

# Installation and Maintenance Instructions

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# Saf-T Liner<sup>®</sup>

## Stainless Steel Chimney Liner

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Heat-Fab Inc. Saf-T Vent<sup>®</sup>  
Stainless Steel Chimney Liner  
Sizes: 4", 5", 6", 7", 8" Diameters  
9", 10", 12", 14" Available



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The Heat-Fab Saf-T Liner system is intended for use in conjunction with any residential building, heating appliance burning gas, liquid or solid fuels, such as a woodstove, fireplace insert, or an oil or gas fired central heating furnace, vented through masonry chimneys only. These heating appliances may not exceed the maximum continuous flue-gas outlet temperatures of 1000°F or cause condensation of corrosive acids on the liner, or create positive pressures in the chimney system.

Saf-T Liner is a high quality U.L. tested and Listed stainless steel lining system designed for relining existing masonry chimneys. It satisfies code requirements as a substitute for 5/8" fireclay liners and has undergone extensive testing to make it the leader in the stainless steel chimney lining industry. Heat-Fab recommends that the installation of Saf-T Liner be performed by an experienced professional who works with chimney and woodstove related products on a regular basis. Saf-T Wrap is a safe, high quality, easy to install ceramic insulation jacket for stainless steel lined masonry chimneys. Saf-T Wrap when used in conjunction with Saf-T Liner will upgrade a chimney to an HT type chimney system. The following instructions are intended as a guide to assist a qualified professional installer. Check your local building codes and contact local building or fire officials to obtain any required permits. **Warning:** Incorporation of parts or materials not manufactured or supplied by Heat-Fab may not provide a Listed system. Order Heat-Fab's installation videotape for further information, available in VHS format.

## SAFETY FIRST

The National Fire Protection Association Standards Nos. 54 and 211 require the chimney to 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 (Fig.1).

The Saf-T Liner should not extend more than 6 inches above the masonry chimney. Any additional flue liner height above the masonry chimney will create condensation resulting in the buildup of excessive creosote.

Do not connect more than one solid fuel burning appliance to a single chimney flue and do not connect gas or liquid fired appliances to chimney flues serving a solid fuel burning appliance.

Wear eye protection and heavy gloves throughout installation. Wear eye protection and dust respirator whenever in contact with creosote, soot, mortar or insulation. Caution must be used when working on a roof. Proper and safe scaffolding should be used for a safe installation. All ladders should be secured to the building. Check overhead for antennas, power lines, or other obstacles before erecting the ladder and installing liner.

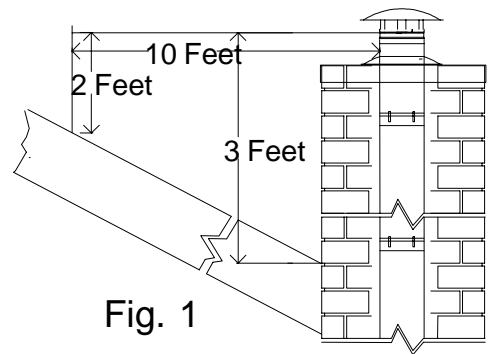
## CHIMNEY PREPARATION

Lay out ground cloths to protect the inside of the home before sweeping the chimney. Clean and remove all tar glazed creosote and soot deposited on the internal chimney walls, and smoke chamber of the fireplace, failure to thoroughly clean the chimney before installing a new liner system may lead to fire and or smoke damage to the home. **Always use a dust respirator when in contact with soot and creosote.**

Inspect the chimney for the following structural weaknesses before it is lined:

- Loose or eroded mortar
- Cracks in the masonry
- Missing bricks
- Internal obstructions that could inhibit installation

Repair all structural weaknesses before proceeding with installation of Saf-T Liner.



## CLEARANCE FROM COMBUSTIBLES

Air space clearances between the masonry chimney exterior and combustible materials should be checked to verify that the chimney is in accordance with the following clearance specifications (Fig. 2). The minimum air space clearance between masonry chimneys and combustible materials shall be at least 1" for a UL Listed Installation.

