DuraFlex SS

INSTALLATION INSTRUCTIONS FOR RELINING MASONRY CHIMNEYS FOR USE WITH GAS, OIL, PELLET, OR SOLID FUEL APPLIANCES

143-P-02-2

APPLICATION

Stainless steel DuraFlex SS Chimney Relining System is an OMNI-Test Laboratories listed for relining masonry chimneys which are intended to be used for venting oil, pellet, or solid-fuel burning appliances, as well as gas appliances (category I only). These instructions cover installation from the appliance vent connector through the wall of the masonry chimney, or through the damper, up to the termination cap.

IMPORTANT

Read all instructions carefully before starting the installation. Failure to follow these instructions may create a fire or other safety hazard, and will void the warranty. It is important to follow the appliance manufacturer's installation instructions and to check the label on the appliance to confirm the appliance category and any restrictions or limitations.

If DuraFlex SS is used for gas appliances, then the DuraFlex AL Cap Assembly, DuraCap, or High-Wind Cap must be used for proper listing of the vent.

INSTALLATION PRECAUTIONS

The Simpson Dura-Vent DuraFlex SS is an engineered product that has been designed and tested for use as specified above. The Simpson Dura-Vent warranty will be voided, and serious fire, health, or other safety hazards may result from any of the following actions:

- Installation of any damaged component.
- Unauthorized modification of any Dura-Vent product.
- Installation of any component part not manufactured or approved by Simpson Dura-Vent.
- Installation other than as instructed by Simpson Dura-Vent and the appliance manufacturer.

Consult your local building codes before beginning the installation. Contact local Building or Fire officials about restrictions and installation inspection in your area.

CAUTION: Make sure you have the proper equipment for the job, including adequate safety protection for working at elevated heights. Always wear gloves and safety glasses when handling sheet metal parts.

SIZING REQUIREMENTS

Proper sizing of the relining system to the appliance is very important. For gas appliances, refer to the National Fuel Gas Code or the Simpson Dura-Vent Sizing Handbook for complete sizing instructions (these tables are not intended for Category II, III or IV appliances or Oil burning appliances). Failure to properly size the venting system may result in draft hood spillage, back pressure, and corrosive condensation in the relining system.

If you are burning solid or liquid fuel the venting system may be sized to the outlet of the appliance. Do not downsize the liner for wood or oil appliances without consulting the appliance manufacturer. Some pellet burning appliances may require an increase in diameter size for higher altitudes, but you should consult the appliance manufacturer for proper sizing of the liner.

PRIOR TO INSTALLATION

Before installing the Dura/Flex SS Liner system, the chimney passageway should be examined to check for cracked, loose, or missing bricks, mortar, or other materials that could inhibit correct installation of the lining system. The Chimney should be cleaned and any tar glaze creosote removed. Verify that the existing masonry chimney has at least 1" clearance from exterior of the chimney to combustibles and it meets current NFPA 211 requirements as well as any local code requirements.

Make sure the construction of your masonry chimney meets the following requirements for your reliner installation:

Minimum brick thickness: 3 1/2 inches
Maximum height: 65 feet
Minimum Height: 10 feet

Clearances from combustible materials for single-wall connectors on Residential-Type Appliances (from NFPA 211):

Gas appliances without draft hoods	18 inches
Oil and solid-fuel appliances	18 inches
Unlisted gas appliances with draft hoods	9 inches
Oil appliances listed for use with L-Vent	9 inches

Boilers and furnaces equipped with listed gas burners and with draft hoods	9 inches
Listed gas appliances with draft hoods	6 inches
Other Cat I appliances able to use B-vent	6 inches

Note: When using a listed connector, the clearances specified on that connector may be used, unless a different clearance is specified by the Appliance manufacturer.

