

METALLIC CHIMNEY LINER SYSTEM

Single Wall Construction Rigid Chimney Liner

Installation Instructions

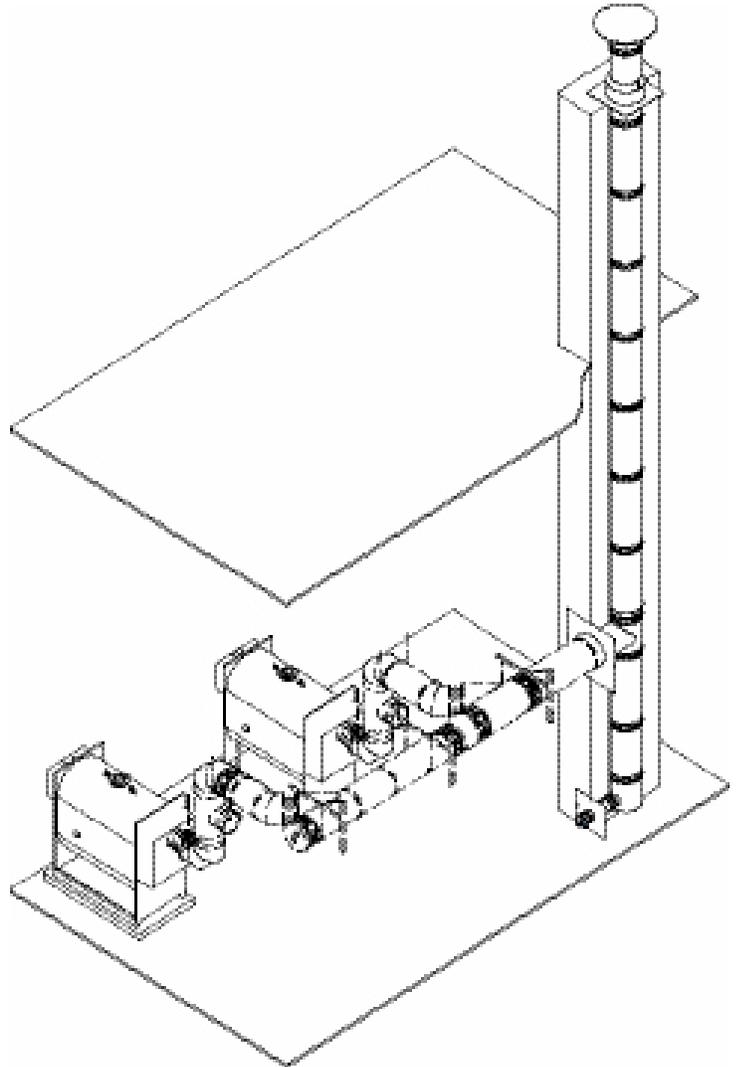
Models

CBI Cat. I: Part 1

CBH Cat I, II, III, IV: Part 2



This symbol shows that venting systems Models CBI and CBH are Listed in the US and certified for Canada under Underwriters Laboratories inc. file no. MH46608. Tests are made in accordance with UL 1777 standard for Chimney Liners and the Canadian standard for Lining Systems CAN/ULC-S635



IT IS OF UTMOST IMPORTANCE THAT THIS CHIMNEY BE
INSTALLED ONLY IN ACCORDANCE
WITH THESE INSTRUCTIONS.



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INDEX

PART 1: CBI CATEGORY I

1-A- General information	Page
Underwriters Laboratories Listings	5
Features	5
Application for models CBI & CBH	5
Surroundings / Enclosures	5
Part Numbers	6
Clearances	6
Masonry Chimney Liner	6
Support Methods and Height Limits	7
Pipe weight	7
Liner Freestanding Height	8
Termination Height	8
1-B- Tees and Adjustable Length	
90° Tee (T90)	9
90° Elbow (E90)	10
Tee Cap (TC)	10
Drain-Tee Cap (DC)	10
Adjustable Length (AL)	10
Special Parts	10
1-C- Structural Support and Guiding	
Roof Support (RS)	11
Lowering Band (LB)	11
Guiding Spacer (GS)	11
1-D- Masonry Chimney Top and Wall Penetrations	
Flat Flashing (F) and Ventilated	
Flashing (VF) Assemblies	12
Wall Penetration	12
1-E- Terminations	
Rain Cap (RC)	13
Exhaust Cone (EC)	13
Closure Section (CS)	13
Storm Collar (SC)	13
Ventilated Collar (VC)	13
Fan Adapter (FA)	14
F- Liner Installation in Masonry Chimney	
Cleaning of the masonry chimney	15
Insertion of the CBI Liner	15
Other way to install Liner	15
1-G- Markings	
Chimney Length Markings	17
Component Markings	17
H- Sample Drawings	
Masonry Chimney Liner System	31

General Notes:

Use only factory-supplied components. Failure to do so will void the certification and the warranty of this chimney.

Maintenance Notes:

Chimney Cleaning: Other than for standard natural gas chimney applications where minimal maintenance is necessary. Keep your chimney clean. Access should be provided for the inspection and cleaning of all sections of the chimney. Have your chimney cleaned by a qualified chimney sweep. If you want to clean the chimney yourself, clean with a nylon or metal chimney brush of the correct size. Do not use a brush that will scratch the stainless steel interior of the chimney.

WARNING

Failure to follow these installation instructions could cause FIRE, CARBON MONOXIDE POISONING, and OR DEATH. If you are unsure of installation requirements, call the phone number listed on the front page of this manual.

CHIMNEY SYSTEM MODEL CBI IS SUITABLE FOR POSITIVE PRESSURE APPLICATIONS USE AT MAXIMUM 60 INCH WATER COLUMN AND MODEL CBH AT MAXIMUM 15 INCH WATER COLUMN INTERNAL STATIC PRESSURE AT 570°F.



INDEX

PART 2: CBH CATEGORY I, II, III, IV

	Page
2-A- General information	
Underwriters Laboratories Listings	19
Features	19
Application for model CBH	19
Surroundings / Enclosures	19
System Sizing	19
Part Numbers	20
Clearances	20
Masonry Chimney Liner	20
Support Methods and Height Limits	21
Pipe weight	21
Liner Freestanding Height	22
Termination Height	22
2-B- Tees and Adjustable Length	
90° Tee (T90)	23
90° Elbow (E90)	24
Tee Cap (TC)	24
Drain-Tee Cap (DC)	24
Adjustable Length (AL)	24
Special Parts	24
2-C- Structural Support and Guiding	
Roof Support (RS)	25
Lowering Band (LB)	25
Guiding Spacer (GS)	25
2-D- Masonry Chimney Top and Wall Penetrations	
Flat Flashing (F) and Ventilated	
Flashing (VF) Assemblies	26
Wall Penetration	26
3-E- Terminations	
Rain Cap (RC)	27
Exhaust Cone (EC)	27
Closure Section (CS)	27
Storm Collar (SC)	27
Ventilated Collar (VC)	27
Fan Adapter (FA)	28
2-F- Liner Installation in Masonry Chimney	
Cleaning of the masonry chimney	29
Insertion of the CBI Liner	29
Insertion of the CBH Liner	29
2-G- Markings	
Chimney Length Markings	30
Component Markings	30
H- Sample Drawings	
Masonry Chimney Liner System	31

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PART 1:
CBI Category I

UNDERWRITERS LABORATORIES LISTINGS:

CHEMINÉE LINING.E inc. venting systems Models CBI and CBH are Listed by Underwriters Laboratories, inc. (UL) under File MH46608 and Tested in accordance with UL 1777 Chimney Liners and the Canadian Standard for Lining Systems CAN/ULCS635- M91. Listings include the following chimney product categories and diameters.

UL 1777

Model	Classification	Diameters
CBI	Chimney Liners	6" to 24" I.D.

CAN / ULC-S635-M91

Model	Classification	Diameters
CBH	Lining systems for existing masonry	6" to 24" I.D.

FEATURES

Models CBI are part of the Industrial Positive Pressure products for industrial and commercial applications. They are prefabricated modular venting systems designed for quick assembly and using a continuous welded joint stainless steel inner wall. Given that all parts have a male and female end, each model part fit into one another, thus eliminating the need for all kinds of adapters. This unique method of coupling provides an incomparable flexibility in selecting models of flues and chimneys. Models CBI are single wall constructions. The high quality of stainless steel inner wall construction using a continuous welded method for the longitudinal joint provides a high strength-to-weight ratio and low friction losses.

APPLICATION FOR MODELS CBI & CBH CAT 1

UL 103

1. Chimney Liners Listing (Category I, for oil and gas) – Under this category, model CBI liner have been determined suitable for field-installation into new or existing masonry chimneys and used to vent gas-fired and oil-fired appliances in which the maximum continuous flue-gas outlet temperature do not exceed 570°F for oil and 480°F for gas. It also complies with test at 1700°F temperature for 10 minutes.

CAN/ULC-C959

1. Standard for Lining Systems for Existing Masonry or Factory-Built Chimneys and Vents (Class II, for oil and gas) – Under this category, model CBI liner have been determined suitable for installation into existing masonry and used to vent gas-fired and oil-fired appliances in which the maximum continuous flue-gas outlet temperature do not exceed 300°C for oil and 245°C for gas. It also complies with test at 927°C temperature for 10 minutes.

WARNING
NOT FOR USE WITH SOLID-FUEL-FIRED APPLIANCES.