## DETERMINING THE LINER DIAMETER

The Saf-T Liner must be properly sized for your heating appliance. The diameter of the Saf-T Liner for a single appliance shall not be less than the diameter of the appliance flue collar or that specified in the appliance manufacturer's instructions. Measure the dimension of the chimney opening at its smallest point (Fig.3). Take the smaller of the two measurements (A&B) and deduct 2" to arrive at the maximum diameter of Saf-T Liner that may be installed. Saf-T Liner may be installed in any chimney with an inside diameter greater than 7"x7" and constructed of 4" thick nominal solid or cored, brick or masonry. When using Saf-T Liner to vent a fireplace, the cross section opening of the flue shall not be less than 1/10th of the face area of the fireplace opening, to insure proper draft (Fig. 4). Custom rectangle or square Saf-T Liner is available for flues which will not fit the required size round liner.

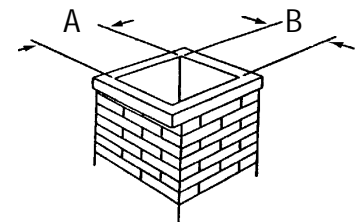
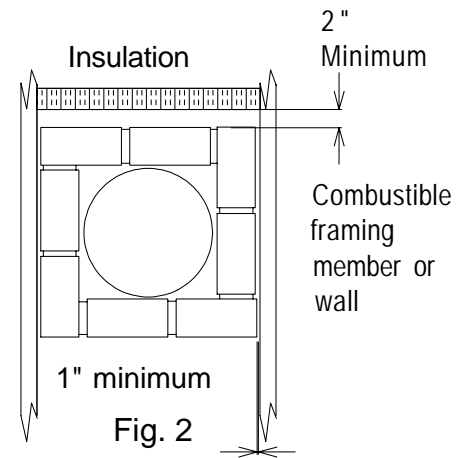


Fig. 3

## DETERMINING THE TOTAL LENGTH OF SAF-T LINER

Saf-T Liner is recommended for use in chimneys measuring in height from 8' to 80'.

### Non-Fireplace Chimney

Measure the length of the chimney flue to determine the length of liner needed by utilizing a tape measure. From this length subtract 14" for each tee required. It is recommended that Saf-T Liner be installed with an accessible clean-out tee that will facilitate easy cleaning and maintenance of the chimney system. One tee will be required for the appliance, as well as a tee at the base of the Saf-T Liner as a clean-out. Determine the distance between these two tees and then the distance above the appliance tee to the top of the chimney. The liner assembly will be supported by the tee take-offs and the clean-out tee resting on non-combustible material.

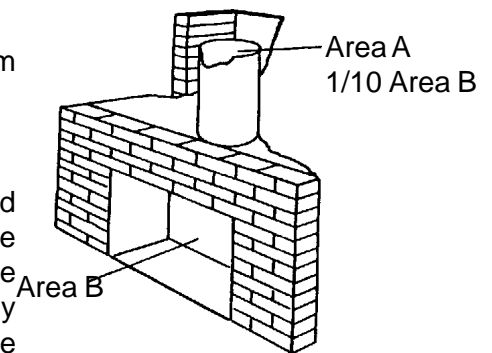


Fig. 4

### Hearth/Fireplace Insert Stove

If installing a hearth or fireplace insert stove using an existing fireplace chimney, the length of rigid Saf-T Liner required will be the distance from the chimney top to the top of the smoke chamber. Listed stainless steel Chimney Liner components, an engineered Direct Connect Assembly or any other method approved by the local building authority will be required to pass through the smoke chamber/damper area to the appliance flue collar. The liner assembly will be supported from the top of the chimney. The installer must verify that there is at least 1 inch clearance to combustibles outside a 3" nominal layer of masonry as well as 1 inch clearance from the masonry to the connector inside the smoke chamber area for the entire length within the smoke chamber area.

### Fireplace

When lining an open fireplace, the total liner length will be the distance from the top of the smoke chamber to the top of the chimney. This liner assembly will be supported from the top of the chimney. The liner may also be extended to the damper area if the smoke chamber area is in poor condition. The installer must verify that there is at least 1 inch clearance to combustibles outside a 3" nominal layer of masonry to insure safe operation of the fireplace.

## **DETERMINE THE NUMBER OF LINER SECTIONS**

Saf-T Liner is available in 12", 18", 24", 36" and 48" fixed lengths and telescoping sections. NOTE: Two is the maximum number of telescoping lengths which may be installed above the appliance tee. A telescoping section between the appliance and clean out tee will allow for both radial and vertical adjustments during the installation. To determine the length and number of liner sections required complete the following: Calculate the number of fixed and/or telescoping lengths required to line the chimney and extend not more than 6" above the termination of the masonry (**Remember** each fixed length's measurement must be reduced by 2" to account for overlap of each section)

-Determine the number of fixed or telescoping lengths between the appliance tee and the clean out tee (if required).

