crown mix. A **DuraVent Flex Liner** may be terminated anywhere within the tile, as long as it protrudes at least four inches into the tile. Attach a UL Listed rain cap to the clay tile.

INSULATING DURAVENT FLEX LINERS

General Guidelines:

DuraVent Flex Liners have been tested and are listed by Underwriters Laboratories, Inc (UL) to UL 1777 and ULC-S635 standard at zero clearance to combustibles and for use with all fuels. When venting wood fired heaters or fireplaces, a minimum of one inch TherMix® or at least 1/2" of ProFoil are needed to conform to the UL1777 and ULC-S635, zero clearance listing. All temperature tests were performed on chimneys featuring a 4" nominal masonry shell and a DuraVent Flex Liner with or without the specified insulation between the liner and interior of the chimney (no clay tiles). The outside of the chimney was surrounded with a wood enclosure at zero clearance as specified by the standard.

METHOD #1: INSULATING WITH THERMIX®

TherMix® is poured into the chimney AFTER the flex liner is installed. TherMix® is a pre-mixed insulation material and only requires the addition of water at the job site. Review TherMix® literature to determine the volume of TherMix® needed to fill a specific chimney.

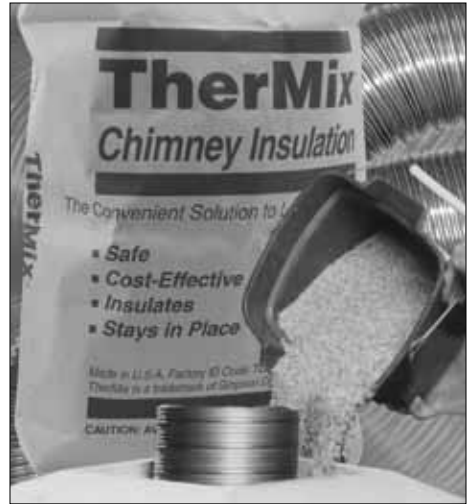
Empty a TherMix® bag into a mortar trough or wheelbarrow. Add 7 to 9 gallons of water and mix with a hoe. Proper consistency is achieved when the material feels damp but is still granular. Little or no water should appear between fingers when a handful of TherMix® is squeezed. Correctly prepared TherMix® pours like “loose fill” into the void between the liner and the chimney. **Complete instructions are on each TherMix® bag.**

During the pouring process, distribute the insulation evenly into the available space. Spacers may be used every 5 ft. to center the liner. Vibrate the liner by firmly tapping it. Continue to pour TherMix® until the chimney is filled to the top and finish as described previously. Inspect the liner at this time to ensure that no TherMix® has fallen inside the venting system.

All heaters or fireplaces can be fired up right after the installation is complete. Keep flue gas temperatures below 700 degrees F for three weeks. This allows for TherMix® to dry gradually. The operator is responsible for making sure that the heater is not over fired during this initial period.

METHOD #2: INSULATING WITH PROFOIL OR FLEXWRAP CERAMIC BLANKETS.

Ceramic blankets are attached to **DuraVent Flex Liners** BEFORE the liner is installed into the chimney. Blankets are 1/2" in. thick, 8 pounds density, and faced with a 2 mil. aluminum foil. The 1/2" thick blanket is the minimum amount of insulation needed when using ProFoil. If using 1/4" ProFoil blankets, two wraps are necessary to achieve the required 1/2" insulation. Aluminum tape, wire mesh and clamps are needed for proper installation.



Bag of TherMix



ProFoil ceramic blanket

METHOD #1 THERMIX BENEFITS AT-A-GLANCE:

- **No Health Risks:** Non-fibrous, non-toxic, inert and manufactured under stringent quality controls. Safe to the installer and homeowner, today and into the future.
- **Adds Safety:** Chimneys insulated by TherMix reduce creosote build-up, the chance of a chimney fire is minimized and its dangers are decreased.

- **Superior Performance:** Featuring high “R” values, flue surface temperatures are balanced and react quickly to firing cycles of heating units. Aiding in optimal heating efficiencies.
- **Durable & Tested:** When properly installed, TherMix does not leak, separate or deteriorate. Field tested since 1984.
- **Reinforces:** Insulates the liner & flue gas while providing a strong bond for the masonry chimney.

THERMIX: THE “THERMAL BRIDGE” BETWEEN FLEXIBLE CHIMNEY LINERS AND MASONRY

TherMix lowers temperatures on liners during over firing or chimney fires: Allows heat to be slowly absorbed into the entire mass of a chimney, where it is safely dissipated over a large surface area.

