

# INSTALLATION INSTRUCTIONS



## INTEGRITY™ Stainless Steel Chimney Liner Systems

### Description

INTEGRITY™ is a corrugated flexible stainless steel chimney liner used in lining or relining masonry chimneys. The model INTEGRITY™ stainless steel liner is listed by Underwriters Laboratories Inc. to the stringent requirements of UL1777 standard, including UL641 for gas and oil and ULC S635 in diameters from 3" to 12" and available up to 24". The stainless steel

used in the manufacturing of INTEGRITY™ liner is very highly resistant to corrosion and can withstand severe temperature. It is accepted and recognized by testing agencies throughout North America to be the most suitable for use with natural gas, propane, oil, wood and coal fired appliances.

### Operating Temperatures

The normal operating temperature for INTEGRITY™ stainless steel chimney liner is 1200 degrees Fahrenheit, however, it will operate acceptably at 1700 degrees Fahrenheit (a much higher temperature than normally exhausted flue gases from a

heating appliance). INTEGRITY™ stainless steel liner maintained its physical and mechanical properties during testing at 2100 degree Fahrenheit should a temporary appliance malfunction occur.

### Installations

CONTACT YOUR LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSPECTION IN YOUR AREA. INTEGRITY™ stainless steel chimney liner must be installed in accordance with enforcing authorities having jurisdiction and the INTEGRITY™ installation instructions.

WARNING: Install only in masonry chimneys or in chimneys approved by the authority having jurisdiction for use with solid

fuel only. Lining systems must be installed in accordance with manufacturer's installation instructions.

Rain 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 temperatures. Consult authority having jurisdiction.

### Zero Clearance

Model INTEGRITY™ stainless steel chimney liner may be installed into a masonry chimney that is structurally sound and built of solid masonry brick, block, or concrete block at least 4 inches in thickness. Model INTEGRITY™ stainless steel chimney liner must be installed with 2 (two) layers of INTEGRITY™ WRAP 8 lb. density 1/4" insulation or 1 (one) layer of INTEGRITY™ WRAP 8 lb. density 1/2" insulation and 1 (one) layer of INTEGRITY™ MESH insulation covering. Clearance from the

exterior surfaces of the masonry chimney to be maintained is "0" (zero) inches. **There must be no embedded combustibles!**

INTEGRITY™ stainless steel chimney liner must be installed according to manufacturers installation instructions, NFPA 211, and/or other recognized major building codes and the manufacturers installation instructions.

### Size of the Liner

The chimney liner must be sized not less than the size specified in the appliance manufacturers instructions. Correct sizing of the venting system is critical in regions where low temperatures are present and sustained.

#### MAXIMUM BENDING RADIUS - in inches

3" Liner . . . . .	6"	7" Liner . . . . .	14"
4" Liner . . . . .	8"	8" Liner . . . . .	16"
5" Liner . . . . .	10"	9" Liner . . . . .	18"
6" Liner . . . . .	12"	10" Liner . . . . .	20"



## Safety First

Use caution when working on roofs, chimneys, ladders, and/or scaffolds. Always use proper equipment! When working with ladders and/or scaffolding, secure them to the building properly! Wear eye protection and gloves throughout the installation and wear a dust and vapor respirator when you come into contact with creosote, mortar, mortar dust or insulation. **Be sure to check above and around the chimney for antennas, power lines, or any other obstacles before beginning the installation. Be sure that the liner does not come in contact with electrical or any other wires.**

Any appliances connected to the chimney must be turned off. The flue collars of disconnected appliances must be plugged to prevent entry of dust or debris. Clear a safe

working space around the chimney, both indoors and outdoors. Lay down drop clothes to protect furnishings and property. Use a sweeps vacuum to contain dust generated during the installation.

### Tools needed for most installations would include:

- Commercial ladders and or scaffolding - do not use light weight ladders.
- Gloves
- Eye Protection
- Respirator
- Hack-saw
- Utility Knife
- Tin Snips
- Drop Cloths
- Masonry Drill Bits
- Electric Drill
- Cold Chisels
- Screwdrivers
- Measuring Tape
- Hammer
- Crimpers
- Masonry Trowel
- Mortar or Mix
- Silicone Caulk
- Caulking Gun
- Duct Tape
- SOME INSTALLATIONS MAY REQUIRE OTHER TOOLS.