The masonry chimney will also need to satisfy the NFPA 211 requirements for clearances to the top of the chimney. For solid-fuel venting, you will need to be at least 3-feet above the penetration through the roof, and at least 2-feet higher than anything within 10-feet around the chimney. For gas, oil, or pellet venting, you need to be at least 2-feet above the penetration through the roof, and also 2-feet higher than anything within 10-feet around the chimney (**Figure 1**).

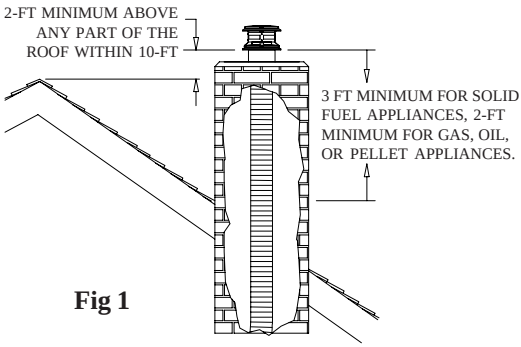


Fig 1

CHIMNEY LINER SELECTION

The DuraFlex SS Chimney Liner System consists of a continuous Flexible Liner from the top of the chimney to the appliance connection. **(Figure 2)** This system is relatively easy to install, even in masonry chimneys that are constructed with an offset. This single-wall DuraFlex SS Liner system is intended for installation in masonry chimneys which comply with NFPA 211 requirements and local codes.

If you are installing a gas burning Category I or draft hood equipped appliance in cold climates, you may want to switch to double-wall, (air) insulated Type B gas vent near the top exposed portion of the chimney. **(Figure 3)** At the top of the chimney, the flue gas has lost much of its heat, and becomes susceptible to corrosive condensation and poor draft. This is very true with fan-assisted (Category I) gas appliances.

Table 1: Clearances Required

Fuel Burned	Minimum Clearance from Liner to Masonry	Minimum Clearance from Masonry to Combustibles	Insulation Required
Gas/LP	0"	0"	None
Pellet, Oil	1"	1"	None
Wood, Coal	1"	1"	None
Wood, Coal	0"	0"	2-ply Sleeve

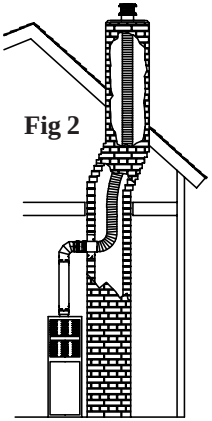


Fig 2

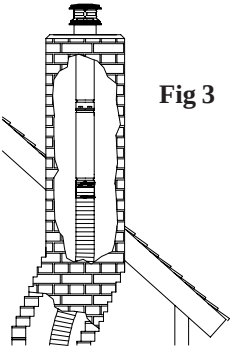
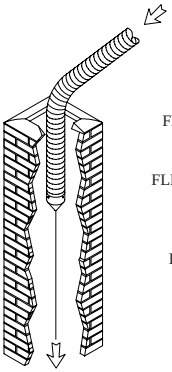


Fig 3



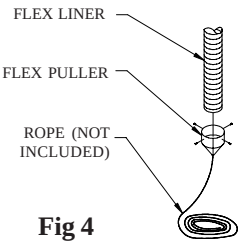


Fig 4

BASIC DURAFLEX SS LINER INSTALLATION

The type of fuel you are burning, and what clearances you have available, will determine if you need to use the 2-ply Insulation Sleeve or Spacers with your liner installation. Refer to the **Table 1** to determine if the Insulation Sleeve is required with the clearances you have available. If the Insulation Sleeve is required, please refer to the Insulation Sleeve Installation section.

Step 1. Measure and record dimensions to determine total Flex Liner requirements.

