

**Z-FLEX™**

# **RIGID Liner Installation & Maintenance Instructions**

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**Z-FLEX™**

## **FOR SAFETY'S SAKE!!**

Chimney relining and chimney repairs must be done with the utmost of care. Please ensure before starting that the safety aspect of the installation has been looked after. Secure your ladders and scaffolding, wear protective gear and the appropriate footwear and gloves before starting. Avoid problems through proper safety measures ensuring every installation is an accident free installation.

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**MODEL ZR**

# GENERAL INSTRUCTIONS

**Z-FLEX U.S. INC.**

Model ZR  
Part #

BEDFORD, NH  
**E**  
UL 1777



LINER FOR EXISTING CHIMNEY  
 COMPONENT FOR CHIMNEY LINERS

For Use Only With Appliances That Burn Solid Fuel, Oil, or Category 1 Appliances which burn Natural Gas or Propane.

This Liner is to be Installed in a Masonry Chimney where there is a Minimum Clearance of 1 Inch Air Space Between Combustible Materials and the Chimney Exterior.

Install and Use Only in Accordance With Z-Flex Model ZR Installation and Maintenance Instructions Shipped with Liner Kit or Available at [www.z-flex.com](http://www.z-flex.com).

**CAN/ULC-S635 CLASS 3**

## **WARNING**

Install only in existing masonry chimneys or in chimneys approved by the authority having jurisdiction for use with solid fuel burning appliances. For use only with appliances which burn oil, gas or solid fuel only. Lining systems must be installed in accordance with Manufacturer's Installation Instructions

## **AVERTISSEMENT**

Installer uniquement dans une cheminée en maçonnerie existante ou une cheminée approuvée par l'autorité compétente aux fins d'utilisation avec des appareils à combustibles solides. Aux fins d'utilisation avec des appareils alimentés au gaz, au mazout ou aux combustibles solides seulement. Les systèmes de chemisage doivent être installés conformément aux directives d'installation du fabricant

For venting of oil, gas, and solid fuel fired appliances where the temperature of the flue gas products does not normally exceed 650°C  
Évacuation pour les appareils alimentés au gaz, au mazout ou aux combustibles solides don't la température des produits de combustion n'excède normalement pas 650 °C

INSTALLER  
INSTALLER ADDRESS

DATE

**Installer's Name:**

**Installer's Address:**

**Installation Date:**

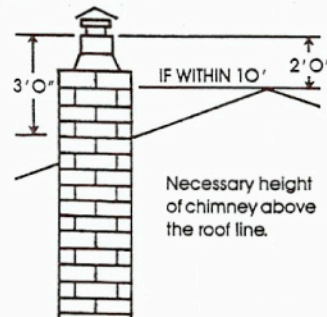
- A. To avoid rapid accumulation of creosote, do not use single wall liner above a chimney.
- B. The use of rain cap and flashing are required to prevent moisture from entering the liner and the space between the liner and chimney.
- C. Listed rain caps incorporating bird screens are necessary and/or required in some areas but may be susceptible to blockage through freezing moisture in areas of low ambient temperature. Consult authority having jurisdiction
- D. Liner must not be field ovalized.
- E. The safe operation of a lining system is based on the use of parts supplied by the manufacturer and its performance may be affected if the combination of these parts is not used in actual building construction.
- F. The lining system safety, code compliancy, warranty and performance may be compromised if the installation instructions are not followed.
- G. Prior to installation of the lining system into a masonry chimney, the chimney must be thoroughly cleaned and checked for cracked, loose, or missing bricks, mortar, or other materials that could inhibit correct installation of the lining system, and that the air space clearances between the masonry chimney exterior and combustible materials be checked to verify that the chimney is in accordance with applicable building code requirements.
- H. If the existing system is found not to be in compliance with applicable building code and / or these installation instructions, the liner shall not be installed until appropriate steps have been taken in order to bring the chimney or vent into compliance with the applicable code and / or these instructions.
- I. Installation of the lining system into an existing chimney or vent does not, in any way, upgrade the resulting relined system and make it suitable for any applications that require a vent or chimney of a higher temperature handling capability, an alternative fuel, or any other, more severe service than the original chimney or vent in which it is installed.
- J. The authority having jurisdiction (such as Gas Inspection Authority, Municipal Building Department, Fire Department, Fire Prevention Bureau, etc.) should be consulted before installation to determine the need to obtain a permit.