## **DETERMINING THE AMOUNT OF SAF-T WRAP INSULATION**

Saf-T Wrap is available in tee sections and 24" lengths, therefore two lengths will be required for each 4' section of Saf-T Liner. Saf-T Wrap must cover the Saf-T Liner from the appliance tee or the top of the smoke chamber area to within 8" but not closer than 3" of the top of the masonry chimney.

## **ASSEMBLY MATERIALS REQUIRED**

The following tools and supplies are needed to complete the installation of the Saf-T Liner System:

- Hammer
- 1/8" or #30 high speed drill bit
- Rope
- Bag of mortar mix
- Mortar pan
- Screwdriver
- Eye protection
- Cold chisel
- Masonry drill bit
- Electric or hand drill
- Ladder and staging
- Tin Snips
- Trowel
- Duct tape
- Pliers
- Silicone caulking
- Drop Cloth
- Pop rivet gun
- Dust respirator (3M 9900, 3M8710 or equiv.)

## **PRE-ASSEMBLY OF SAF-T LINER PARTS**

In order to reduce unnecessary trips up and down the ladder, the liner may be pre-assembled into sections 8-10' in length. These can be safely carried up a ladder to the chimney. However, always check overhead for antennae, power lines, or other obstacles before erecting your ladder and installing liner. Preassemble the Saf-T Liner on the ground and check the overall length. REMEMBER- the small, crimped end is always facing down and the arrows marked on each liner section are to point up. Using the high speed drill bit, drill through the pilot holes of one section into the crimped end of the next section. Pop rivet the liner into manageable lengths using the four rivets supplied.

### **Non-Fireplace Chimney**

In the case of a straight chimney liner job, the clean out tee should be riveted to the first liner section and the tee cover attached to the tee. Place either a telescoping section or slip connector and a liner section between the cleanout tee and the appliance tee to allow for expansion and contraction of the system.

### **Hearth/Fireplace Insert Stove**

The appliance connector should be riveted to the first liner section with four opposing pop rivets.

## **ATTACHING LOWERING ROPE**

The lowering rope should be attached to the first section of Saf-T Liner by any one of many methods including, S hooks, duct tape or by riveting loops into place on the liner. Use any method that will provide a secure hold on the liner and allow easy removal of the rope after installation.

When using telescoping sections, it will be necessary to attach an additional length of rope that will drop to the base of the chimney flue. This rope will extend the telescoping sections as they are lowered into the chimney.

## OPENING THE CHIMNEY

### **NOTE: Wear eye protection and dust respirator.**

An opening for the liner system will have to be made for any existing chimney without an opening. If there is an opening, it may need to be expanded in order to insert the tee take off into the removable tee or accommodate the support system chosen.

To make the initial opening into the chimney, select a brick that is at the level you want the stove pipe to enter the wall (at least 18" from unprotected combustibles unless a listed wall penetration assembly or other approved method is used). The wall penetration assembly must be above the appliance. Drill a series of holes in the mortar around the perimeter of the brick with a masonry drill bit.

Knock the remaining mortar surrounding the brick free with a hammer and cold chisel and remove the brick. Additional bricks are usually easier to remove than the first one.

### **Non-Fireplace Chimney**

Repeat for clean out tee, being sure to maintain the distance between the two tees as originally planned. Position the two take offs, with the retractable bands fully extended, into the opening in the chimney making sure there is room to tighten the screw on the take off's retractable band.

## INSTALLING YOUR SAF-T LINER AND SAF-T WRAP INSULATION

**CAUTION must be used when working on a roof. Proper and safe scaffolding should be used for a safe installation of the Saf-T Liner. Always use a respirator and eye protection when using Saf-T Wrap.**

### **Non-Fireplace Chimney**

Carefully lower the first section of liner, consisting of cleanout tee body, tee cover and first liner section for between the tees, until the top is about 6"-12" above the chimney top. Secure the lowering rope to the chimney top to prevent the Saf-T Liner from falling further into the chimney. Insulate the first section of Saf-T Liner with a 24" section Saf-T Wrap by closing the snap-lock seam and crimping and slide it down to form a continuous enclosure of insulation. Attach the next liner section to the one in the chimney and rivet the two sections together with four opposing rivets. Repeat these procedures until the liner section is ready to be guided through the retractable bands of the appliance and clean-out tee take offs. Carefully lower the liner system through the appliance take off, then through the clean out take off band until the cut out sections line up. Secure the take off to the clean out tee by tightening the retractable band. Return to the appliance opening and tighten the retractable band in the same fashion. Trim the last section of Saf-T Wrap as required so that it is at least 4" from the cover plate at the top of the chimney. This will allow for expansion of the liner during normal use.