Step 2. After locating where the appliance flue connection will be made in the chimney wall, break out sufficient masonry to form a hole large enough for the Mortar Sleeve or Flex Liner to pass through easily. If a Tee application is necessary, a larger hole may be required. (See Tee Installation Section)

Step 3. Remove Flex Liner from packaging and straighten coiled Flex Liner. If Insullation Sleeves are not used, you will need to attach Spacers to the Flex Liner to insure the liner maintains at least the 1" clearance required to the inside of the masonry (**Figure 5**). Place Spacers every 5 feet on the Liner.

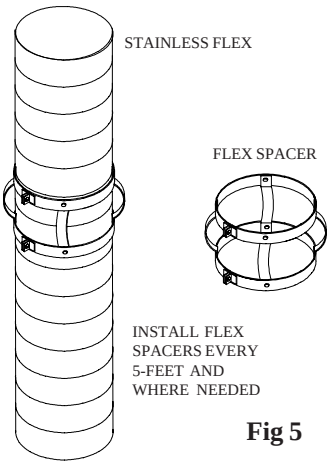


Fig 5

Step 4. Secure a rope to the Flex Puller and attach the Flex to DuraFlex SS Liner as shown in **Figure 4**. One person should feed the liner through the chimney, and another person should pull the liner from the bottom, using the rope to guide the liner though to the chimney bottom. The reason for using two people is that care

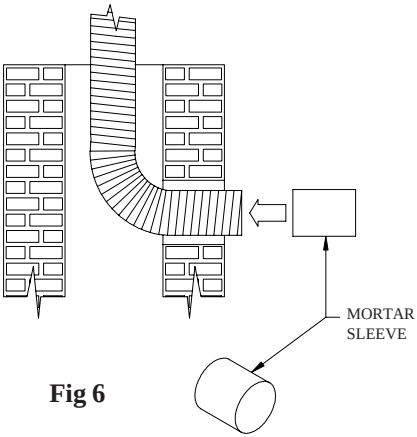


Fig 6

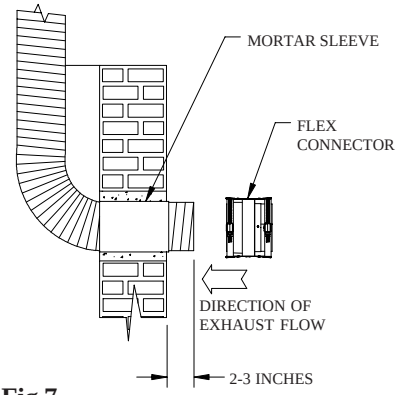


Fig 7

must be taken not to tear or otherwise damage the Flex Liner.

Step 5. After carefully feeding the Flex Liner down the chimney to the bottom and form a 90° angle, and bring the Flex Liner through the hole in the chimney wall.

Step 6. Slide the Mortar Sleeve over the Flex Liner, until the Mortar Sleeve is flush with the wall of the masonry chimney (**Figure 6)**. Once the Mortar Sleeve is in place, the space between the Mortar Sleeve and the masonry may be filled with grout.

Step 7. The Flex Liner should extend at least 2 inches beyond the Mortar Sleeve. If you are using rigid connector pipe to connect between the Flex Liner and the Appliance, you will need a Flex Connector. Be sure the flow arrow on the Flex Connector is in the same direction of the exhaust flow (**Figure 7**). Fit the Flex Liner into the Flex Connector and tighten the fast connect band. Slide the other end of the Flex Connector into the connector pipe and tighten with the fast connect band.

TEE INSTALLATION INSTRUCTIONS

Step 1. If a tee is required, and the masonry chimney has no offsets, remove Tee Branch and attach the body of the Tee to the Flex Liner as shown in **Figure 8**, and tighten the fast connect band. Attach a rope securely to the body of the Tee (wrapping rope tightly above branch area or around indented section of tee) and proceed as described in Step 4 of the Basic DuraFlex SS Liner Installation section.