## **WARNING**

Failure to inspect and clean lining system as outlined in maintenance instructions may result in fire, health or other safety hazards. Use these and appliance manufacturer's instructions during the examination and tests of lining system.

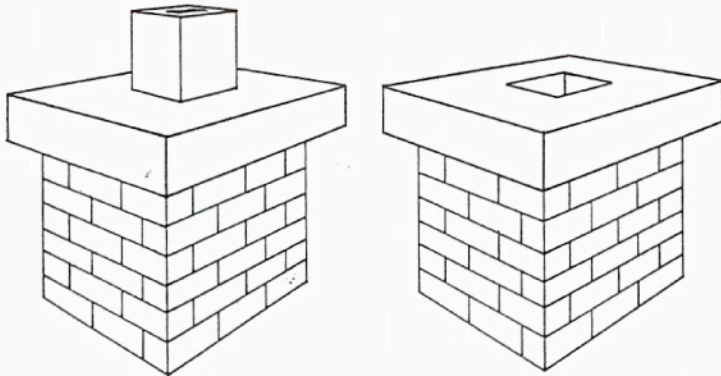
## GENERAL INSTRUCTIONS

• The Z-Flex rigid liner is meant for use with gas, oil and wood fired residential heating appliances with maximum running temperatures of 1200°F (650°C) and occasional 1700°F (925°C) temperatures • Be sure to allow one (1) inch clearance to the inside of the existing masonry chimney • Be sure to extend the chimney liner to conform to the national building code. That is, chimneys are required to extend at least *three feet above* the highest point where they pass through the roof of a building and at least *two feet higher* than any portion of the building within 10 feet. (see illustration)



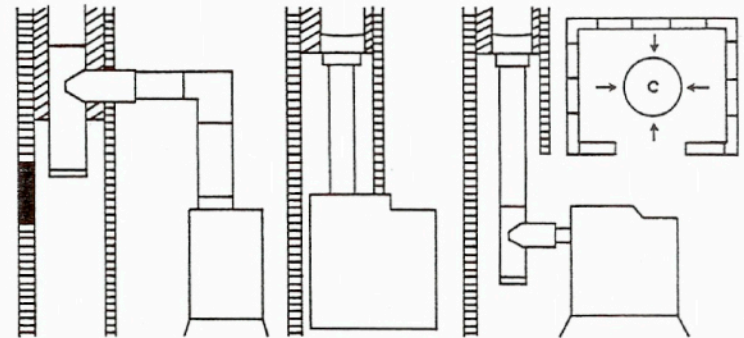
## CHIMNEY PREPARATION

Clean your chimney thoroughly, removing all soot, debris and creosote. Be sure that the chimney is in sound condition before installing liner. Trim the last protruding clay tile to allow for the installation of the Z-Flex chimney flashing.

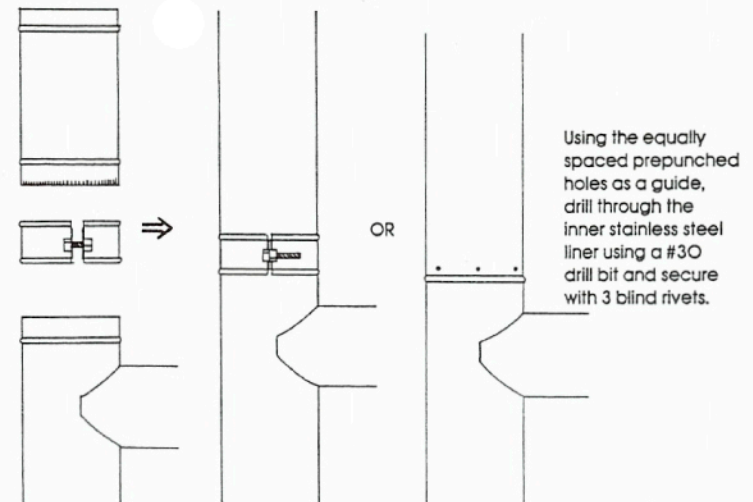


## Z-FLEX RIGID LINER INSTALLATION PROCEDURE

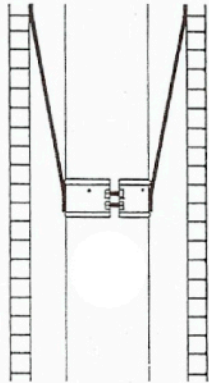
A) Installation of the base plate part #ZFGxBP. Measure the inside of the chimney so that the base plate may be trimmed and folded to accommodate the base tee in the chimney cavity, allowing for it to be centered.



