TUBINOX. FACTORY-BUILT LINING SYSTEM

INSTALLATION AND OPERATING INSTRUCTIONS



Installation and Operating Instructions Read these instructions and keep them for future reference.

Before installing this liner, consult your local building authority and obtain a building permit. Install the liner as described in these instructions. Only use parts supplied by Security Chimneys. Failure to do so will void the certification and the guarantee of this chimney.

GENERAL NOTES

- Ventinox Rigid lining system can be substituted to the traditional clay tile liner in new masonry chimney construction.
- The liner is intended for use with solid, liquid and gaseous fuel burning appliances at these allowable flue gas temperatures :

	U.S	CANADA
Maximum continuous	1000 F 540 C	1200 F 650 C
Brief forced firing	1400 F 760 C	1700 F 925 C
Tested to	2100 F 1150 C (10 min)	2100 F 1150 C (30 min)

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- Size the liner in accordance with the appliance manufacturer's instructions. The liner must not be smaller than the appliance flue outlet.
- 4. The chimney shall extend at least 3 ft (915 mm) above its point of contact with the roof and at least 2 ft (10 mm) higher than any wall, roof or adjacent building within 10 ft (3 m) of it (fig. 1).
- The clearance between single wall stove pipe and unprotected combustible material must not be less than 18" (457 mm) (See National Building Code or NFPA).
- A rain cap must be used on top of the liner to prevent the entrance of debris, rain, birds or small animals into the liner.
- Homeowners must be reminded to check the rain cap for icing during conditions of low ambient temperatures due to the possibility of blockage through freezing moisture. The local authority having jurisdiction should be consulted if a rain cap

is considered in areas of low ambient temperature.8. Masonry chimney construction :

The masonry chimney must be built with bricks

and mortar conformed to the Building Code. The flue opening dimension must always leave the liner free to expand.

- The maximum height of liner that can be installed is 60 feet (18 m).
- Special precaution should be taken in choosing the correct size of liner system in colder climate region. Poor draft, excessive condensation and creosote build-up could occur if the liner system is too big for the application.
- 11. Sharp bends that would crimp and restrict the crosssection of the liner are prohibited.

MASONRY CHIMNEY

Before installing the liner into an existing masonry chimney, the chimney must be thoroughly cleaned and examined. Check to ensure that the chimney is structurally sound.

Check for cracked, loose or missing bricks, moisture or other materials that could inhibit correct installation of the liner.

Clearances from masonry to building framing unless insulated (see installation guideline) :



Figure 1

For a new masonry chimney liner installation make sure that the masonry chimney construction and clearances between the chimney exterior and combustible materials are as specified in NFPA 211 (USA) or the National Building Code (Canada).(See table 2).

	NFPA211	NATIONAL BUILDING CODE
INTERIOR INSTALLATION	2" (50mm)	2" (50mm)
EXTERIOR INSTALLATION	1" (25mm)	1/2" (12.5mm)

TABLE 2

YOU CAN DO IT ... STEP BY STEP !

Congratulations! You have made a wise choice in your selection of a TUBINOX lining system. You have purchased a fine quality system researched, developed and tested to precise standards of quality in manufacturing.

It's so easy to install...you can do it step by step. Each component is designed to fit together perfectly and easily. If you are handy with a few basic tools and have a general knowledge of carpentry, you can install your TUBINOX lining system over a weekend or have a professional install it for you in a few hours.

Before you install your TUBINOX lining system, read these instructions carefully and follow them exactly.

DEAR CUSTOMER, INSTALLER, OR END USER

We welcome any comments regarding matters pertaining to our TUBINOX products.

We welcome any ideas, input or complaints and we will make sure that someone responds directly back to you.

GENERAL INFORMATION

CREOSOTE

When wood is burned slowly, it produces tar and other organic vapours, which combine with expelled moisture to form creosote. The creosote vapours condense in the relatively cool chimney flue of a slow burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. Creosote formation in a chimney cannot be eliminated, but it can be minimized by :

- Keeping the temperature of the gases in the chimney above 300°F.
- 2. Making small hot fires rather than slow burning, smoldering fires.