## Chimney Inspection

It is the installers responsibility to thoroughly inspect and verify the suitability of the chimney and related construction for installation of INTEGRITY™ stainless steel chimney liner. The chimney in which liner is to be installed into must be constructed of a least standard masonry brick being 3" x 5". The inside dimensions of the interior must be large enough to accommodate liner to be installed and any necessary insulating materials. It is the installers responsibility to verify that the chimney is tall enough to provide necessary draft for the appliance being installed. If the chimney is not of adequate height it must be extended either through proper masonry construction or the use of a U.L. approved class A manufactured chimney. Check the air space between the masonry chimney exterior and combustible materials and verify that

the chimney is in accordance with clearance specifications contained in NFPA 211, other recognized major building codes and the manufacturers installation instructions. If inspection reveals that the chimney is not safe for its intended use, it must be repaired or modified to conform with recognized requirements. Inspect the interior of the chimney for loose, missing or cracked brick, loose or missing mortar, or other materials that could inhibit the correct installation of the lining system. Any unused chimney thimbles must be sealed properly. Repair any defects in the chimney. The chimney exterior must be checked to verify that the chimney is structurally sound and that water cannot enter the chimney cavity.

## Chimney Cleaning

The chimney must be thoroughly cleaned prior to the installation of the liner. Internal surfaces of the chimney must be clean and dry. The chimney cleaning must be performed by a certified chimney sweep or other qualified persons. ANY

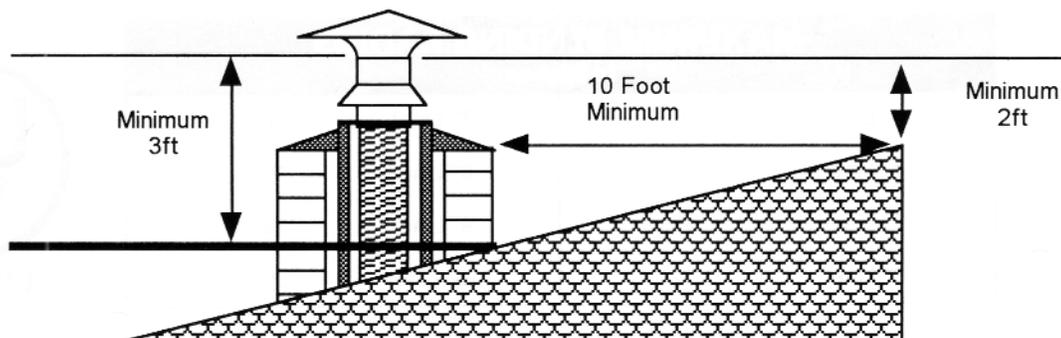
GLAZE CREOSOTE MUST BE REMOVED BEFORE INSTALLING INTEGRITY™ STAINLESS STEEL LINER.

REMINDER: Check for icing of rain cap during low ambient temperatures.

## Chimney Height

Chimney height must be a minimum of 10 ft. and a maximum of 60 ft. The minimum inside of the chimney must be no less than 4 inches square. The masonry chimney into which the liner is to be installed must terminate at least 3 feet

above the point where it penetrates the roof and 2 feet higher than any part of the structure within a 10 foot radius. See the following diagram.



## For Easy Installation

To insure easy installation, a three foot length of liner should be fitted to a nose cone or liner support and attached to a suitable length of rope which should be dropped through the passageway to the fireplace opening below. The check test should then be done by pulling the test length through the chimney passageway in the proposed direction of the installation of the liner. The length of chimney liner required

can be easily determined by dropping a weighted line down the chimney and taking the measurement. Add for offsets and necessary liner at the top of the chimney. INTEGRITY™ stainless steel liner can be cut using as hacksaw, snips, or a disc cutter. The liner should be placed on a flat surface and clamped before cutting. The liner should be cut at 90 degrees to ensure proper fit into fittings.