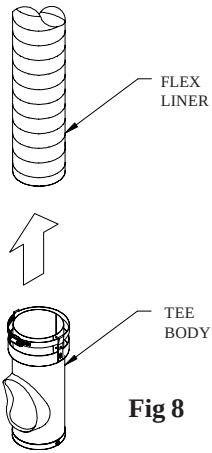


Fig 8

Step 2. If the masonry has an offset, pull the Flex down as in Step

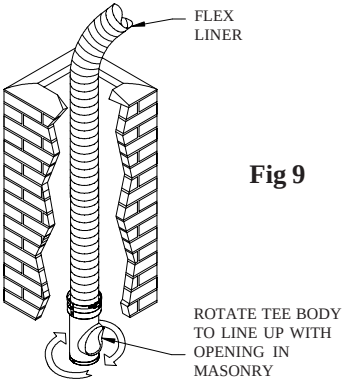
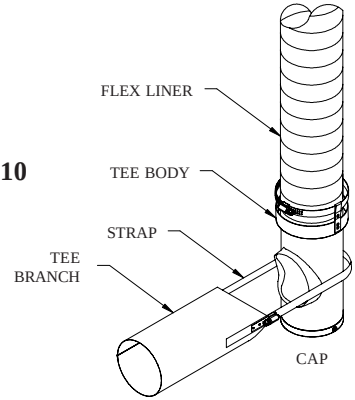


Fig 9

Fig 10



4 (Basic section) to it's proper location, even with the opening in the chimney wall. Disconnect the rope (**Figure 9**). It may be necessary to rotate the Flex Liner and Tee to get the opening for the branch in the proper location.

Step 3. When the Tee is in its final location, attach the Branch to the main body of the Tee using the fast connect band provided on the removable Branch. Loosen the fast connect band and position it around the Tee body, and tighten band. (**Figure 10**)

Step 4. After the Tee and Branch are installed, connector pipe can be attached directly to the Tee Branch with a minimum of three stainless steel screws. Slide the Mortar Sleeve over both the connector pipe and Branch, and fill in around the Mortar Sleeve with grout, keeping the Tee centered in the masonry chimney, and the end of the Mortar Sleeve even with the wall of the chimney.

Step 5. Complete the run of connector pipe and attach it to the appliance.

PENETRATING THROUGH A COMBUSTIBLE WALL INTO A MASONRY CHIMNEY

If your installation needs to pass through a combustible wall immediately prior to entering the masonry chimney, there are some steps that need to be taken depending on whether the appliance is gas, oil, pellet or solid-fuel burning.

Step 1. If you are using a gas, oil, or pellet appliance, simply use either a Gas Vent Wall Thimble (gas appliances), or a Pellet Vent Wall Thimble (oil and pellet appliances) installed to pass through the combustible wall and continue to install the Flex Liner as indicated in these instructions. Note that you need to use rigid pipe when you penetrate through the combustible wall as the Liner is only allowed within the

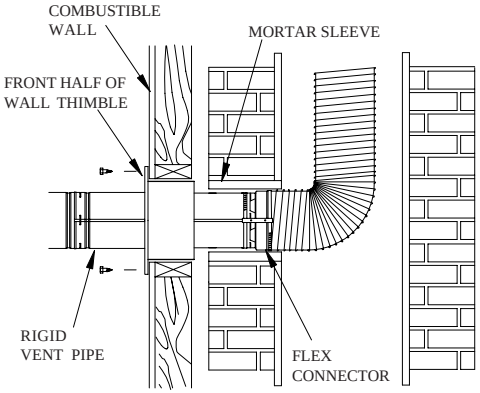


Fig 11

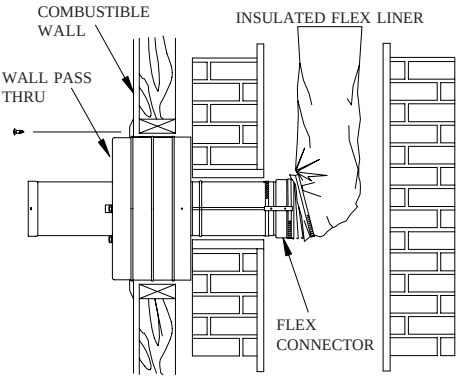


Fig 12

masonry (**Figure 11**)