TherMix maintains higher temperatures on liners when flue gas temperatures are low: Maintaining flue gas temperatures above dew point, (~128°F), is essential to avoid condensation. The insulating mass of TherMix retains the maximum available heat close to the liner: the flue stays warm for a longer period of time after the appliance shuts down. With oil and gas appliances, keeping the flue warmer between firing cycles greatly reduces the possibility of momentary flue gas spillage which occur at the start of the next cycle. With wood burning applications, warmer flues help eliminate back puffing and other draft related problems.

TherMix minimizes fluctuations of liner surface temperatures during heating cycles. This is critical when draft must be established quickly each time an appliance fires up and when minimizing condensation within the entire height of the flue is important.

NOTE: To comply with the specifications of a UL Listed, zero clearance solid flue installation, a minimum thickness of 1” of TherMix must be installed between a listed stainless steel liner and a 4” thick masonry chimney wall. In verifiable code-complying, clay-tile-lined chimneys, no minimum thickness of TherMix is required.

Table 1 shows how TherMix reduces heat transfer to combustible material surrounding a masonry chimney. The data is an actual UL test where chimney flue gasses were maintained at 1000°F for an eight-hour period. The (+) line shows temperatures on a plywood enclosure located at one-inch from a code approved, tile-lined chimney. The (n) line shows temperatures with a Ventinox liner, which is insulated with TherMix at the same thermocouple location. The (*) line shows acceptable temperature limits specified by the UL standard, (90°F plus ambient for the first 4.5 hours and 117°F plus ambient for the remainder of the test).

There is no change in consistency of TherMix over time. Even after exposure to many high temperature tests at UL, the structural integrity, chemical composition, and insulating qualities remained consistent over time, every time.

- TherMix insulated chimneys can be used right after the installation is complete, as long as flue gas temperatures do not exceed 1000°F during the first 48 hours of actual use. Please note that drying and curing are two separate processes:

- Curing or hardening of TherMix takes place over a 28-day period, with 65% to 75% of this process occurring the first week.

- Drying time depends on the thickness TherMix, the permeability of the chimney, and weather conditions. The drying process is enhanced and completed over time by using the heating appliance.

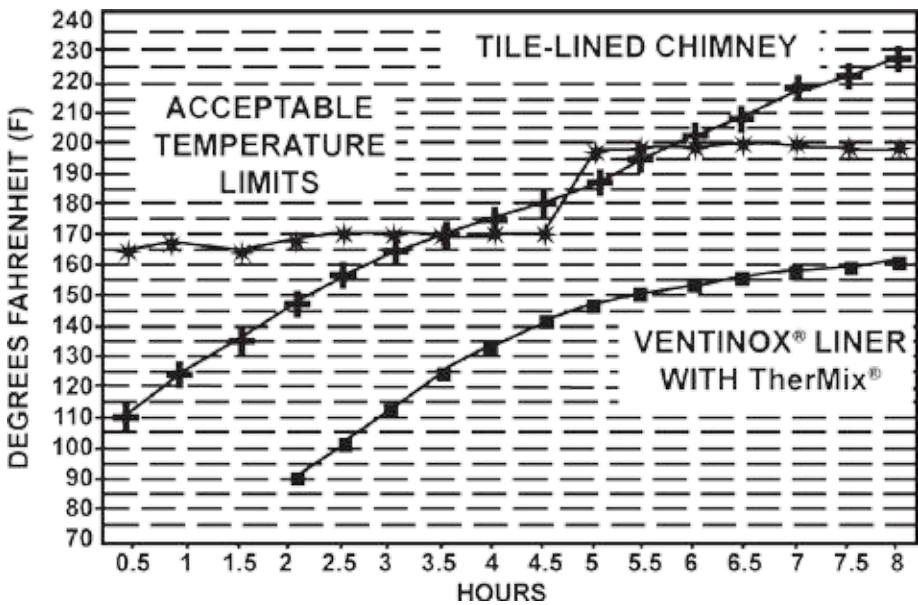


Figure 1

TherMix Field Benefits	TherMix	Ceramic Blankets
Zero-clearance to combustibles	Yes	Yes
Ease-of-installation	Yes	Yes
Difficulties with Offsets	No	Yes
Seals dangerous cracks and voids in chimneys	Yes	No
Eliminates air leakage into chimney	Yes	No
Eliminates moisture buildup between liner & chimney structure	Yes	No
Ships UPS/FedEx (Boxes Only)	Yes	Yes
Accepted by building code officials	Yes	Yes
Can be removed	Yes	Yes
Avoids reliance on respirator during installation	Yes	No
Eliminates the need for reflective surfaces to reduce heat transfer	Yes	No
Poured method means one size fits all insulation	Yes	No
Holds liner in place	Yes	No

Figure 2

WHEN USING THERMIX

There is no need to purchase spray adhesives, tapes, wire, mesh, and/or sheet metal parts which add to the cost and time to complete a job (Figure 2.)