## Installing The Liner

Attach liner to a pulling cone and rope, then lift it onto the roof. Insert the liner into the chimney from the top down. Guide the liner into the chimney as another person pulls on the rope from the bottom opening of the chimney. The liner should extend from the bottom of the chimney by enough length to connect to the base tee or to the appropriate liner connection as necessary. Secure the liner at the base of the chimney using suitable means, and support the liner at the top of the chimney using a liner support and a flashing which should then be mortared at the top of the chimney. Secure all fittings to the liner with at least three stainless steel pop rivets. When installing INTEGRITY™ stainless steel liner in chimneys complying with NFPA 211 standards, insulating the liner is not required. However, one layer of INTEGRITY™ WRAP 8 lb. density 1/4 inch foil faced insulation fastened securely to the liner with stainless steel mesh will help to keep the liner warmer, therefore reducing soot and creosote deposits on the interior of the liner.

As with any venting system, the performance and safety of INTEGRITY™ stainless steel lining system is dependent

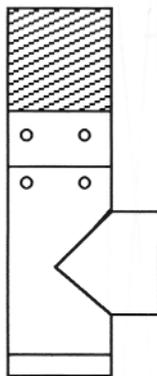
on the use of parts and materials specified in these instructions and supplied by RLH Industries, Inc. Substitution of unauthorized parts may increase the risk of fire, appliance malfunction, property damage and personal injury or death. All liners must be installed with UL approved chimney liner cap. The cap can be either a RLH Industries, Inc. manufactured cap or a UL approved liner cap. Contact RLH Industries, Inc. for a list of other UL approved liner caps recommended by RLH Industries, Inc.

All installations must be in accordance with local codes, NFPA 211 standards, and manufacturers instructions. Contact local building and fire officials for any restrictions in your area and to obtain necessary permits and inspections.

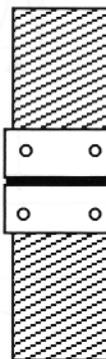
The installer must post a notice at the appliance connection to indicate allowable fuels and a reminder to check the rain cap for icing during low ambient temperatures.

Precautions should be taken on the first firing of the heating appliance that is vented through the chimney liner. Insure that the installation label for gas fired appliances is posted where the connection is made to the appliance.

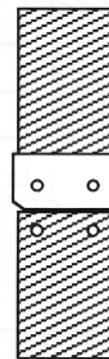
### Use a Minimum of Three 1/8 by 3/8 Stainless Steel Pop Rivets Per Connection



LINER TO TEE CONNECTION  
USING AN END COLLAR



LINER TO LINER CONNECTION  
USING SLEEVE CONNECTOR



LINER TO LINER CONNECTION  
USING AN INLINE DRIPLESS  
CONNECTOR

## Ventilation

An adequate supply of air must be provided into the room in which the heating appliance is located to enable pro-

per functioning of the heating appliance and chimney liner system.

## Creosote and Soot 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. The creosote vapor may condense on the inside of the chimney liner during slow burning periods. As a result, creosote residue accumulates on the interior of the chimney liner. When ignited, this creosote makes an extremely hot fire.

The chimney liner system should be inspected at least **every two months** during the heating season to determine if a creosote or soot build-up has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of chimney fire. **FAILURE TO MAINTAIN A CLEAN CHIMNEY CAN RESULT IN THE EMISSION OF TOXIC GASES INTO THE HOME AND THE RISK OF STRUCTURAL DAMAGE FROM THE HIGH TEMPERATURES CAUSED BY CHIMNEY FIRES. SWEEPING OF THE CHIMNEY LINER MUST BE DONE AT REGULAR INTERVALS. IN NO CASE SHOULD A CHIMNEY BE CLEANED LESS THAN ONCE EACH YEAR. IT IS ADVISABLE THAT THE CHIMNEY LINER CAN BE CLEANED ONCE DURING THE HEATING SEASON AND ONCE AT THE END OF THE HEATING SEA-**