### **Hearth Stove and Fireplace Insert Stove**

Insulate the first section of Saf-T Liner with a 24" section of Saf-T Wrap by closing the snap-lock seam and crimping. Slide the Saf-T Wrap down until it abuts the top of the appliance connector. Attach the next sections of Saf-T Liner and insulate with Saf-T Wrap using the above procedures until the desired height is achieved. Trim the last section of Saf-T Wrap as required so that it is at least 4" from the cover plate at the top of the chimney. This will allow for expansion of the liner during normal use.

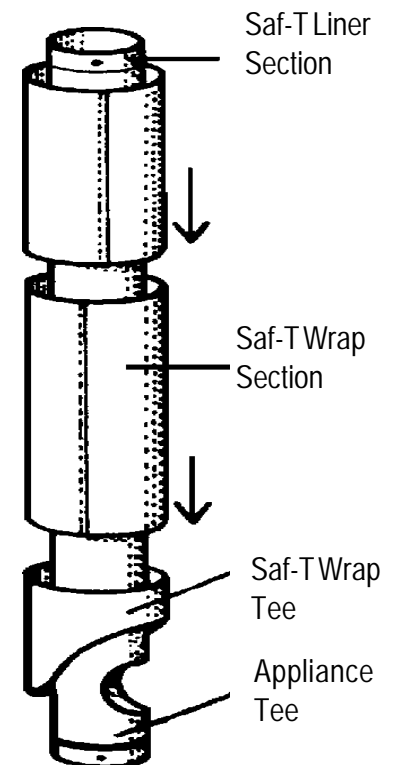


Fig. 5

## CLOSING THE CHIMNEY OPENING

### Non-Fireplace Chimney

Before closing the opening in the chimney, make certain that the Saf-T Wrap is positioned securely around the appliance tee.

Several brick halves and mortar will be needed to close in around the take off. Rebuild the chimney using brick as square as possible. Fill mortar in tightly around the take off. Make sure that the starter section fits smoothly into the takeoff before the mortar cures.

If desired a cover plate may be installed over the opening in lieu of filling with masonry. Attach the cover plate with four tapcon screws or other masonry anchors.

### INSTALLING THE COVER PLATE, RAINCAP AND STORM COLLAR

Place the coverplate on the top of the masonry chimney to create a dead air space around the Saf-T Liner system. Trim the cover plate to 4" larger than the outside of the chimney. Using tin snips, notch each corner 2" and fold each corner under 90 degrees. Set the cover plate over the liner onto a bead of silicone caulk on the chimney top. **Do not attempt to secure the liner with mortar or fasteners directly to the masonry chimney top. There must be room for vertical expansion of the Saf-T Liner due to the heating and cooling process during normal use.**

Install the storm collar directly below the expanded portion of the liner by tightening the clamp screw. The storm collar will then rest on the cover plate, supporting the upper sections of the liner system. Slide the rain cap into the expanded portion of the liner and secure with the four self-drilling screws provided. (see Fig. 6)

### INSTALLING THE APPLIANCE

#### Non-Fireplace Chimney

The first section of stove pipe will connect to the tee take off, either through a Saf-T Thimble or other listed and/or approved wall penetration assembly. Any stove pipe connector used which is not open to plain view from the room must be made of stainless steel. The wall penetration assembly must be located above the appliance and may **not be** located directly behind the heating appliance. Note: When a listed or approved wall penetration assembly is **not** used, the single wall connector pipe must be at least 18" from combustible construction materials.

Clearances from the solid fuel burning appliances to combustible materials must be strictly adhered to. Follow all local codes and appliance manufacturer's directions (Fig.7 next page).

#### Hearth Stove and Fireplace Insert Stove

Install the bottom termination of the liner system and appliance connector to the appliance flue collar. (see Fig.6)

Complete the hearth stove or fireplace insert installation per the manufacturer's instructions and guidelines.