SURROUNDINGS/ENCLOSURES

1. In United-States, Models CBI chimney liners are primarily intended to be installed in new or existing masonry chimneys with or without a liner of fire-clay tile, or to be used as a substitute for masonry fire-clay tile flue liners in new chimneys.

2. In Canada, Models CBI chimney liners are primarily intended to be installed in existing masonry chimneys with or without a liner of fire-clay tile, or factory-built chimneys and vents.

3. The minimum brick thickness of the masonry chimney must be of 3"-1/2. Also, the masonry chimney must comply with the National Building Code, the Standard for "Design and Construction of Masonry Chimneys and Fireplaces" CAN/CSA A405 and NFPA 211.

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

5. Rain cap and rain cap with bird screens should be checked for ice formation during low ambient temperature. Consult authority having jurisdiction. Also, it's important to size correctly the venting of low temperature flue products in geographical areas experiencing sustained low ambient temperature.

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT
RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR
AREA.

SYSTEM SIZING

Complete system sizing and capacity may be obtained from the "Chimney, Gas Vent, and Fireplace Systems" chapter of the ASHRAE Handbook or contact your CHEMINÉE LINING representative. In spite of any sizing guidelines, when sizing exhaust systems, it is most important that the heating appliance, engine or turbine manufacturer's installation instructions be followed. Not following these instructions may result in inadequate chimney performance and/or a violation of the equipment manufacturer's installation requirements.

PART NUMBERS

These instructions identify major models CBI & CBH parts by part number.

Example no.1:

Number: CBI 48L 12

Model	Description	Inside Diameter
CBI Single Wall	48" Pipe Section Length	12"

Example no.2:

Number: CBH 36L 24

Model	Description	Inside Diameter
CBH Single Wall	36" Pipe Section Length	24"

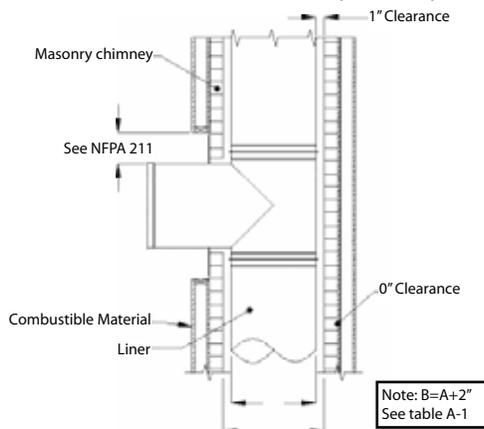
CLEARANCES

The following table serves to identify the minimum clearances required when installing a liner system in a masonry chimney.

Table A-1. Minimum air space clearance

Model and diameter "A"	Air space location	
	Between masonry chimney exterior and combustible	Between masonry chimney interior and the liner
CBI 6" to 24"	0"	1"
---	---	---

EX 1: Clearance and dimension of masonry chimney for model CBI/CBH



WARNING
DO NOT INSTALL ANY TYPE OF INSULATION IN THE REQUIRED CLEARANCE SPACES SURROUNDING THE LINER.

CHIMNEY LINER PIPE AND FITTING JOINT ASSEMBLY

All components have a male and a female end. The installation orientation is indicated on the labeling of each pipe section with an arrow. The arrow indicates the direction of the flue (See Fig. A-1). Clean all inner and outer surfaces of male and female ends with an appropriate organic solvent, such as acetone, Mek, or other commercial degreaser.

1. Before fitting the male and female ends in one another, a sealant is applied on the male end, at the gap between the inner band and the inner pipe. (See Fig. A-1 and A-3). Table A-2 for Sealant.

2. After joining the male and female ends together, a layer of sealant is applied inside the V-groove of the Assembly Band (AB) prior to its installation over the joint (See Fig. A-3). Table A-2 for Sealant.

3. The Assembly Band (AB) (Fig.A-2 and A-3) is installed and clamped in place with the 4 screws (supplied).

4. Where the chimney passes outdoor, a exterior sealant (ES) is applied at the joint of the Storm Collar (SC) and the outer wall of the pipe for weather protection (see Fig.A-4). Table A-2 for sealant.

CAUTION
A. DO NOT ALLOW SCREWS TO PENETRATE THE INNER PIPE. THIS CAN CAUSE CORROSION, GAS LEAKAGE OR EXPANSION FAILURE
B. OBSERVE ADEQUATE SAFETY MESURES WHEN USING A DEGREASER.

Fig. A-1 - Models CBI & CBH Flue direction

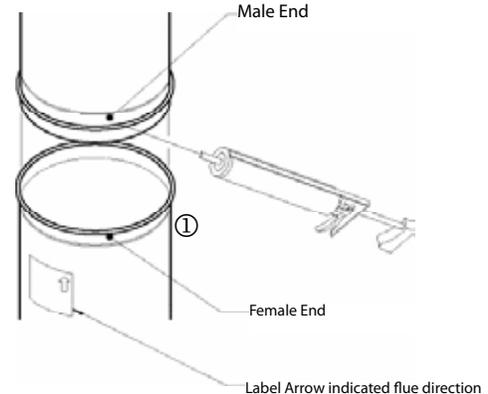


Table A-2 - Sealant usage

Interior Installation					
Sealant Application	Supplier	Model	Color	Max. Temp.	
Inner Joints	Adchem	X-Trasil H.T. 4706_3	red	500°F	
alternate	GE	RTV-106	red	500°F	
alternate	Dow Corning	RTV-736	red	500°F	
Exterior Installation					
Sealant Application	Supplier	Model	Color	Max. Temp.	
Outer Joints	Adchem	Adsil 4809	Gray	375°F	

Fig. A-2 - Joint components Models CBI & CBH

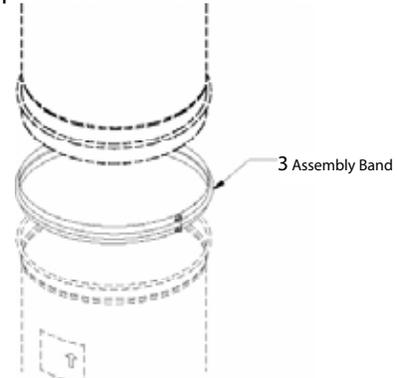


Fig. A-3 - Assembled Models CBI & CBH

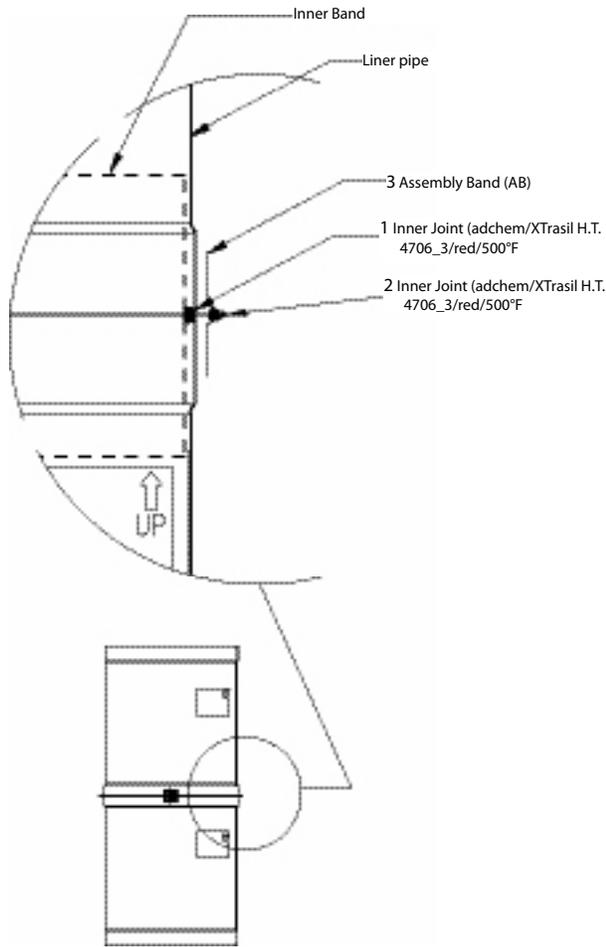
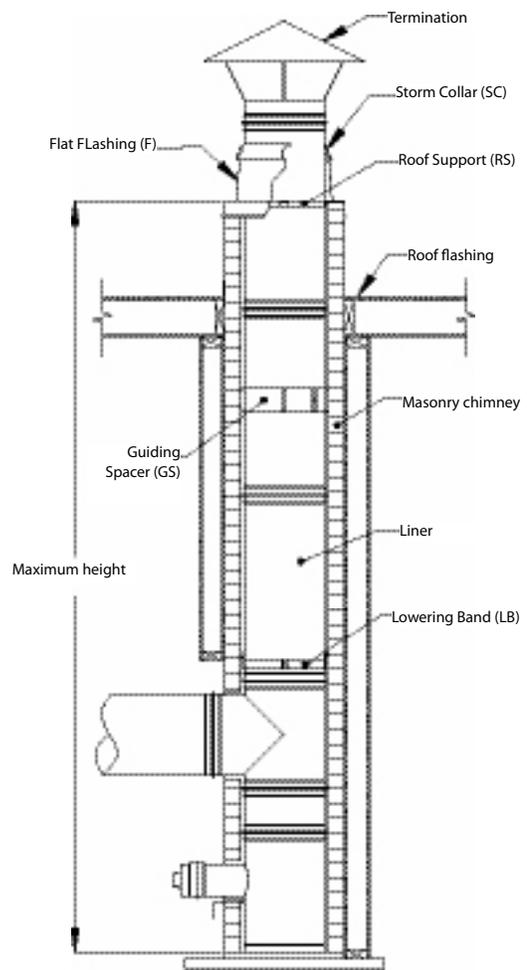


Fig. A-4 - Maximum Chimney Height and support



SUPPORT METHODS AND HEIGHT LIMITS

1. The optimal method to support the liner system is to rest the liner system on a solid foundation and to use a roof support (RF) at the exit of the masonry chimney (Fig.A-4).