- TherMix can be used to insulate modular masonry fireplaces.
- TherMix stays in place when installed but can be easily removed. Dry weight per cubic foot installed is ~20lbs.

TherMix is delivered in a strong poly-lined bag or box containing all ingredients except water, which must be added to moisten the material (Figure 3.) Proper consistency is achieved



Figure 3

TABLE 2: CROSS SECTION AREA OF LINER				
Liner Size	CS Area	Oval Liner Size	Oval Dimensions	CS Area
Round 5"	19.62in2			
Round 6"	28.46in2	Oval 6"	(4.2" x 7.2")	24.60in2
Round 7"	38.46in2	Oval 7"	(4.2" x 9.1")	32.20in2
Round 8"	50.25in2	Oval 8"	(4.2 x 10.3")	37.20in2
Round 9"	62.50in2			
Round 10"	78.50in2	Oval 10"	(4.2" x 13.3")	49.50in2
Round 12"	113.22in2			

Packages of TherMix

=

$$\frac{(W'' \times D'' \times H'') - (CS \times H'')}{1728 \text{ cu. in.}}$$

÷

3.25

W = Width of flue opening (in inches)
D = Depth of flue opening (in inches)
H = Height of flue (in inches)
CS = Cross Section areas (table 2)

TABLE 1: THERMIX VOLUME PER ONE FOOT OF CHIMNEY HEIGHT						
Flue Opening	Diameter of Liner					
	5"	6"	7"	8"	10"	12"
7.5" x 7.5"	.25	.20	--	--	--	--
7.5" x 11.5"	.46	.40	(Ovalized) .38	(Ovalized) .32	--	--
8.5" x 8.5"	.36	.30	.23	--	--	--
8.5" x 11.5"	.54	.48	.41	(Ovalized) .36	(Ovalized) .33	--
9.5" x 9.5"	.49	.43	.36	.27	--	--
11.5" x 11.5"	.78	.72	.65	.60	.37	--
11.5" x 16.5"	1.18	1.12	1.05	.96	.77	--
12.5" x 12.5"	.95	.88	.82	.73	.53	--
14.5" x 14.5"	1.30	1.26	1.20	1.10	.92	.65
14.5" x 18.5"	1.70	1.66	1.60	1.50	1.30	1.04

when the material feels damp but still granular (~7 to 9 gallons of water per bag/box). *When a handful of properly moistened TherMix is squeezed hard, little to no water appears between the fingers.

During the installation, correctly prepared TherMix pours like "loose fill." TherMix is distributed within the chimney cavity by vibrating the liner.

*Do not tamp or compress TherMix.

METHOD #2 PROFOIL ATTACHING CERAMIC BLANKETS TO A DURAVENT FLEX LINER:

Roll out the insulation blanket on a clean surface, foil face down. Lay the flex liner on top and trim the blanket so that it is about one foot shorter than the liner.

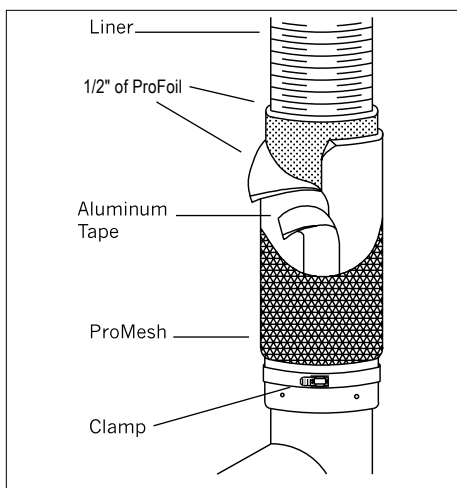
Wrap the insulation around the liner lengthwise and trim it so that a butt joint is formed.

Seal the joint with aluminum foil tape. Spray adhesive may be used to hold the blanket in place until it can be secured with the foil tape. A minimum of 1/2" of insulation is required. If a double layer of blanket is needed, install it with the butt joint on the opposite side.

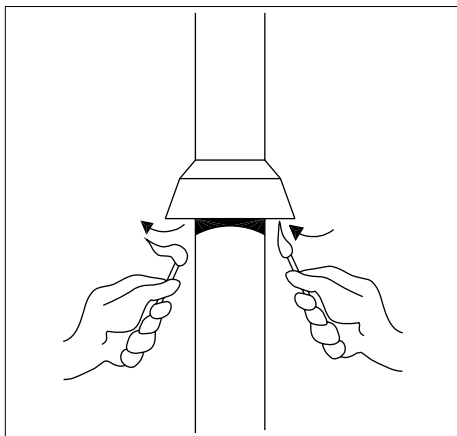
Install ProMesh protective wire mesh over the blanket(s). The ProMesh is used to protect the ProFoil insulation as the liner is lowered into the chimney. Slip the ProMesh over the insulated liner and secure one end with a stainless steel band clamp. Pull the ProMesh towards the other end of the liner so that it tightens snugly around the insulation, then trim off the excess. Secure this end with a stainless steel band clamp.