After completing the installation of the appliance it is required that the initial firing precautions of the appliance manufacturer's instructions be strictly followed.

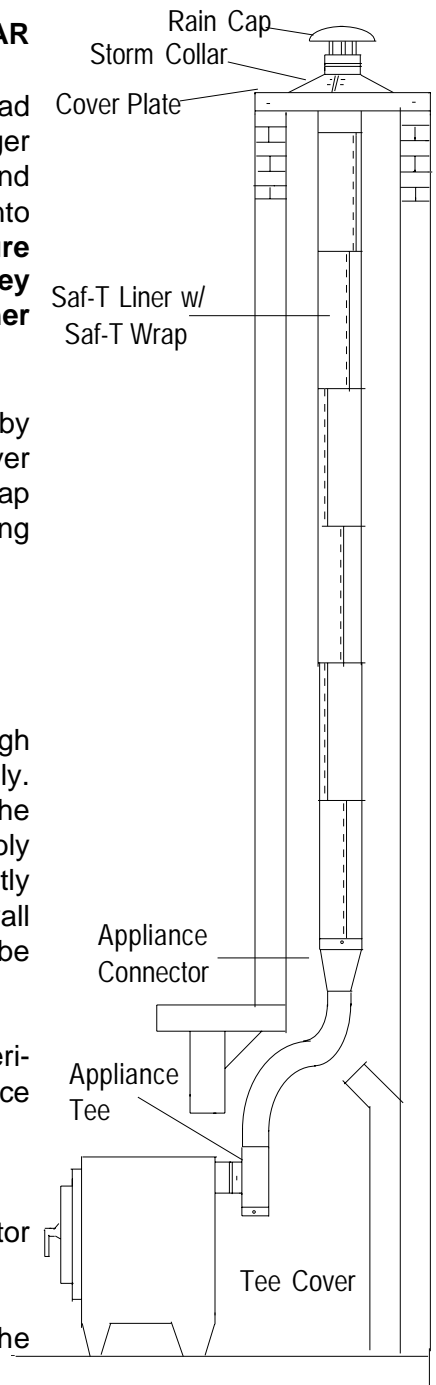


Fig. 6

## CHIMNEY MAINTENANCE

The chimney connector and Saf-T Liner should be inspected frequently during the heating season and cleaned annually (more often if necessary) by a professional, certified chimney sweep. **Formation of creosote and soot and the need for removal** occurs when wood is burned slowly, producing tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool flue of a slow burning fire. As a result, creosote residue accumulates on the flue lining. If ignited, this can make an extremely hot chimney fire. The chimney should be inspected at least every 6 to 8 weeks during the woodburning season to determine if a creosote or soot buildup has occurred. To inspect and/or clean the chimney, loosen the four Tek screws with a nutdriver and remove the rain cap. If creosote or soot have accumulated, have the chimney professionally cleaned to reduce the risk of a chimney fire.

A round-wire steel or Poly chimney cleaning brush is recommended to clean the Saf-T Liner. Heat-Fab does not recommend the use of chemical chimney cleaners which may be harmful to the Saf-T Liner. After thoroughly cleaning the chimney re-install the rain cap by using the four Tek screws.

***WARNING! Do not use any loose fill, cementious, or blanket insulation thicker than 1/4 inch equivalent refractory ceramic fiber. These products void the Saf-T Liner and may create unsafe conditions resulting in damage to the masonry chimney and/or the liner system.***