2. The maximum heights between the base and to Roof Support (RF) are shown in Table A-3.

Table A-3 - Maximum Chimney Heights

Inside Diameter (in)	Maximum Height (ft)
6" thru 14"	90 (27.4 m)
16" thru 24"	125 (38.1 m)

Note: if higher height is needed, please call manufacturer, the engineering team can provide solutions.

Note: Use Guiding Spacer (GS) at every 50 feet, See Section C.

PIPE WEIGHT

Pipe weight is given in pounds per foot of pipe for each diameter.

Table A-4 - Pipe weight in lb/ft

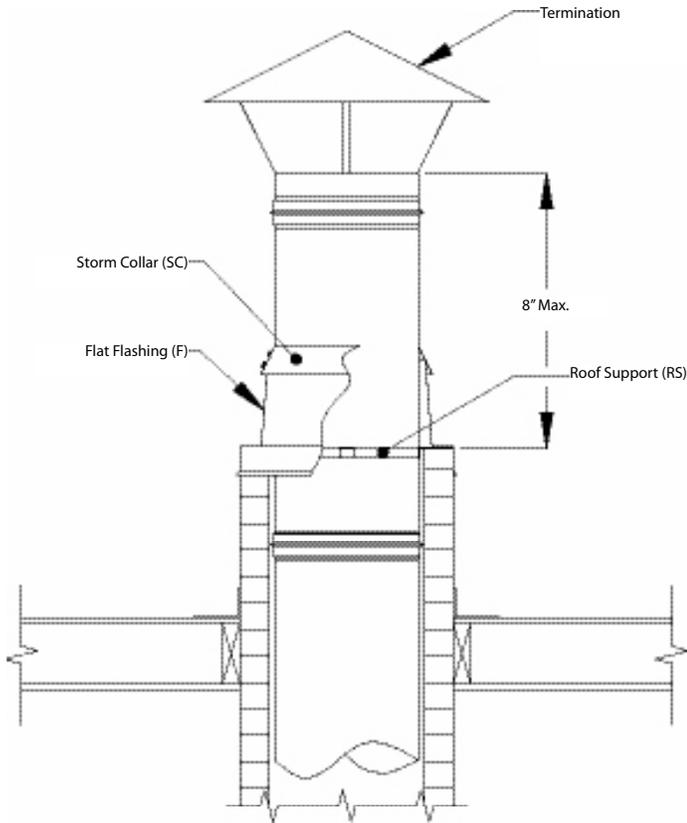
Inside diameter	CBI Model	CBH Model
6	3.39	2.25
8	4.52	2.99
10	5.65	3.74
12	6.78	4.49
14	7.91	5.24
16	9.04	5.99
18	10.17	6.74
20	11.30	7.49
22	12.43	8.24
24	13.56	8.98

Tees and Adjustable Length

LINER FREESTANDING HEIGHT

1. Maximum freestanding height above the masonry chimney is 4 feet (1.2 m). See Fig. A-5.

Fig. A-5 - Maximum Freestanding Liner Height

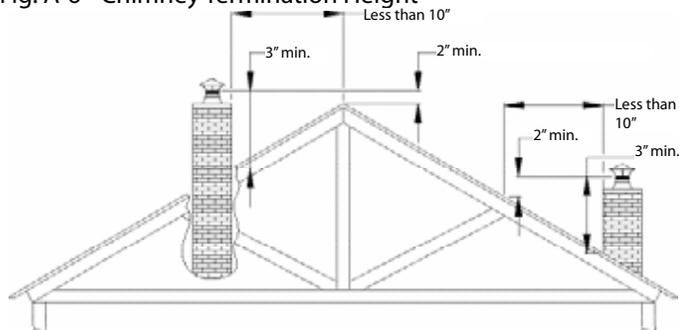


TERMINATION HEIGHT

Chimneys and vents shall terminate above the roof level in accordance with the following requirements (Fig. A-6):

1. Five feet above the roof level or any adjacent flat roof, wall parapet or air intakes, and/or in accordance with the following NFPA 211 requirements.
2. Where chimney terminates at less than 10 feet from any adjacent ridge, wall or parapet, the chimney shall terminate at minimum of 3 feet above the ridge, wall, or parapet.
3. Where chimney terminates at more than 10 feet from ridge, wall, or parapet, a minimum height of 2 feet shall be required above the ridge wall or parapet.

Fig. A-6 - Chimney Termination Height



Tees and Adjustable Length

90° TEE (T90)

1. Generally used to connect the horizontal length from an appliance to the vertical length in boiler exhaust systems.
2. There are two types of 90° Tee (T90), one for model CBI and another for CBH model.
3. For model CBI, a removable tee branch is used for easy installation in two steps. First, insert the tee section in the masonry chimney. After, install the tee branch on the tee section with screws (Fig. B-1).
4. Also, a welded tee branch can be used. There are two ways to install this type of 90° Tee (T90). First way is, if the dimension of masonry chimney allows it, insert the tee section with the welded branch in the chimney (Fig. B-2a). Second way is to enlarge the masonry chimney inlet opening (Fig. B-2b) by demolishing the masonry wall and rebuilding it.
5. A 90° Tee (T90) section with a Tee Cap (TC) can be use to facilitate access for inspection and maintenance (Fig. B-1).

Note: if those configuration can not be used, please call manufacturer, the engineering team can provide solutions.

Fig. B-2a - Welded 90° Tee (T90) Assembly

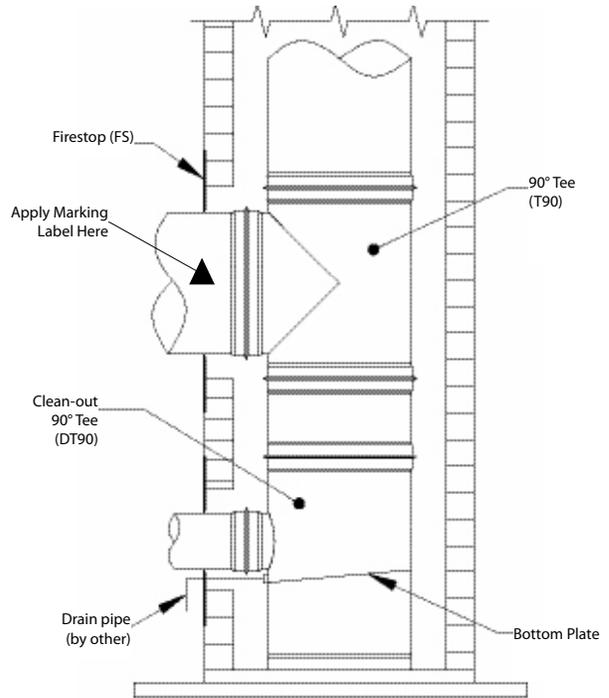


Fig. B-1 - Detachable 90° Tee (DT90) Assembly

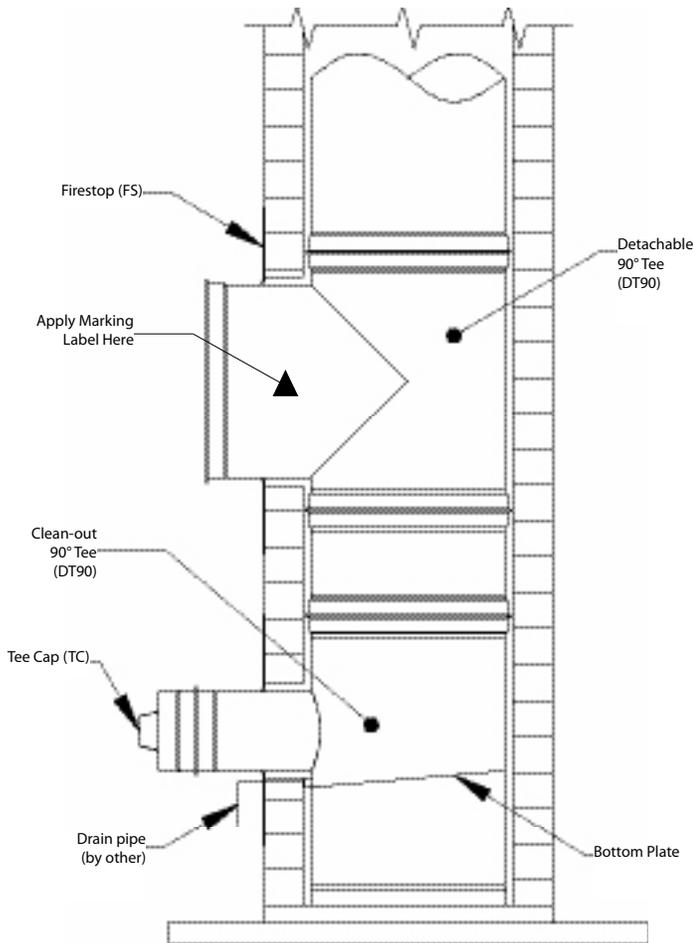
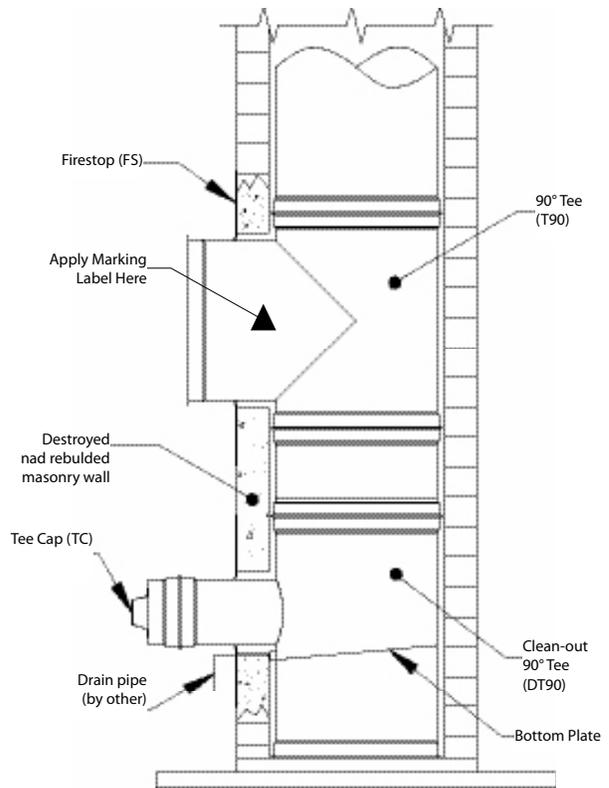