CONNECTING THE APPLIANCE AND CHECKING DRAFT

When installing gas or oil appliances, use connector pipes specifically designed for



Attaching a ceramic blanket



Checking for drafts

connecting such appliances. Attach the connector pipe directly and securely to the Tee Snout or to a listed wall penetration assembly. Secure all sections of the connector pipe with screws or rivets.

Record the date of installation (on the label provided with the liner) and attach it to the Tee Snout or wall penetration assembly. The label provides the **DuraVent Flex Liner**

DOUBLE WRAPPING ¼" PROFOIL		
ProFoil Size	Single Wrap Liner Size	Double Wrap Liner Size
22"x 25"	3"-6"	3"-5"
24"x 25"	7"	6"
29"x 25"	8"	7"-8"
48"x 25"	9"-12"	9"-12"

brand name, liner manufacturer, the date of installation and states the intended use of the particular **DuraVent Flex Liner**. After the installation is complete, make sure the appliances are venting properly. With a gas burning appliance equipped with a draft hood, turn on the unit, let it warm up, then hold a match under the draft hood. If the flame is blown outward or extinguished, the appliance is not drafting properly. Fan assisted appliances (without draft hoods) have built-in pressure sensing switches. If chimney draft is not adequate, the appliance shuts off. With oil burning appliances, barometric draft dampers should be installed in the connector pipe. Hold a match in front of the partially opened barometric damper to check draft. If more than one appliance is connected to a common vent, test each appliance with and without the other in operation. **If draft problems exist, corrections must be made before the appliance is used.**

INSPECTION AND MAINTENANCE
Creosote formation and the need for removal: When wood is burned slowly it produces tar and other organic vapors which combine with expelled moisture to form creosote that accumulates inside a chimney flue. When ignited, creosote produces extremely hot fires. **Creosote or soot buildup can occur in all venting systems and should be removed to reduce the risk of a chimney fire. Therefore,**

Ventinox® & DuraFlex® Lining Systems should be inspected at least once every two months during the heating season to determine if a creosote or soot buildup has occurred.

Annual inspection is required to comply with the terms of the warranty. If creosote or debris have accumulated, they must be removed to eliminate the risk of a chimney fire or the formation of carbon monoxide. Excessive condensation and chimney fires can be prevented through proper appliance use and maintenance.

To properly inspect the liner, gain access either from the top or bottom of the chimney.

When examining from the bottom, remove the connector from the thimble or if access is available, inspect through the clean-out cap of the Tee. Use a mirror and flashlight or chimney inspection camera to examine the inside of the liner. When examining from the top, remove the Rain Cap, examine the inside as above and determine if cleaning is necessary. Should a fire occur within a **DuraVent Flex Liner**, notify the fire department immediately. Fires are catastrophic events for any chimney. Before using the chimney after a fire, it must be inspected by a qualified person and cleaned or repaired as necessary. The posting of notices at a point where connection is made to the appliance concerning the liner's limitations of use with specific fuels and appliances including a reminder to homeowners to check the rain cap for icing during low ambient temperatures. Such notices shall include the date of installation, the manufacturer's name, the model number and class of lining system.

CLEANING PROCEDURE

Remove the Vertical Cap, or if working from the bottom, remove the appliance connector or clean-out cap. Select appropriately sized polypropylene chimney brushes and flexible fiberglass extension rods. Run the brush up and down inside the liner until any deposits or debris are removed. Reinstall the Vertical Cap, connector pipe or Tee Cap.

M&G 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®, DuraChimney® II, PelletVent Pro®, DirectVent Pro®, FasNSeal®, FasNSeal® W2, FasNSeal® Flex, and PolyPro®, and M&G 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.

WHERE LAWFUL, DURAVENT DISCLAIMS ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL DURAVENT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES OR DIRECT OR INDIRECT LOSS OF ANY KIND, INCLUDING BUT NOT LIMITED TO PROPERTY DAMAGE AND PERSONAL INJURY. DURAVENT'S ENTIRE LIABILITY IS LIMITED TO THE PURCHASE PRICE OF THIS PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

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

REV 3.22.2012

Manufactured in Vacaville CA and Albany NY

DuraVent

Member of  M&G Group

Customer Service Support 800-835-4429 707-446-4740 FAX www.duravent.com

DuraFlex and Ventinox are registered trademarks of the M&G DuraVent, Inc.

All rights reserved. Made in the USA. M&G DuraVent is a member of M&G Group. ©2012

L253 6/2012