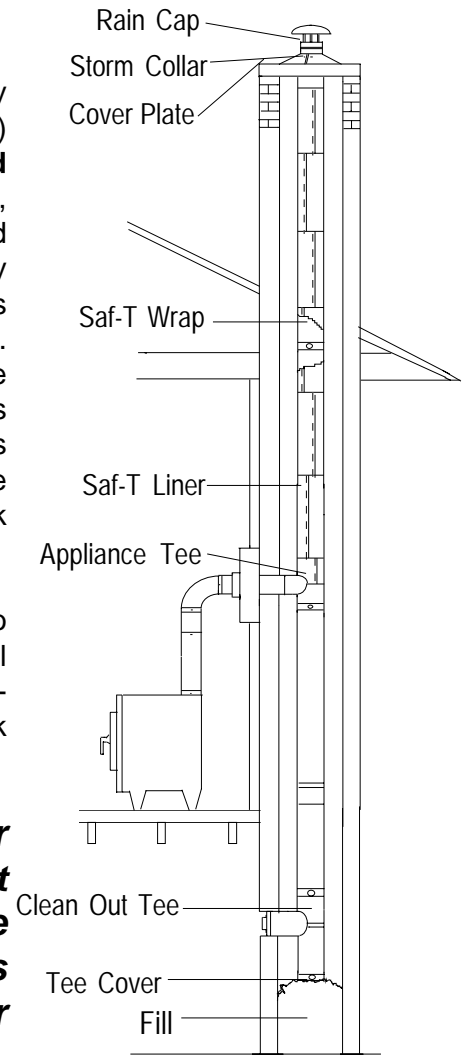


Fig. 7

### Saf-T Liner Stainless Steel Chimney Liner Limited Warranty

Heat-Fab, Inc. warrants to the original consumer purchaser that the Type 304 Saf-T Liner will be free from defects in material or manufacturer's workmanship when properly installed with Saf-T Wrap insulation pursuant to these manufacturer's installation instructions and according to the local building codes, when used under normal conditions as connector pipe or chimney relining material for Wood Burning residential appliances Tested and Listed by a recognized laboratory, or site build masonry fireplaces and when inspected and cleaned by a certified professional at the consumer's expense at intervals of no more than twelve (12) months, commencing from the date of purchase, as verified below. Type 316 Saf-T Liner will be free from these same defects when connected to coal burning appliances for a period of 10 years.

In order to obtain warranty service, the consumer must give prompt written notice of any defect to Heat-Fab, Inc. at its current address or via e-mail to mail@heat-fab.com. The sole responsibility of Heat-Fab, Inc. shall be to replace those lengths of liner found to be defective upon return F.O.B. to the Heat-Fab factory. Heat-Fab, Inc. shall not be responsible for the cost of removing or installing the lengths which are subject hereto, nor shall it be liable for any special, incidental or consequential damages or expenses incurred by the consumer.

This warranty gives the consumer specific legal rights, in addition to any other rights which may pertain, which vary from state to state.

# ATTENTION HOMEOWNER

## FOLLOW THESE CHIMNEY MAINTENANCE INSTRUCTIONS:

The chimney connector and Saf-T Liner should be inspected frequently during the heating season and cleaned annually (more often if necessary) by a professional, certified chimney sweep.

The chimney should be inspected at least every 6 to 8 weeks during the heating season and once prior to the season to determine if (1) a creosote or soot buildup has occurred or (2) if some other mechanism has caused a failure of the liner system. To inspect and/or clean the chimney, loosen the four Tek screws with a nutdriver and remove the rain cap. If creosote or soot has accumulated, have the chimney professionally cleaned to reduce the risk of a chimney fire.

Properly installed and well maintained stovepipes and chimneys can usually withstand an occasional moderate chimney fire, but the intentional setting of a chimney fire to "burnout" the creosote should be avoided. This is a dangerous method to clean a chimney and can cause severe damage to chimneys, liners and possible damage to the structure of the house.

After any chimney fire always have the chimney system inspected by a knowledgeable and certified professional before any further use. The excessive heat during a chimney fire can crack chimney walls, and cause cracking, buckling, distortion and/or burnout in chimney liners. A chimney liner damaged in such a way as to permit leakage of flue gases should be repaired or replaced, since there is a greater likelihood that a subsequent chimney fire could spread beyond the confines of the damaged flue to the house itself. If no such damage is visible the chimney system, installed per these instructions, is suited for further use subject to the inspection schedule outlined above.

Year 1 Maintenance Done by _____ Date _____	Year 2 Maintenance Done by _____ Date _____	Year 3 Maintenance Done by _____ Date _____	Year 4 Maintenance Done by _____ Date _____
Year 5 Maintenance Done by _____ Date _____	Year 6 Maintenance Done by _____ Date _____	Year 7 Maintenance Done by _____ Date _____	Year 8 Maintenance Done by _____ Date _____
Year 9 Maintenance Done by _____ Date _____	<b>HOMEOWNER KEEP FOR YOUR RECORDS</b>		Year 10 Maintenance. Done by _____ Date _____
Name _____			
Address _____			
City, State, Zip _____			
Installing Company _____			
Address _____			
Phone (    ) _____			
Date of Installation _____			
Installed by _____			