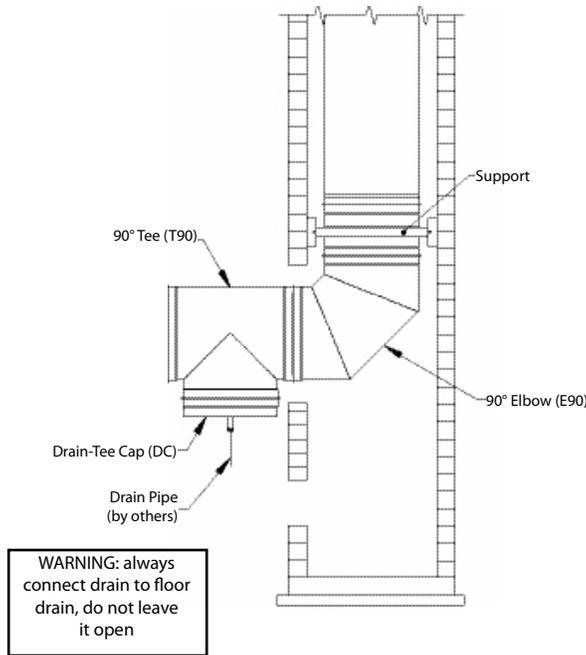
Fig. B-2b - Welded 90° Tee (T90) Assembly



90° ELBOW (E90)

Another assembly option is to use a 90° Elbow (E90) with a 90° Tee (T90) and Drain-Tee Cap (DC). (See Fig. B-3)

Fig. B-3 - 90° Elbow (E90) Assembly



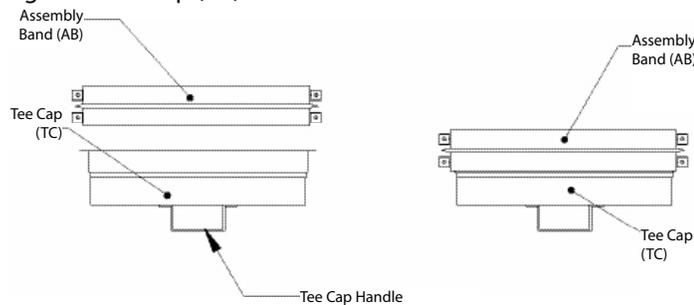
TEE CAP (TC)

1. Used to block the horizontal opening of the tee, see Fig. B-1. Removable, it facilitates access for inspection and maintenance of the chimney (Fig. B-4).

2. The assembly includes an Assembly Band (AB).

3. Joint assembly between the Tee Cap (TC) and the Tee is done in the same manner as described in Section A Piping and Fitting Assembly.

Fig. B-4 - Tee Cap (TC)



DRAIN-TEE CAP (DC)

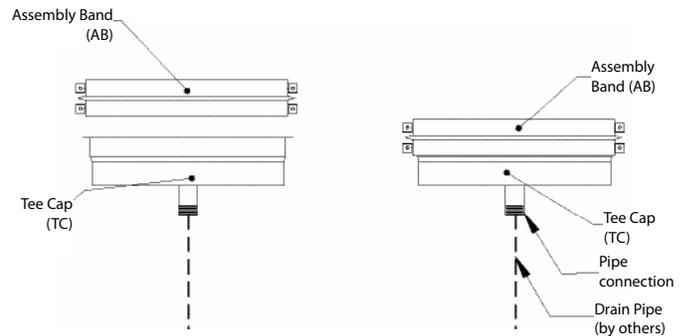
1. Used in some configurations to block the lower vertical opening of a tee, see Fig. B-3. It serves to collect rainwater that may enter the chimney (Fig. B-5).

2. Removable, it facilitates access for inspection and maintenance of the chimney.

3. To be connected to a drain of 1" diameter-NPT. It is connected to the tee with the joint assembly.

4. Joint assembly between the Drain-Tee Cap (DC) and the tee is done in the same manner as described in Section A Piping and Fitting Assembly.

Fig. B-5 - Drain-Tee Cap (DC)



ADJUSTABLE LENGTH (AL)

1. Used in horizontal straight runs of models CBI and CBH, the Adjustable Length (AL) serves two major functions:

- a) To make up for odd lengths of pipe in short runs
- b) To extend the Tee Cap (TC) outside the masonry chimney

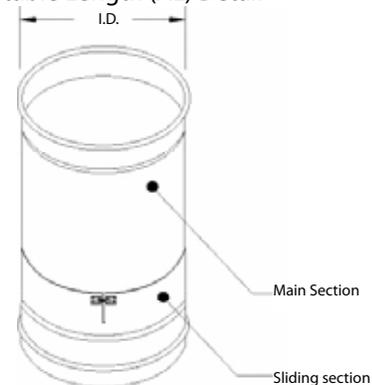
2. This part is designed to be adjustable to any needed exact length and its internal joint must be sealed by working sealant under the seal section, as well as at the joint between the male and the female ends to be closed with the Assembly Band (AB).

3. The adjustable length includes a main section and an outer sliding section that can be secured in the desired length position. Cutting the main section may be required for proper fitting.

4. The sliding section is designed to fit outside the standard main section.

5. Once the final length of the section is set, it is secured using a single clamp and screw. This seal section will prevent the inner section from slCBlng after the assembly.

Fig. B-6 - Adjustable Length (AL) Detail



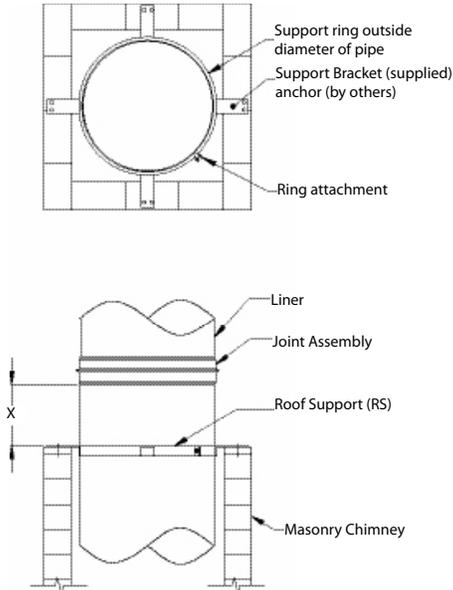
SPECIAL PARTS

Available when specified are special parts or components used in chimney systems that can be factory-built to accommodate field situations where standard parts cannot be used.

ROOF SUPPORT (RS)

Used to support and guide the portion of the chimney which extend to the masonry chimney. It is attached to the masonry chimney by means of four angles (See Fig. C-1). It maintains a minimum distance between the liner and the masonry chimney.

Fig. C-1 - Roof Support (RS)

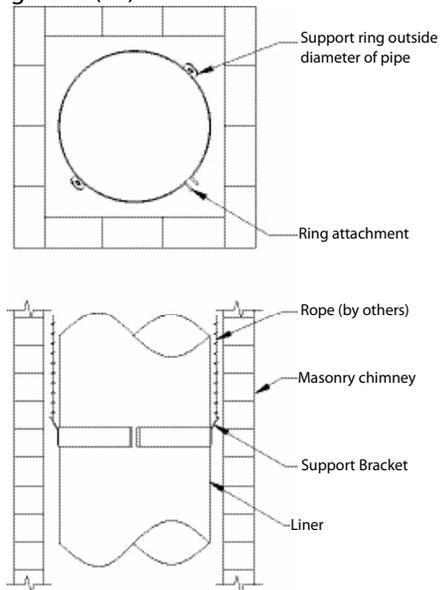


Keep joint away From support $X=6''$ Min. above and under

LOWERING BAND (LB)

Used to insert the liner in the masonry chimney by supporting the liner during the lowering.