Step 2. If you have a solid-fuel burning appliance, you will need to use a Wall Pass Thru to penetrate through the combustible wall safely and connect to the DuraFlex SS liner inside the masonry (**Figure 12**). You will need to determine where the penetration through the wall will be located (be sure to account for required clearance to combustibles for the connector pipe). You will also need to refer to L403 instructions included with the Wall Pass Thru itself.

Step 3. Once the location of the penetration is determined, use a sabre-saw to cut a 14-1/2" diameter (7-1/4" radius) opening in the combustible wall. Centered on the opening, cut a 6-1/2" or 8-1/2" opening in the masonry (see L403 for instructions).

Step 4. Refer to the Insulation Sleeve section of these instructions to prepare the Flex Liner. Once the Liner is insulated, feed liner down chimney as indicated in the Basic Instruction section.

Step 5. Attach a Flex Coupler to the end of the Flex Liner (be sure the flow arrow is in the correct direction). Connect the other end of the Flex Coupler to the Wall Pass Thru (**Figure 12**).

Step 6. Secure the Wall Pass Thru in place as directed in L403 Instructions.

RELINING INSTRUCTIONS FOR FIREPLACE INSERTS VENTING INTO AN EXISTING MASONRY CHIMNEY

Step 1. If you are using a solid-fuel appliance and you do not have the clearances required by **Table 1**, you will need to use Insulation Sleeves to maintain proper listing.

Refer to the Insulation Sleeve Instruction section.

Step 2. Measure and record the dimensions to determine total Flex Liner requirements.

Step 3. Unpack and unroll the Flex Liner. Attach Spacers to the Flex Liner to insure the liner maintains the 1" clearance required to the inside of the masonry. Place Spacers every 5 feet on the Liner.

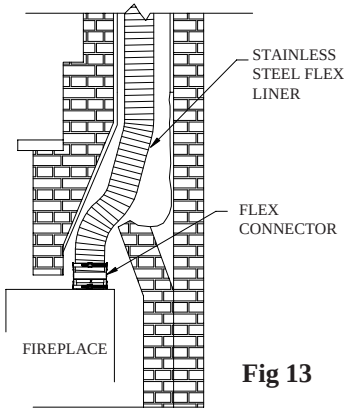


Fig 13

Step 4. Secure a rope to the Flex Puller and attach the Flex Puller to the Dura Flex SS Flex Liner. One person should feed the liner through the chimney from the top, while another should pull the liner from the bottom (**Figure 4**). Two people are needed to be sure that the Flex Liner is not damaged or torn.

Step 5. After the Flex Liner is pulled through the damper area, attach the Flex Connector (be sure the Flow arrow points up, the direction of the exhaust flow) to the Flex Liner and tighten the fast connect band. Position appliance, then insert Flex Connector into the flue outlet on top of the fireplace insert, tighten the fast connect band directly to appliance outlet or collar. To further insure the connection between the Liner and the Appliance, use (2) 3/8" screws to secure the Flex Connector to appliance outlet, penetrating through both the band and appliance outlet **(Figure 13)**.

TERMINATIONS

Step 1. When terminating your Flex Liner installation, insure the Flex Liner extends 4-5 inches over the top of the masonry chimney, as shown in **Figure 14**. Trim or bend the base of the Top Plate to fit on the masonry chimney as needed.