B) Using either the locking band part #ZFSxLB or three blind rivets part #ZFS42BR attach a length of Z-Flex rigid liner to the vertical portion of the base tee as illustrated below.

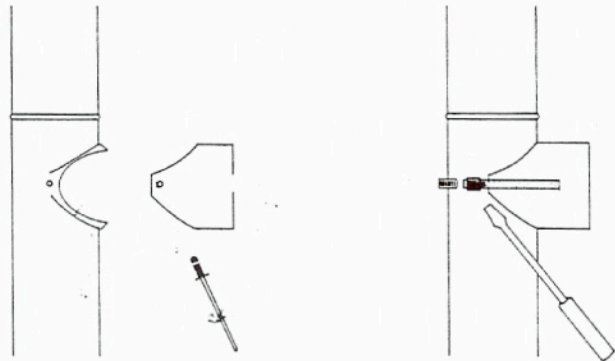


Continue connecting the required lengths of rigid liner until you have reached the desired height. Predetermine the desired height for the liner support and align the opening of the base tee with the opening of the thimble before attaching with three rivets and anchoring to the top of the chimney using nail-in anchors.



Using the prepunched holes as a guide, drill through the liner using a #30 drill bit, secure with 3 rivets.

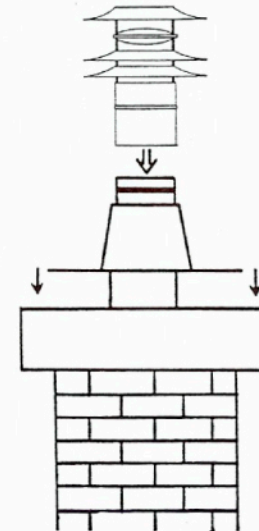
C) Install the horizontal portion of the base tee, securing it with 2 blind rivets, using the prepunched holes or tightening the optional gear clamp strap around the body of the base tee.



D) Using a standard mix, cement around the horizontal portion of the base tee prior to insulating the Z-Flex liner system.



E) Using schedule 1 to determine the chimney sizing factor and schedule 2 to determine the required number of insul mix bags, proceed by mixing one bag of insul mix with seven (7) gallons of water into a smooth pourable consistency, and using a pail or other acceptable method fill the chimney cavity.  
F) After the insulation procedure is completed, place the chimney flashing over the liner and secure to the chimney using nail-in anchors, using a quality silicone sealant caulk all joints and paint if necessary.  
G) Install deluxe raincap, mushroomcap or aerocowl and secure.



Secure using locking band for easy removal of vent terminal.

Secure flashing using nail-in anchors and seal and paint.

## FOR SAFETY'S SAKE!

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1. Always size your chimney liner to accommodate the stove or furnace. Refer to the manufacturer's instructions.
2. Stove pipe is intended to connect the appliance to the chimney and must not pass through a wall or ceiling and must maintain the proper clearances.
3. Combined with proper burning habits, the chimney liner installation should be inspected regularly.
4. Stack temperatures between 300°F and 400°F reduce the possibility of creosote build up, when reloading your stove, open the damper to allow proper ignition of the wood and to remove the slight film of creosote accumulated during low burn periods, ensure not to overfire your stove.
5. Please read all manufacturer's instructions before using your stove or furnace.
6. Creosote and soot-formation and need for removal. 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. The chimney should be inspected at least once every two (2) 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.
7. The recommended method of cleaning your Z-Flex liner is with a poly or wire chimney brush approximately 1/8" larger than the diameter of your liner. The liner should be brushed until all creosote and soot have been removed.

8. Contact your local building or fire officials about restrictions and installation inspection in your area.
9. Ensure access to the clean out tee are in accordance with the enforcing authorities and clearances are maintained to your local building codes.  
Please note: continued exposure of any stainless steel to open flame, causes the stainless steel to deteriorate.

## ONE CHIMNEY - ONE APPLIANCE

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Each and every appliance should have its own chimney. This provides maximum safety margins and the appropriate draft control. When manufacturers engineer and test their appliances, they not only attach it to one chimney, they size the chimney liner to provide the best results for their unit. Installing more than one unit to a chimney changes the intended operational efficiency of the appliances but even more important it impairs the safety aspect of the installation.