Fig. C-2 - Lowering Band (LB)

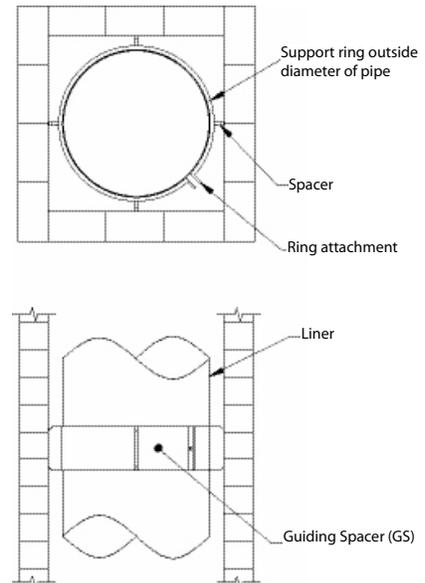


Note: Must be used with shackles.

GUIDING SPACER (GS)

Used to guide the liner every 50 feet and to keep the clearance between the liner and the masonry chimney. Also, it prevents bending of the liner in the masonry chimney and has for effect to increase the maximum height of the liner.

Fig. C-3 - Guiding Spacer (GS)



Note: See Section D Masonry Chimney Top and Wall Penetrations for complete Roof Support (RS) assembly details an use.

FLAT FLASHING (F) AND VENTILATED FLASHING (VF) ASSEMBLIES

The Flat Flashing assembly (F) is primarily used for boiler or low temperature exhaust to close the masonry chimney exit opening. It is design to be installed on a flat masonry chimney top of a minimum height of 3 feet from the roof (See Fig. D-1). For some areas, greater heights may be needed according to local code requirements. The roof framing dimension and the masonry chimney dimension must provide sufficient opening to comply with the minimum clearance from combustibles. (See Table A-1) The Roof Support (RS) is secured to the top of the masonry chimney using two 1/4" masonry screws in each support bracket. The Flat Flashing (F) is then lowered on the top of the masonry chimney and the Storm Collar (SC) secured to the chimney section with the screws supplied. A Ventilated Flashing (VF) option is also available where air circulation between the liner and the masonry chimney is wanted. The Ventilated Flashing (VF) option may serve as a ventilation outlet in small boiler rooms with gravity air supply.

Fig. D-1 - Masonry Chimney Top Assembly

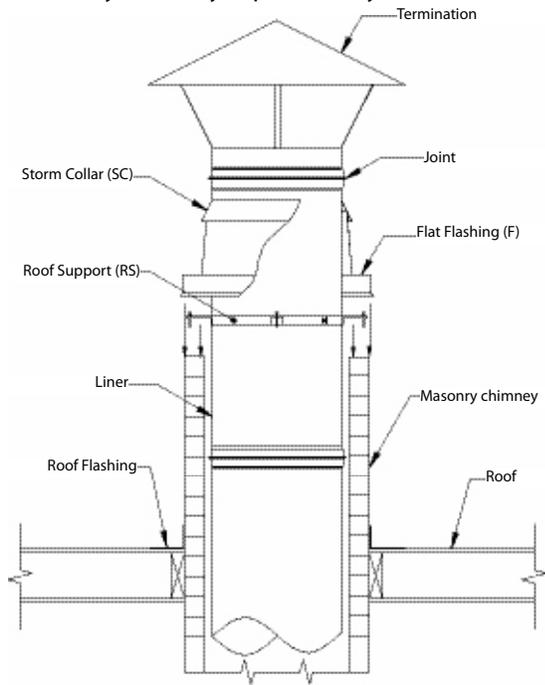
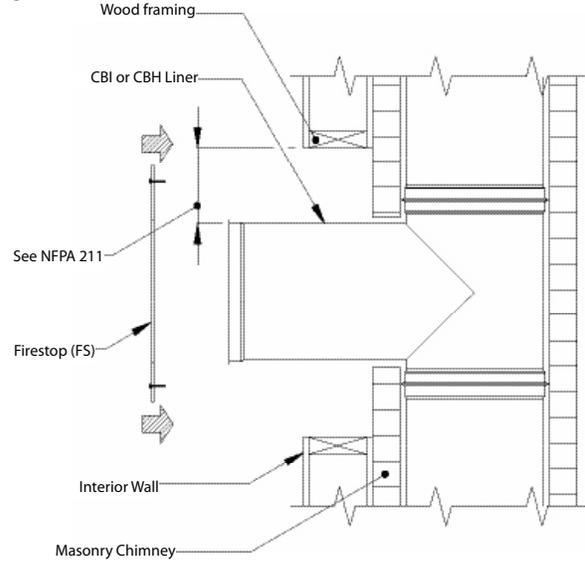


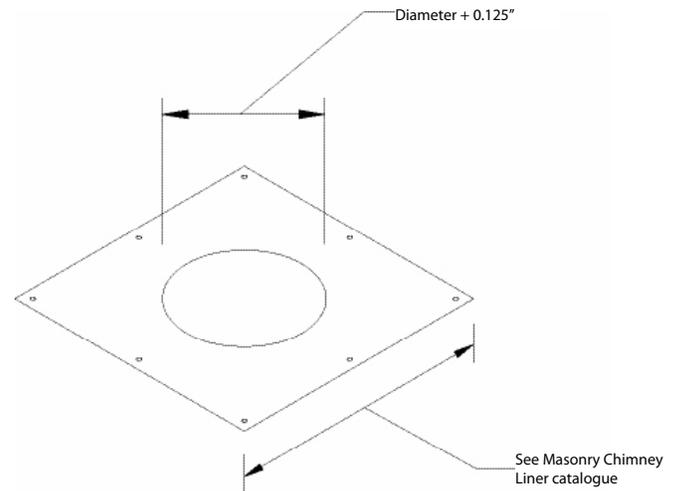
Fig. D-2 - Wall Penetration



FIRESTOP (FS)

Used to close the opening of a masonry chimney where a liner passes through. see Fig. D-3.

Fig. D-3 - Firestop (FS) Assembly



WALL PENETRATION

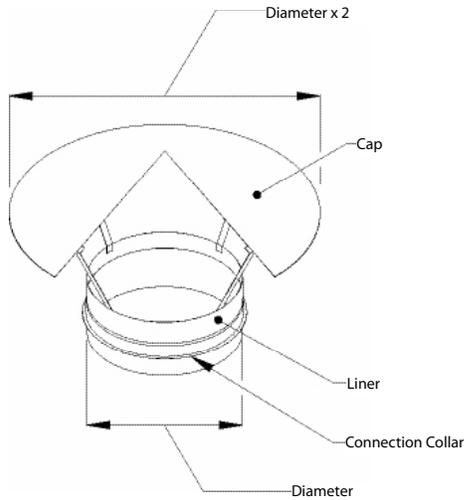
Where a liner section passes through a wall and a masonry chimney, the combustible material need to be at a minimum clearance from the exterior of the liner to be protected from radiation heat from the liner. See NFPA 211 or local codes for minimum distances to respect (Fig. D-2). Also, used a FireStop (FS) to close the masonry chimney inlet opening.

Terminations

RAIN CAP (RC)

Installed at the top of the CBI liner, it prevents entry of rain into the chimney. (See Fig. E-7 for assembly)

Fig. E-1 - Rain Cap Detail (RC)

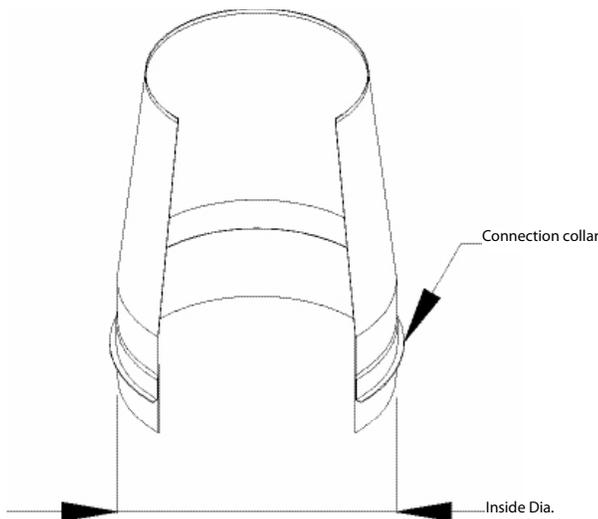


Note: Do not use with CBH model.

EXHAUST CONE (EC)

Installed at the top the chimney, it improves the draft and increases the speed of escaping gases by 50%. Installation of a drain at the base of the liner is required to collect rainwater. For installation details Exhaust Cone (EC) (See Fig.E-7).

Fig. E-2 - Exhaust Cone (EC) Detail



CLOSURE SECTION (CS)

Installed at the chimney extremity, the use of a drain at the base of the liner is required to collect any excess rain that may enter the chimney.

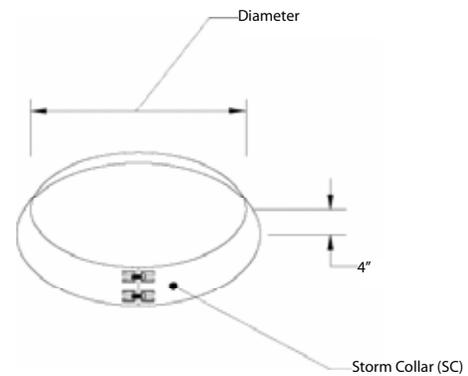
Fig. E-3 - Closure Section (CS) Detail



STORM COLLAR (SC)

Used for sealing the opening between the chimney and the Flat Flashing (F), the Storm Collar (SC) must be sealed to the chimney with silicone putty. It is supplied with the Flat Flashing (F) roof assembly or Adjustable Flashing (AF) roof assembly.