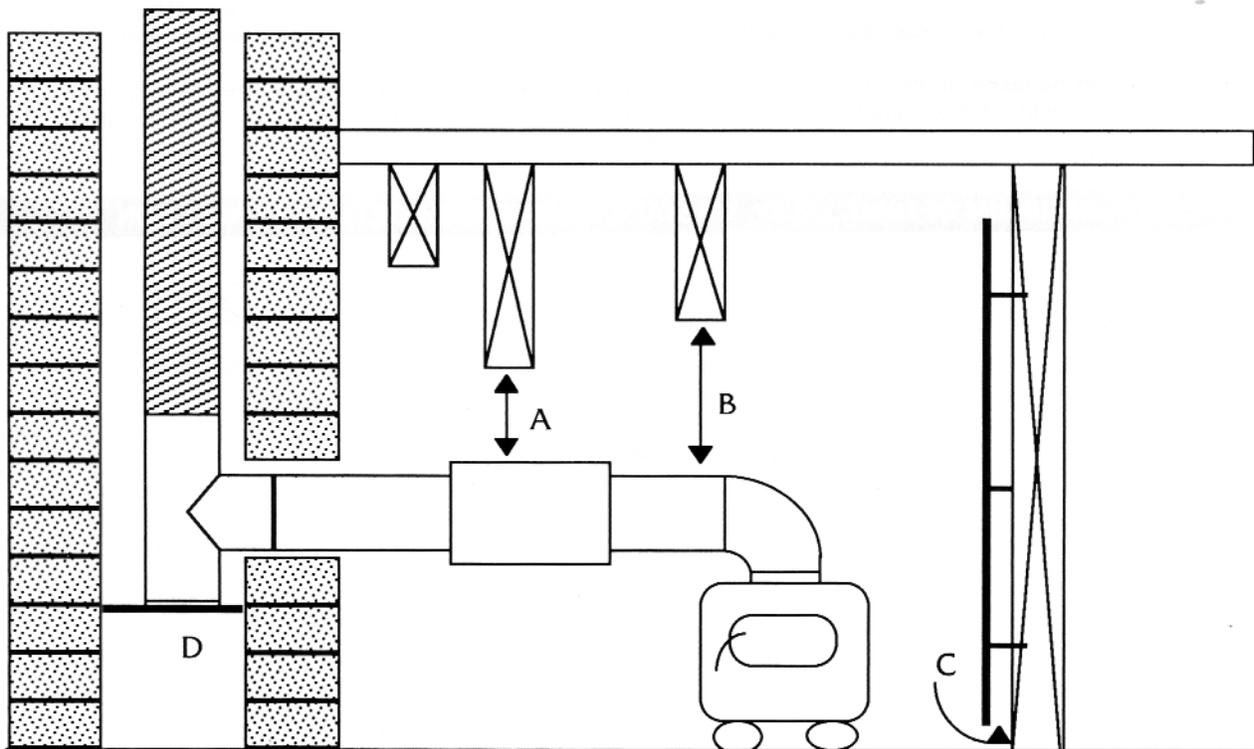
**SON. THE CHIMNEY LINER SHOULD BE CLEANED MORE OFTEN SHOULD IT BE NECESSARY.**

In order to clean the chimney, the chimney cap must be removed by loosening the fasteners that hold the cap in place. When the chimney cleaning is done the chimney cap must be reinstalled correctly. Select the correct equipment for the particular installation and be sure the brush head passes throughout the complete length of the liner including any connectors, terminals or tees. The brush to be used should be natural bristle or polypropylene.

When cleaning of the liner has been completed it is necessary to remove the deposits that have fallen down the chimney liner or flue pipe into the heating appliance connected to the liner system. The flue pipe connecting the heating appliance to the liner system must be cleaned at the same time as the liner system. The heating appliance connected to the liner system must also be inspected for any signs of malfunction. **CHEMICAL CHIMNEY CLEANERS ARE NOT RECOMMENDED AS A SUBSTITUTE FOR CHIMNEY CLEANING.**

**If a Chimney Fire Does Occur, Professional Advice Must Be Sought To Determine The Condition Of The Chimney.**

**Give a copy of these instructions and an INTEGRITY™ warranty card to the homeowner**



**A** - Per vent pipe manufacturers instruction. **B** - Single wall pipe must have a minimum of 18" of space. **C** - Reduced clearances per NFPA 211 and appliance manufacturers instructions. **D** - Suitable support for Base Tee.