Step 2. Slide the Top Plate over the Flex Liner and seal the Top Plate to the masonry

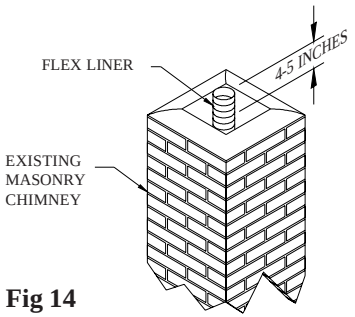


Fig 14

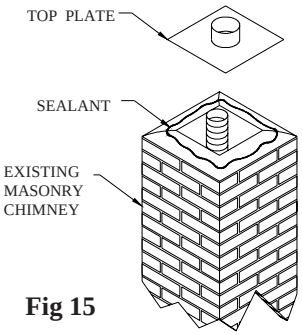


Fig 15

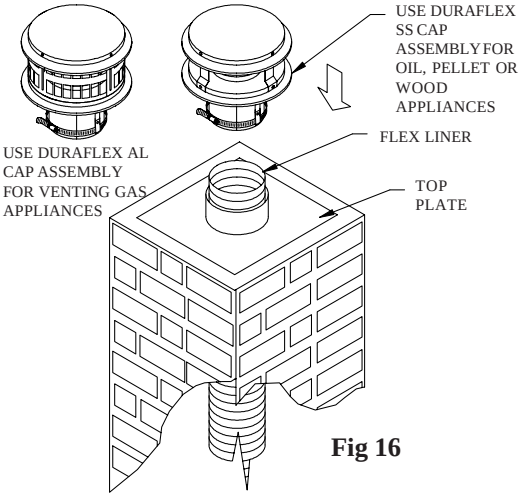


Fig 16

chimney using a bead of non-hardening sealant around the top of the chimney and underside of Top Plate (**Figure 15**).

Step 3. After sealing the Top Plate to the masonry chimney, attach the DuraFlex SS Cap Assembly (or DuraFlex AL Cap Assembly if used on a gas appliance) to the Flex Liner and tighten the fast connect band, as shown in **Figure 16**. Push the Liner Cap down until it rests upon the Top Plate.

TYPE B GAS VENT OR TYPE L VENT TERMINATION

This installation procedure is for use with Type B gas vent or Type L (oil/pellet) vent near the top of the masonry chimney, or for extending the height of the venting system above the masonry chimney.

Step 1. In addition to the Flex you will need a Pellet Vent Cap (for oil or pellet vents) or a Gas Vent Termination Cap (Standard or High Wind), Storm Collar, Top Plate, Flex Connector, and rigid pipe to extend the cap as needed. (**Figures 17, 18**)

Step 2. Attach the Flex Connector to the Flex Liner and secure the fast connect band, then insert Pipe Section into the large end of the Flex Connector. Be sure inner liners are properly aligned , then push the two together until the outer diameter of rigid pipe is firmly against large end of Flex Connector, then secure upper fast connect band, as shown in **Figure 17**.

Step 3. After attaching a suitable double-wall Type B or L Vent Pipe Section to the Flex Liner with the Flex Connector, seal the Top Plate to the masonry chimney using non-hardening sealant. Slide the appropriate Storm Collar over the Pipe Section, until the proper length of pipe extends above the chimney. Always have a minimum of 12 inches of rigid pipe below the Top Plate for stability. Attach the Storm Collar to the rigid Pipe Section with (4) 1/4-inch long