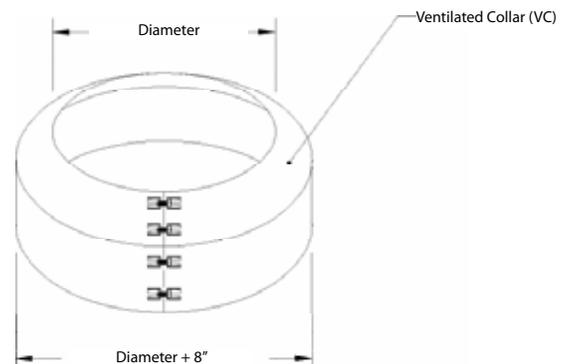
Fig. E-4 - Storm Collar (SC) Detail



VENTILATED COLLAR (VC)

Used for sealing the opening between the chimney and Ventilated Flashing (VF), the Ventilated Collar (VC) must be sealed to the chimney with silicone putty. It is supplied with the Ventilated Flashing (VF).

Fig. E-5 - Ventilated Collar (VC) Detail



Terminations

FAN ADAPTER (FA)

Installed at the chimney extremity. It is used to connect the chimney to an up-blast exhaust fan.

Fig. E-6 - Fan Adapter (FA) Detail

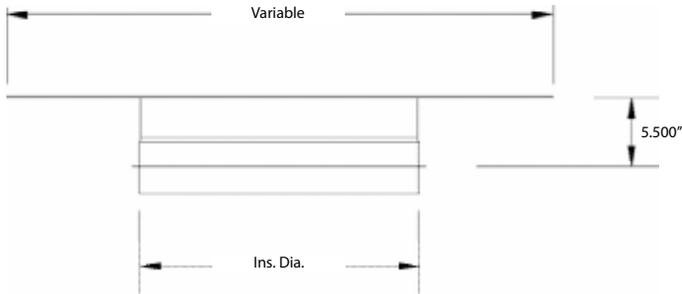


Fig. E-7a - Typical Installation for Rain Cap (RC)

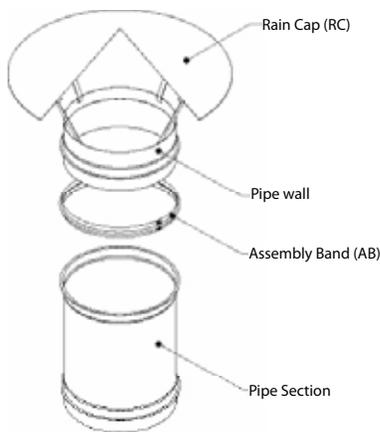
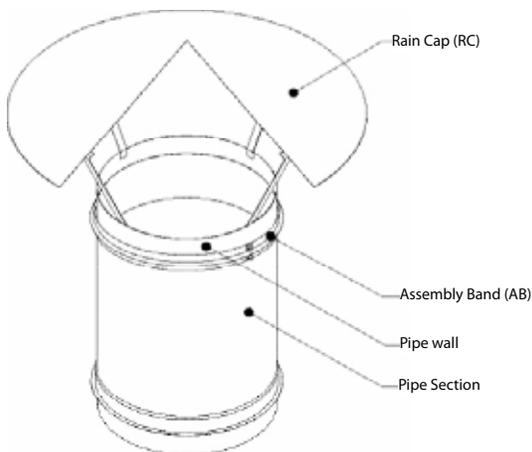


Fig. E-7b - Finished assembly for Rain Cap (RC)



Terminations use and application

Termination	Model	Temperature from 0°F to less than 570°F continuous or boiler applications
Rain Cap	CBI	6" to 24" diameter
Exhaust Cone	CBI and CBH	6" to 24" diameter
Closure Section	CBI and CBH	6" to 24" diameter

Fig. F-3 - Installation of Liner Tee Section in
Masonry Chimney

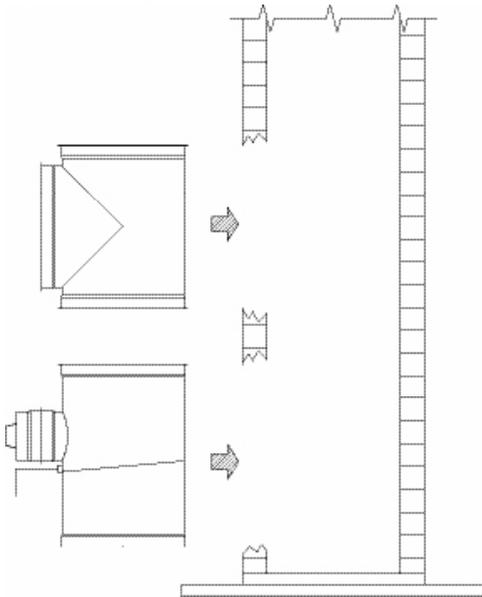
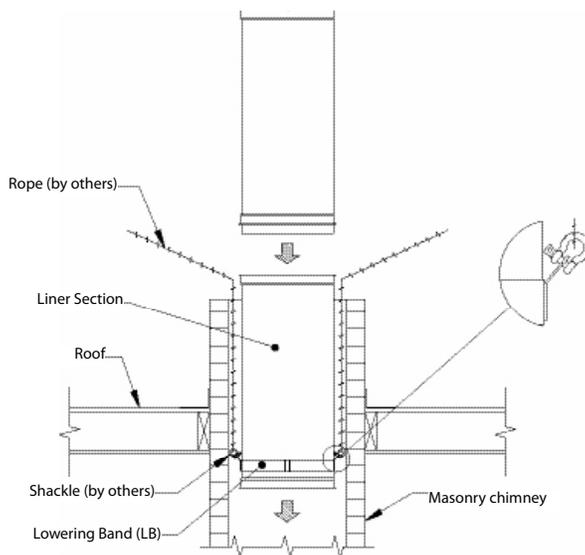


Fig. F-4 - Lowering of Liner Section in Masonry
Chimney



7. Remove the rope and the shackle from the lowering band at the bottom of the liner.

8. Rebuild the masonry chimney wall and install a FireStop (FS) to close the masonry chimney inlet opening.

9. Install the Roof Support (RF), the Flat Flashing (F), the Storm Collar (SC) and a termination section on the top of the masonry chimney (See section D and E).

Note: If those configurations can not be used, please call manufacturer, the engineering team can provide solutions.



CHIMNEY LINER PART LISTED FOR CLASS 2, CATEGORY I BUILDING HEATING APPLIANCES WHICH BURN NATURAL GAS, PROPANE OR OIL FUEL THAT PRODUCE GASES AT A TEMPERATURE OF MAXIMUM 570°F (300°C).

**MODEL CBI □
WARNING**

IN CANADA, CHIMNEY LINER IS LISTED ONLY FOR EXISTING MASONRY OR FACTORY-BUILT CHIMNEY AND VENTS. LINING SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALSO LISTED FOR NEW AND EXISTING MASONRY CHIMNEYS IN UNITED-STATES.

MINIMUM CLEARANCE FOR APPLIANCES WHICH BURN NATUREL GAS, PROPANE OR OIL AS A FUEL.		
MODEL	IPP 6" to 24" dia. category I	
AIR SPACE LOCATION	Between masonry chimney exterior and combustibles	Between masonry chimney interior and the liner
CLEARANCE	0"	1"



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INSTALLATION DATE:

SUITABLE FOR EXTERIOR INSTALLATION





MODEL IPP & HEP CHIMNEY LINER PART LINER FOR EXISTING CHIMNEY.

MODEL HEP ALSO LISTED AS SPECIAL GAS VENT CATEGORY II, II, IV ; GAS VENT TYPE BH CLASS I AND II MAX 550°F / 288°C

**MODELS CBI □ CBH □
LINER COMPONENT**

MATERIAL FOR USE WITH FACTORY BUILT CHIMNEY MODEL IPP OR HEP.

CHIMNEY LINER LISTED ONLY FOR EXISTING CHIMNEY IN CANADA. LINING SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALSO LISTED FOR NEW AND EXISTING MASONRY CHIMNEY IN UNITED-STATES.



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PART 2:
CBH Category I, II, III, IV

UNDERWRITERS LABORATORIES LISTINGS:

Venting systems Models CBI and CBH are Listed by Underwriters Laboratories, inc. (UL) under File MH46608 and Tested in accordance with UL 1777 Chimney Liners and the Canadian Standard for Lining Systems CAN/ULCS635- M91. Listings include the following chimney product categories and diameters.

UL 1777

Model	Classification	Diameters
CBI	Chimney Liners	6" to 24" I.D.

CAN / ULC-S635-M91

Model	Classification	Diameters
CBH	Lining systems for existing masonry	6" to 24" I.D.

FEATURES

Models CBI are part of the Industrial Positive Pressure products for industrial and commercial applications. They are prefabricated modular venting systems designed for quick assembly and using a continuous welded joint stainless steel inner wall. Given that all parts have a male and female end, each model part fit into one another, thus eliminating the need for all kinds of adapters. This unique method of coupling provides an incomparable flexibility in selecting models of flues and chimneys. Models CBI are single wall constructions. The high quality of stainless steel inner wall construction using a continuous welded method for the longitudinal joint provides a high strength-to-weight ratio and low friction losses.