The chimney liner should be inspected periodically during the heating season to determine if a creosote build-up has occur. If a significant layer of creosote has accumulated (1/8" (3 mm) or more) it should be removed to reduce the risk of a chimney fire.

CHIMNEY OPERATION AND MAINTENANCE

Keep your chimney and liner clean.

Do not allow more than 1/8" build-up of creosote in your liner. Wood stoves can quickly create large deposits of creosote in the liner. Some wood stoves can create enough creosote in two weeks to cause a chimney fire.

When using a wood stove, we recommend that you :

- 1. Initially inspect the liner system weekly. From this you will learn how often it will be necessary to clean your liner.
- The liner should be inspected at least once every 2 months during the heating season to determine if a creosote or soot build-up has occur. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.
- 3. Have your liner cleaned by a qualified chimney sweep. If you want to clean your liner yourself, then use plastic, wood or stainless steel brushes. Do not use a brush that will scratch the stainless steel interior of the liner.
- 4. Do not expect chemical chimney cleaners to keep your liner clean. Their use does not negate the necessity of periodically inspecting and cleaning your liner.

COAL

Some coals contain large quantities of sulphur (up to 7%). When coal is burned, sulphur and coal ashes are deposited in the liner. This deposit combines with moisture to form a highly corrosive acid (Sulphuric Acid). In order to protect your liner, we recommend that you burn only low sulphur coals (less than 1% sulphur). Have your liner cleaned within 48 hours of shutting down your stove at the end of the heating season. Be certain that all the soot is removed. Wipe the liner flue using a strong solution of baking soda and water. This can be done by wrapping a rag around a chimney cleaning brush, dipping it in the baking soda-water solution, then passing it through the liner three or four times.

CHIMNEY FIRES _______

- Close all heater doors and combustion air controls. For fireplaces, block the fireplace opening with a noncombustible material (such as an asbestos or steel sheet).
- 2. Alert your family to the possible danger.
- 3. If you require assistance, alert your fire department.
- If possible, use a dry chemical fire extinguisher, baking soda or sand to control the fire. Do not use water, as it may cause a dangerous steam explosion.
- 5. Watch for smouldering or fire on combustibles next to the stove, stove pipe and chimney. Check outside to ensure that sparks and hot embers coming out of the chimney are not igniting the roof.
- 6. Do not use the stove again until your chimney and stove pipe have been inspected by a qualified chimney sweep or Fire Department inspector. The TUBINOX lining system has been designed to withstand the intense heat of a chimney fire. Nevertheless, chimney fires are dangerous and should be avoided.

INSTALLATION GUIDELINES

Securuty 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.

For Venting Solid Fuel Appliance, a minimum of ½" clearance is require between the outside of the liner and inside of the masonry. To meet Zero Clearance to combustible, insulation must be used. (See insulating liner section for instruction).

***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.

INSTALLATION INSTRUCTIONS

- The chimney lining system can be installed in a masonry or concrete chimney that complies with the building code.
- In Canada, a new masonry or concrete chimney construction must comply with CAN/CSA A405: Design and Construction of Masonry Chimneys and Fireplaces.

INSTALLATION NEW CHIMNEY LINING (fig.4)

- To install a liner into a new masonry chimney, we suggest that you install the liner as the chimney is being constructed.
- Start the masonry chimney construction, making sure that the dimension and manufacture of the bricks and mortar conform to the Building Code.

If you choose to insulate the liner. See insulating liner section (Page 8) to size the masonry chimney.