With two solid fuel appliances on a chimney there will be an increased amount of creosote build-up, with a solid fuel appliance and an oil or gas furnace, creosote build-up could reduce the size of the chimney enough to prevent adequate venting and lead to carbon monoxide leakage into the home.

**Do not burn coal**

**Do not burn ocean driftwood**

**Do not burn garbage**

You cannot guarantee the composition of these three. We cannot guarantee the results by burning these three.

## LINER INSTALLATION GUIDE

### FOR YOUR INSUL-MIX REQUIREMENTS

You propose to install a Z-Flex liner in your customer's house. His existing chimney is 18 feet high and is currently lined with an 8" x 12" clay tile.

Using both schedule 1 and the look-up chart, we will be able to determine the number of insul-mix bags required.

Knowing that your existing tile is 8" x 12" which is actually 6½" x 10½" allowing for the thickness of the clay tile, when multiplied is equal to 68¼ square inches. Using schedule 1 scan down the first column and find 68¼ square inches, since there is no 68¼ go to the next larger number, in this case 72. Proceed across the graph until you reach the Z-Flex liner size you are installing, in this case 6" and make note of the factor, in this case ".30".

Using the look-up chart find .30 in the first column. If the number cannot be found go to the next larger number. In this case however the factor .30 is on the chart. Proceed across the chart and look-up the chimney height of 18 feet, since there is no 18 feet on the chart go to the next number up which is 20 feet. At the intersection of .30 and 20 feet you will find the number 3, which represents the number of bags of insul-mix required to fill the chimney cavity.

## Z-FLEX INSUL-MIX CHART

### SCHEDULE 1 NO. OF CU. FT./FOOT OF CHIMNEY

sq. in.(ID) of flue	4" dia. SS liner	5" dia. SS liner	6" dia. SS liner	7" dia. SS liner	8" dia. SS liner	9" dia. SS liner	10" dia. SS liner
49	.25	.20					
56	.30	.25					
63	.35	.30					
64	.36	.31	.25				
72	.41	.36	.30				
80	.47	.42	.36				
81	.48	.43	.37	.30			
90	.54	.49	.43	.36			
99	.60	.55	.49	.42			
100	.61	.56	.50	.43	.34		
110	.68	.63	.57	.50	.42		
120	.75	.70	.64	.57	.48		
121	.75	.70	.64	.57	.49	.40	
132	.83	.78	.72	.65	.57	.48	
143	.90	.86	.80	.72	.64	.55	
144	.91	.86	.80	.73	.65	.56	.45
156	1.00	.95	.89	.82	.73	.64	.54
168	1.08	1.03	.97	.90	.82	.72	.62
169	1.09	1.04	.98	.91	.82	.73	.63
182	1.18	1.13	1.07	1.00	.92	.82	.72
196	1.27	1.22	1.16	1.09	1.01	.92	.82
210	1.37	1.32	1.26	1.19	1.11	1.02	.91
225	1.48	1.43	1.37	1.30	1.21	1.12	1.02
240	1.58	1.53	1.47	1.40	1.32	1.22	1.12
256	1.69	1.64	1.58	1.51	1.43	1.34	1.23
288	1.91	1.86	1.80	1.73	1.65	1.56	1.45
320	2.14	2.08	2.02	1.96	1.87	1.78	1.68

By intersecting the graph with the number of square inches of the flue and the diameter of the intended liner to be installed, the corresponding factor required for the look-up chart for your insul-mix requirements will be provided.