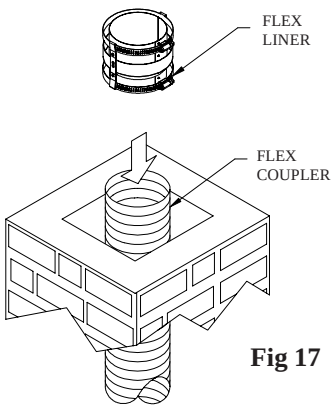


Fig 17

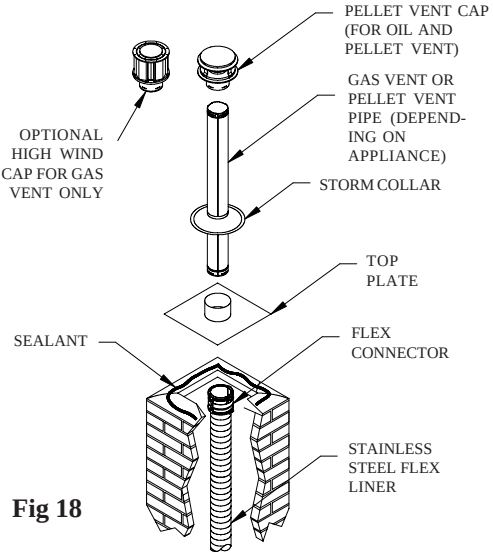


Fig 18

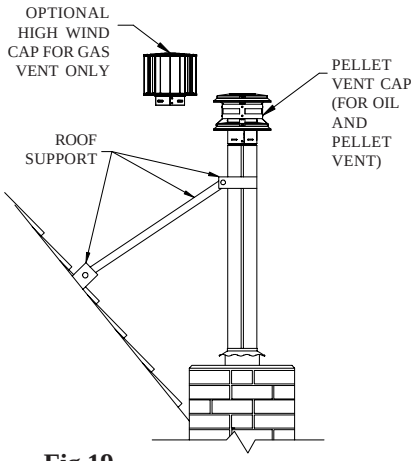


Fig 19

sheet metal screws equally spaced at 90 degrees (do not penetrate inner liner). The Storm Collar will rest on the Top Plate and serves as the support for the Flex Liner system. This system is listed by OMNI Test Laboratories to support up to 50 feet of Flex Liner or rigid Pipe Sections. See **Figure 18**.

Step 4. Seal the Storm Collar where it meets the Pipe Section using 500RTV non-hardening sealant, then twist-lock the appropriate Termination Cap to the Pipe Section. As an alternative to the standard cap, you may want to install a High-Wind Termination Cap (gas only) in areas where wind may be a concern. (**Figure 18, 19**)

Step 5. For improved draft, the liner may be extended in height above the top of the masonry chimney by simply adding additional Pipe Sections. If the vent is more than 3 feet above the top of the chimney, secure it with a locally fabricated brace, as shown in **Figure 19**.

INSULATION SLEEVE INSTALLATION

If your DuraFlex Liner installation does not have a 1"clearance from the outside of the masonry to combustibles, as well as 1" clearance from the liner to the inside of the masonry, then you will need to install the Liner with Insullation Sleeves in order to insure a proper installation. If however, your installation can meet the required clearances, you will not need to use Insullation Sleeves.

Step 1. Remove Flex Liner from packaging and straighten Flex Liner and measure

Liner as shown in the Basic Installation section.

Step 2. Begin to slide the appropriate Insulation Sleeve (single-ply or double-ply, depending on your masonry chimney) over the Flex Liner. If you liner will be going through a Mortar Sleeve, leave that portion of the Liner uncovered by the sleeve. Secure the Insulation Sleeve in place with an Insulation Clamp at one end.

Step 3. Continue adding Insulation Sleeves along the length of the Flex Liner, being sure that the previous Sleeve overlaps the next Sleeve. Secure the overlap with an Insulation Clamp (**Figures 20, 21**).

Step 4. Once you have the length of Liner insulated, continue with Step 4 of the Basic Installation.

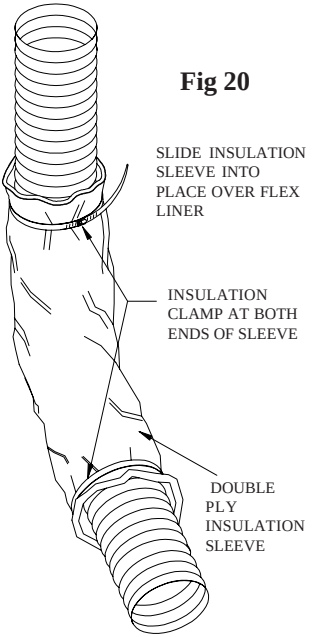


Fig 20

FLEX EXTENSIONS

For taller chimney installations where more than one length of Flex Liner is required, additional lengths of Flex Liner may be purchased in 5-foot or 35-foot lengths. Two lengths of flex may be connected together using the Flex Connector (**Figure 22**). It is very important that the Flex Connector be installed in the proper direction with the Flow arrow pointing