- To start the liner installation, attach the tee to the first length. Insert the liner with the male (smaller connection) end down. Twist lock the part together (fig.2). Attach the tee cap to the base of the tee.
- NOTE: Each joint takes 1 1/2" (38 mm) overlap.
- Place the tee and length assembly on the support base, then add lengths along the chimney construction until the liner protrudes about 10 in. (254 mm) above the masonry chimney (fig.3).
- 5. Install the top support on top of the masonry chimney using lag bolts and/or cement (Fig. 5).
- Slip the support collar over the liner until it rests on the support.Tighten the bolt to fasten it to the liner. (Fig. 5)
- 7. Twist lock the rain cap to the top of the liner.



Fig. 4 - New masonry liner installation for interior chimney

- 8. Installation of wall radiation shield through a combustible wall.
- From inside, frame a hole14 1/2" x 14 1/2" (368 mm x 368 mm) in the wall where the vent will pass through.
- Adjust the insulated wall radiation shield length to fit the wall thickness and lock the two parts together with three (3) screws supplied.

<u>CAUTION:</u> Make sure the wall radiation shield is always in contact with the masonry chimney.

 Slide the wall radiation shield over the length and fix it to the wall using four (4) screws supplied (fig. 6). <u>Note:</u> The void in the four corners between the wall radiation shield and the wall frame can be filled with fiberglass insulation.



 At the bottom of the masonry chimney, set up a brick or other non-combustible support on which the liner will rest.

<u>Note:</u> On an installation lower than 30 feet, you may support the liner from the top support.

- Attach the tee to the first liner length. Insert the liner with the male (smaller connection) end down. Twist lock the parts together (fig. 2 page 4).
- You may remove the horizontal branch to facilitate lowering the liner into the chimney, then attach it when in place. If you keep it, make sure it is solidly attached.
- 4. To lower the liner into the chimney, we suggest that you tie a small hook to a long rope and grip the hook on the tee. Make sure the rope is on the outside of the liner, so you will be able to add lengths and lower the assembly down the chimney (fig. 10). Add lengths until the liner protrudes about 10" above the masonry chimney top.
- 5. Install the support plate on top of the masonry chimney using lag bolts and /or cement.
- Slip the support collar over the liner until it rests on the support plate. Tighten the bolt to fasten it to the liner.

If you choose to insulate the liner See insulating liner section (Page8).









Fig. 7 - Existing masonry relining installation

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Fig. 8 - Lining sustem for new fireplace installation



Fig. 9 - Existing fireplace relining installation



- 7. Twist lock the rain cap to the top of the liner.
- From inside the house, twist lock the masonry adaptor to the tee. Now fasten the adaptor's collar to the masonry wall.

Be sure there is at least 18 inch clearance between the single wall pipe and any combustible material.

INTERIOR SUPPORT

A liner installed in a fireplace chimney will require an interior support at the top of the fireplace.

NEW CHIMNEY LINING (fig.8)

- Install the support plate on top of the fireplace
- Proceed with the erection of the liner along the chimney construction as described before.

• EXISTING FIREPLACE (fig.9)

- Install the liner as described previously
- (see "existing chimney lining"). With the liner hanging in the fireplace, place the interior support in position and mark its location on the liner.
- Remove the support and attach the support collar around the liner slightly above your mark.
- Attach the support to the fireplace wall using four bolts and lags.
- Continue connection to your stove.

INSULATING TUBINOX LINERS General Guidelines:

Security Liners have been tested and are listed 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 Security 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 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 Security Liners as the liner is installed into the chimney. Blankets are 1/2" in. thick, 8 pounds density, and faced with a 2 mil. aluminum



Bag of TherMix

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.

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 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.



ProFoil ceramic blanket

There is no change in consistency of TherMix over time. Even after exposure to many high temperature tests, 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 700°F during the first 3 weeks 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 :
- Curing or hardening of TherMix takes place over a 28-day period, with 65% to 75% of this process occuring 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.