# INSUL-MIX REQUIREMENTS CHART

## LOOK-UP CHART FOR INSUL-MIX REQUIREMENTS FOR # OF BAGS REQUIRED

Chimney height in feet

Factor	15	20	25	30	35	40	45
.20	2	2	2	3	4	4	4
.25	2	2	3	4	4	5	6
C .30	2	3	4	4	5	6	7
H .35	3	4	4	5	6	7	8
I .40	3	4	5	6	7	8	9
M .45	3	4	6	7	8	9	10
N .50	4	5	6	8	9	10	11
E .55	4	6	7	8	10	11	12
Y .60	4	6	8	9	10	12	14
.65	5	6	8	10	11	13	15
F .70	5	7	9	10	12	14	16
A .75	6	8	9	11	13	15	17
C .80	6	8	10	12	14	16	18
T .85	6	8	11	13	15	17	19
O .90	7	9	11	14	16	18	20
R .95	7	10	12	14	17	19	21
1.00	8	10	12	15	18	20	22
F 1.05	8	10	13	16	18	21	24
O 1.10	8	11	14	16	19	22	25
R 1.15	9	12	14	17	20	23	26
1.20	9	12	15	18	21	24	27
C 1.25	9	12	16	19	22	25	28
U 1.30	10	13	16	20	23	26	29
B 1.35	10	14	17	20	24	27	30
I 1.40	10	14	18	21	24	28	32
C 1.45	11	14	18	22	25	29	33
1.50	11	15	19	22	26	30	34
F 1.55	12	16	19	23	27	31	35
O 1.60	12	16	20	24	28	32	36
O 1.65	12	16	21	25	29	33	37
T 1.70	13	17	21	26	30	34	38
1.75	13	18	22	26	31	35	39
T 1.80	14	18	22	27	32	36	40
A 1.85	14	18	23	28	32	37	42
B 1.90	14	19	24	28	33	38	43
L 1.95	15	20	24	29	34	39	44
E 2.00	15	20	25	30	35	40	45
2.05	15	20	26	31	36	41	46
2.10	16	21	26	32	37	42	47
2.15	16	22	27	32	38	43	48

By intersecting the graph with the chimney factor in the first column and the height of the intended chimney, the corresponding number is the number of bags of insul-mix required.

## MAINTENANCE INSTRUCTIONS

### WARNING:

**DO NOT USE ANY MATERIAL/PARTS OTHER THAN THOSE SPECIFIED IN THE INSTALLATION INSTRUCTIONS.**

#### “Creosote and Soot Formation and Need for Removal”.

When wood is burned slowly, it produces tar and other organic vapors, which combined with expelled moisture, forms creosote. The creosote vapors 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 makes an extremely hot fire. The chimney should be inspected every two (2) months during the heating season to determine if a creosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of chimney fire.

The recommended method of cleaning your Z-Flex Liner is with a poly brush approximately 1/8” larger than the diameter of your liner. The liner should be brushed until all creosote and soot have been removed.

It is recommended to have the chimney lining system inspected by a qualified chimney inspector, such as a certified chimney sweep, at least once annually.

Any heating appliance connected to the chimney liner must not have a flue outlet size larger than the chimney liner area at its smallest point.

# 10 YEAR WARRANTY

## Z-FLEX™

Z-Flex, Inc. warrants its chimney liners for a period of ten (10) years from date of purchase.

Z-Flex, Inc. warrants to the retail purchaser (or, if this product was purchased by a contractor, to the end user) that the chimney liner excluding base fee and raincap will be free from manufacturer's defects in material and workmanship at the time of shipping for a period of ten (10) years from the date of purchase, when the product is used under normal use and circumstances.

This warranty, whether expressed or implied, shall be limited to the replacement of the liner and accessories found to be defective under this warranty, exclusive of installation costs.

Any deviation from recommended installation and use instructions included with this product, will nullify this warranty.

Excessive creosote accumulation, sulphur residue from coal consumption, or the use of unapproved chemical cleaners, may result in corrosive action on stainless steel, or cause severe warpage of liner due to chimney fires. These conditions can only result from improper use, and such misuse will void this warranty.

As a condition precedent to Z-Flex, Inc.'s performance under this warranty the purchaser must fill out the warranty registration coupon below and return it to Z-Flex, Inc. at the address shown and permit examination by Z-Flex, Inc., or its agent or representative, which examination must establish satisfactory proof of defect in material or workmanship.

The terms of this warranty constitute the purchaser's sole and exclusive remedy.

PLEASE DETACH AND RETURN IMMEDIATELY!

### WARRANTY REGISTRATION CARD

## Z-FLEX™

For this warranty to be effective this card must be completed upon purchase of the covered liner and returned to Z-Flex, Inc.

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

LINER PURCHASED FROM: \_\_\_\_\_

DATE OF INSTALLATION: \_\_\_\_\_

FIREPLACE, STOVE OR FURNACE MODEL: \_\_\_\_\_

I understand and agree to the warrant as stated: \_\_\_\_\_

SIGNATURE