APPLICATION FOR MODELS CBI & CBH CAT 1

UL 1777

1. Chimney Liners Listing (Category I, for oil and gas) – Under this category, model CBI liner have been determined suitable for field-installation into new or existing masonry chimneys and used to vent gas-fired and oil-fired appliances in which the maximum continuous flue-gas outlet temperature do not exceed 570°F for oil and 480°F for gas. It also complies with test at 1700°F temperature for 10 minutes.

CAN / ULC-S635-M91

1. Standard for Lining Systems for Existing Masonry or Factory-Built Chimneys and Vents (Class II, for oil and gas) – Under this category, model CBI liner have been determined suitable for installation into existing masonry and used to vent gas-fired and oil-fired appliances in which the maximum continuous flue-gas outlet temperature do not exceed 300°C for oil and 245°C for gas. It also complies with test at 927°C temperature for 10 minutes.

WARNING
NOT FOR USE WITH SOLID-FUEL-FIRED APPLIANCES.

SURROUNDINGS/ENCLOSURES

1. In the United States, Models CBI chimney liners are primarily intended to be installed in new or existing masonry chimneys with or without a liner of fire-clay tile, or to be used as a substitute for masonry fire-clay tile flue liners in new chimneys.

2. In Canada, Models CBI chimney liners are primarily intended to be installed in existing masonry chimneys with or without a liner of fire-clay tile, or factory-built chimneys and vents.

3. The minimum brick thickness of the masonry chimney must be of 3"-1/2. Also, the masonry chimney must comply with the National Building Code, the Standard for "Design and Construction of Masonry Chimneys and Fireplaces" CAN/CSA A405 and NFPA 211.

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

5. Rain caps and rain caps with bird screens should be checked for ice formation during low ambient temperature. Consult authority having jurisdiction. Also, it's important to size correctly the venting of low temperature flue products in geographical areas experiencing sustained low ambient temperature.

CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION IN YOUR AREA.

SYSTEM SIZING

Complete system sizing and capacity may be obtained from the "Chimney, Gas Vent, and Fireplace Systems" chapter of the ASHRAE Handbook or contact your Cleaver-Brooks representative. In spite of any sizing guidelines, when sizing exhaust systems, it is most important that the heating appliance, engine or turbine manufacturer's installation instructions be followed. Not following these instructions may result in inadequate chimney performance and/or a violation of the equipment manufacturer's installation requirements.

PART NUMBERS

These instructions identify major models CBI & CBH parts by part number.

Example no.1:

Number: CBI 48L 12

Model	Description	Inside Diameter
CBI Single Wall	48" Pipe Section Length	12"

Example no.2:

Number: CBH 36L 24

Model	Description	Inside Diameter
CBH Single Wall	36" Pipe Section Length	24"

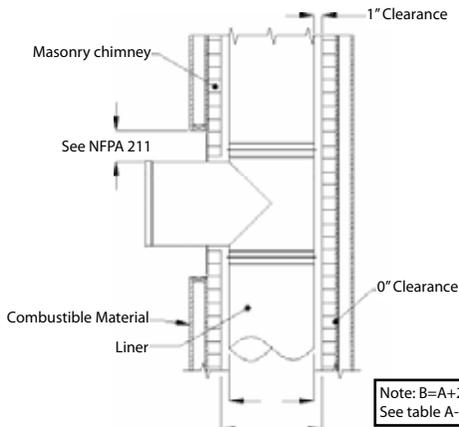
CLEARANCES

The following table serves to identify the minimum clearances required when installing a liner system in a masonry chimney.

Table A-1. Minimum air space clearance

Model and diameter "A"	Air space location	
	Between masonry chimney exterior and combustible	Between masonry chimney interior and the liner
---	---	---
CBH 6" to 48"	0"	1"

EX 1: Clearance and dimension of masonry chimney for model CBI/CBH



WARNING
DO NOT INSTALL ANY TYPE OF INSULATION IN THE REQUIRED CLEARANCE SPACES SURROUNDING THE LINER.

CHIMNEY LINER PIPE AND FITTING JOINT ASSEMBLY

All components have a male and a female end. The installation orientation is indicated on the labeling of each pipe section with an arrow. The arrow indicates the direction of the flue (See Fig. A-1). Clean all inner and outer surfaces of male and female ends with an appropriate organic solvent, such as acetone, MeK, or other commercial degreaser.

1. Before fitting the male and female ends in one another, a sealant is applied on the male end, at the gap between the inner band and the inner pipe. (See Fig. A-1 and A-3). Table A-2 for Sealant.

2. After joining the male and female ends together, a layer of sealant is applied inside the V-groove of the Assembly Band (AB) prior to its installation over the joint (See Fig. A-3). Table A-2 for Sealant.

3. The Assembly Band (AB) (Fig.A-2 and A-3) is installed and clamped in place with the 4 screws (supplied).

4. Where the chimney passes outdoor, a exterior sealant (ES) is applied at the joint of the Storm Collar (SC) and the outer wall of the pipe for weather protection (see Fig.A-4). Table A-2 for sealant.

CAUTION
A. DO NOT ALLOW SCREWS TO PENETRATE THE INNER PIPE. THIS CAN CAUSE CORROSION, GAS LEAKAGE OR EXPANSION FAILURE
B. OBSERVE ADEQUATE SAFETY MESURES WHEN USING A DEGREASER.

Fig. A-1 - Models CBI & CBH Fleu direction

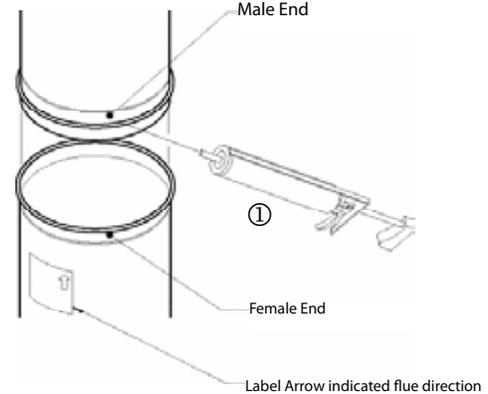


Table A-2 - Sealant usage

Interior Installation					
Sealant Application	Supplier	Model	Color	Max. Temp.	
Inner Joints	Adchem	X-Trasil H.T. 4706_3	red	500°F	
alternate	GE	RTV-106	red	500°F	
alternate	Dow Corning	RTV-736	red	500°F	
Exterior Installation					
Sealant Application	Supplier	Model	Color	Max. Temp.	
Outer Joints	Adchem	Adsil 4809	Gray	375°F	

Fig. A-2 - Joint components Models CBI & CBH

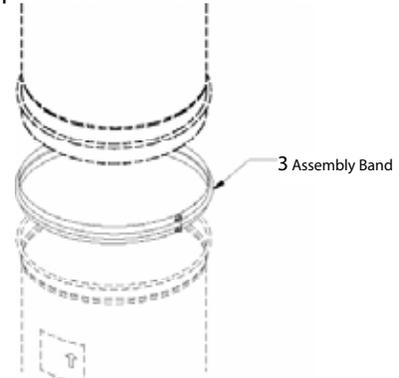
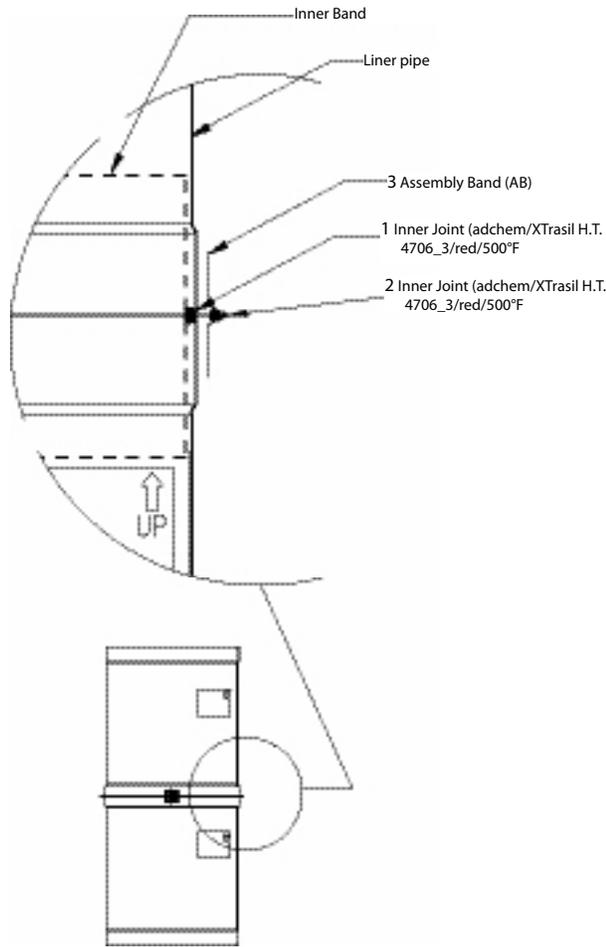


Fig. A-3 - Assembled Models CBI & CBH



SUPPORT METHODS AND HIEGHT LIMITS

1. The optimal method to support the liner system is to rest the liner system on a solid foundation and to use a roof support (RF) at the exit of the masonry chimney (Fig.A-4).