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 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



Figure 3

TABLE 2: CROSS SECTION AREA OF LINER			
Liner Size	CS Area	CS Area	
Round 5"	19.62in2		
Round 6"	28.46in2	24.60in2	
Round 7"	38.46in2	32.20in2	
Round 8"	50.25in2	37.20in2	
Round 9"	62.50in2		
Round 10"	78.50in2	49.50in2	
Round 12"	113.22in2		



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				
8.5" x 8.5"	.36	.30	.23			
8.5" x 11.5"	.54	.48	.41			
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

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

Roll out the insulation blanket on a clean surface, foil face down. Lay the liner on top and trim the blanket so that it is about 1 1/2" 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.



Attaching a ceramic blanket

SECURITY CHIMNEYS LIMITED LIFETIME WARRANTY

This Security Chimneys International, Ltd. (SCIL) Limited Lifetime Warranty warrants your residential vent and/or chimney system to be free from defects in material and workmanship at the time of manufacture. This Limited Lifetime Warranty includes all components and fittings, except termination caps and Secure Black SW single wall black stove pipe. After installation, if covered components manufactured by SCIL are found to be defective in materials or workmanship during the Limited Lifetime Warranty period and while the Product remains at the site of the original installation, SCIL will, at its option, replace the covered components. SCIL reserves the right to replace covered components with an equivalent product and the replacement must be carried out in accordance with SCILs recommendations. If replacement is not commercially practical, SCIL will, at its option, refund the purchase price or wholesale price of the SCIL product, whichever is applicable.THERE ARE EXCLUSIONS AND LIMITATIONS to this Limited Lifetime Warranty as described herein.

COVERAGE COMMENCEMENT DATE

Warranty coverage begins on the date of installation. In the case of new home construction, warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the Product by an independent SCIL dealer/distributor, whichever occurs earlier. The warranty shall commence no later than 24 months following the date of product shipment from SCIL, regardless of the installation or occupancy date.

EXCLUSIONS AND LIMITATIONS

This Limited Lifetime Warranty applies only if the Product is installed in the United States or Canada and only if used for the application for which it was designed and intended. The Product must be maintained in accordance with the printed instructions accompanying the Product and in compliance with all applicable installation and building codes and good trade practices.

This warranty is transferable. The Product must be purchased through a listed supplier of SCIL and proof of purchase must be provided. SCIL will be responsible for the replacement of the residential vent and/or chimney system considered to be defective for the following periods:

Termination Caps & Secure Black SW Stove Pipe - Replacement at no charge for 5 years from the date of installation, excluding labor

Components and fittings (excludes termination caps and Secure Black SW) -

Year 1-15 – Replacement of all components and fittings (a labor allowance may apply to a maximum of 300 \$ * certain conditions apply). Year 16 + – Replacement at 50% off of the prevailing list price in effect at the time of replacement (No labor allowance applies). *Labor Allowance Conditions: Any Warranty replacement work must be performed by a Professional Installer.

SCIL will not be responsible for: (a) damages caused by normal wear and tear, corrosion from salt air, accident, riot, fire, flood or acts of God; (b) damages caused by abuse, negligence, misuse, or unauthorized alteration or repair of the Product affecting its stability or performance. (The Product must be subject to normal use with approved fuels listed in the Operation Manual provided with the product. Where applicable, fuel products with abnormal burning characteristics, including but not limited to fuel such as driftwood, plywood and wood products using a binder may burn at excessive temperatures and may cause damage to the Product or may cause it to function improperly; (c) damages caused by failing to provide proper maintenance and service in accordance with the instructions provided with the Product; (d) damages, repairs or inefficiency resulting from faulty installation or application of the Product.

This Limited Lifetime Warranty covers only parts as provided herein. SCILs entire liability is limited to the purchase price of this product. In no case shall SCIL be responsible for materials, components or construction which are not manufactured or supplied by SCIL or for the labor necessary to install, repair or remove such materials, components or construction. Additional utility bills incurred due to any malfunction or defect in equipment are not covered by this Limited Lifetime Warranty. All replacement or repair components will be shipped F.O.B. from the nearest stocking SCIL factory.



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