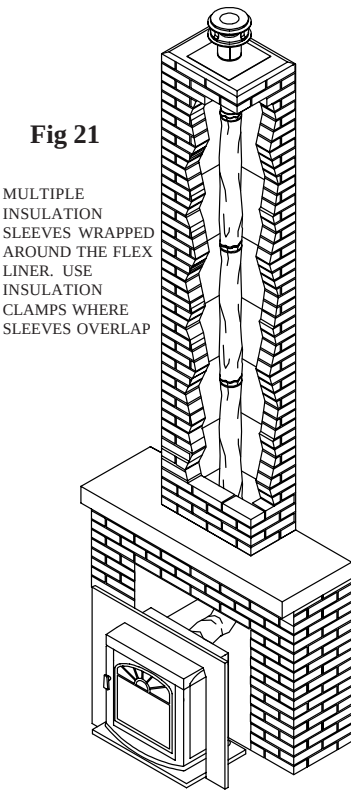


Fig 21

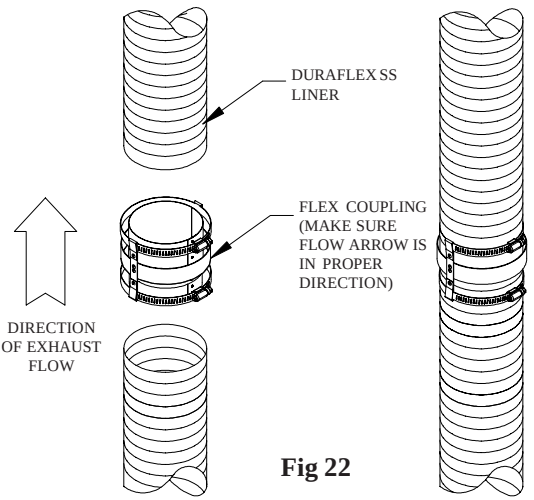


Fig 22

in the same direction of the exhaust flow. The Flex Connector should always be installed with the "cup" end towards the top of chimney. Under no circumstances should this be reversed. The DuraFlex Flex Connector may also be used to utilize lengths of Flex Liner that are left over at the end of previous job.

CHIMNEY LINER MAINTENANCE

The chimney liner should be inspected by a qualified chimney inspector or licensed prior to each heating season. When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. As a result, creosote residue accumulates on the chimney liner. When ignited, this creosote makes an extremely hot fire. If you are burning solid fuel, the chimney liner system needs to be inspected at least once every two months during the heating season, to determine if a crosote or soot buildup has occurred. If creosote or soot has accumulated, it should be removed to reduce the risk of a chimney fire.

To remove creosote and soot, use a wire or poly chimney brush. The size of the brush should be the same diameter size as the liner or up to 1/8" larger. Thoroughly brush the liner to remove any buildup that may have occurred. To access the liner, remove the top portion of the cap by removing the screws on the legs. Be sure to reattach the cap after cleaning liner.

WARRANTY

Simpson Dura-Vent warrants DuraFlex SS for a period of 10 years from date of installation. The warranty includes all components and fittings except caps. Caps carry a five-year warranty. All warranties, whether expressed or implied, shall be limited to replacement (exclusive of installation costs) of the product found to be defective under this warranty and shall be conditional upon compliance with all recommended installation and maintenance procedures and intended use of the product. All products must be maintained by periodic inspection and cleaning as needed, including vent exposed to weather containing corrosive elements.

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