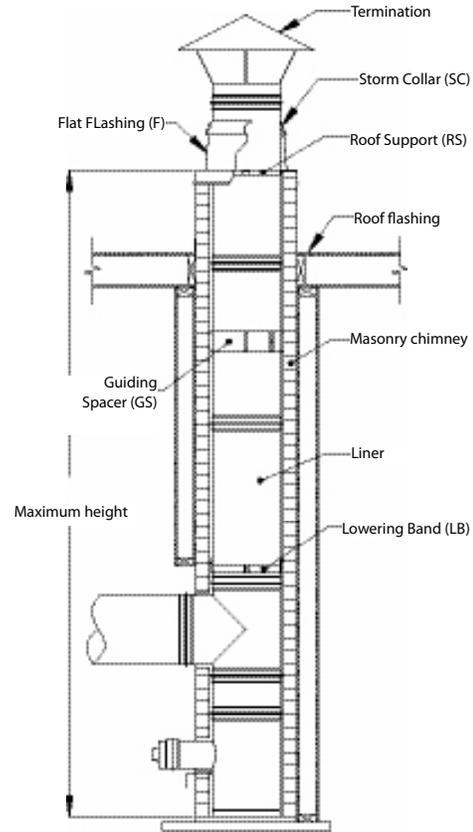
2. The maximum heights between the base and to Roof Support (RF) are shown in Table A-3.

Table A-3 - Maximum Chimney Heigths

Inside Diameter (in)	Maximum Height (ft)
6" thru 14"	90 (27.4 m)
16" thru 48"	125 (38.1 m)

Note: if higher height is needed, please call manufacturer, the engineering team can provide solution.

Fig. A-4 - Maximum Chimney Height and support



Note: Use Guiding Spacer (GS) at every 50 feet, See Section C.

PIPE WEIGHT

Pipe weight is given in pounds per foot of pipe for each diameter.

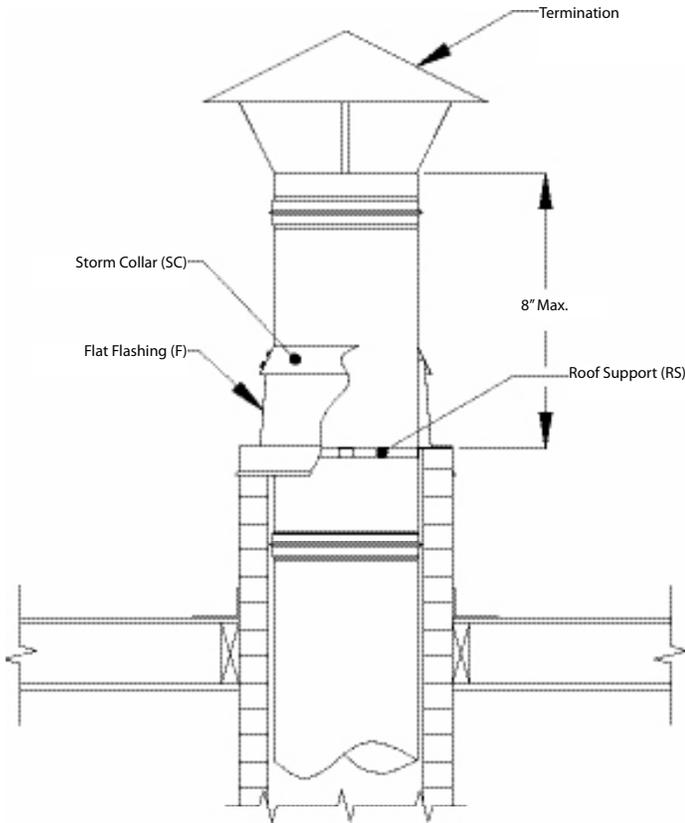
Table A-4 - Pipe weight in lb/ft

Inside diameter	CBI Model	CBH Model
6	3.39	2.25
8	4.52	2.99
10	5.65	3.74
12	6.78	4.49
14	7.91	5.24
16	9.04	5.99
18	10.17	6.74
20	11.30	7.49
22	12.43	8.24
24	13.56	8.98
26	-	9.8
28	-	10.6
30	-	11.3
32	-	12.1
34	-	12.9
36	-	13.6
38	-	14.4
40	-	15.1
42	-	15.9
44	-	16.6
46	-	17.4
48	-	18.1

LINER FREESTANDING HEIGHT

1. Maximum freestanding height above the masonry chimney is 4 feet (1.2 m). See Fig. A-5.

Fig. A-5 - Maximum Freestanding Liner Height

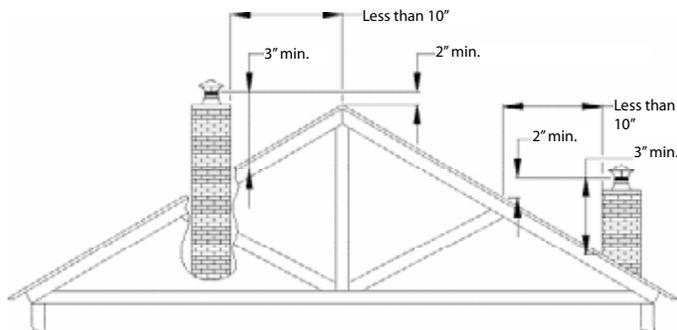


Termination HEIGHT

Chimneys and vents shall terminate above the roof level in accordance with the following requirements (Fig. A-6):

1. Five feet above the roof level or any adjacent flat roof, wall parapet or air intakes, and/or in accordance with the following NFPA 211 requirements.
2. Where chimney terminates at less than 10 feet from any adjacent ridge, wall or parapet, the chimney shall terminate at minimum of 3 feet above the ridge, wall, or parapet.
3. Where chimney terminates at more than 10 feet from ridge, wall, or parapet, a minimum height of 2 feet shall be required above the ridge wall or parapet.

Fig. A-6 - Chimney Termination Height



Tees and Adjustable Length

90° TEE (T90)

1. Generally used to connect the horizontal length from an appliance to the vertical length in boiler exhaust systems.

2. There are two types of 90° Tee (T90), one for model CBI and another for CBH model.

3. For model CBH, due to corrosive action of condensing appliances category II and IV, a welded tee branch is necessary. There are two ways to install this type of 90° Tee (T90). First way is, if the dimension of masonry chimney allows it, insert the tee section with the welded branch in the chimney (Fig. B-1). Second way is to enlarge the masonry chimney inlet opening (Fig. B-2) by demolishing the masonry wall and rebuilding it.

4. A 90° Tee (T90) section with a Tee Cap (TC) can be used to facilitate access for inspection and maintenance (Fig. B-1).

Note: If those configurations can not be used, please call manufacturer, the engineering team can provide solutions.

Fig. B-1 - Detachable 90° Tee (DT90) Assembly

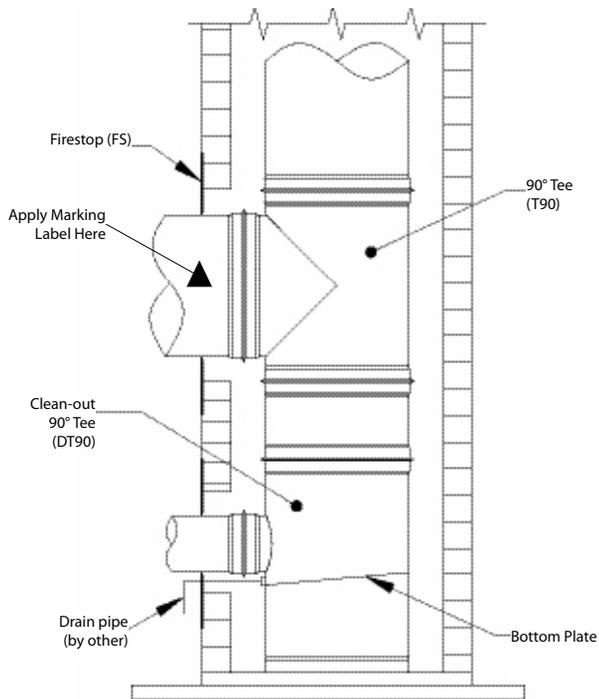
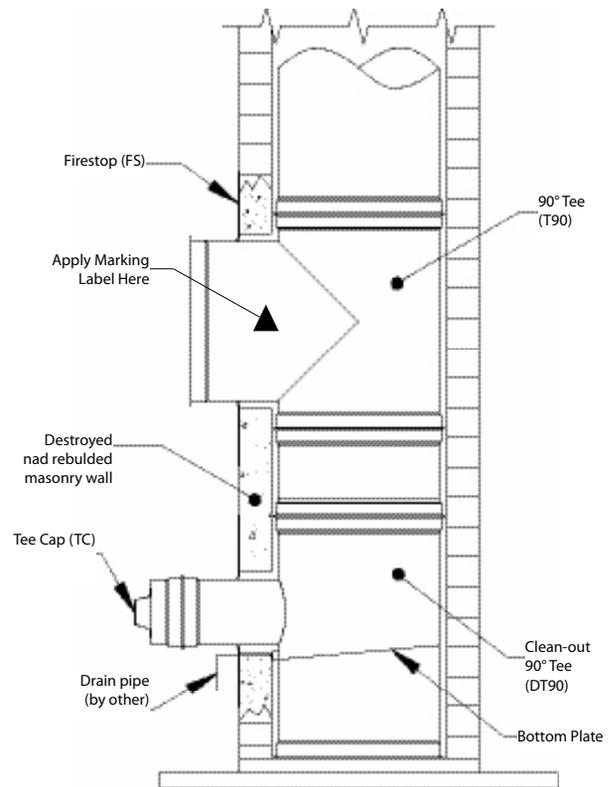


Fig. B-2a - Welded 90° Tee (T90) Assembly

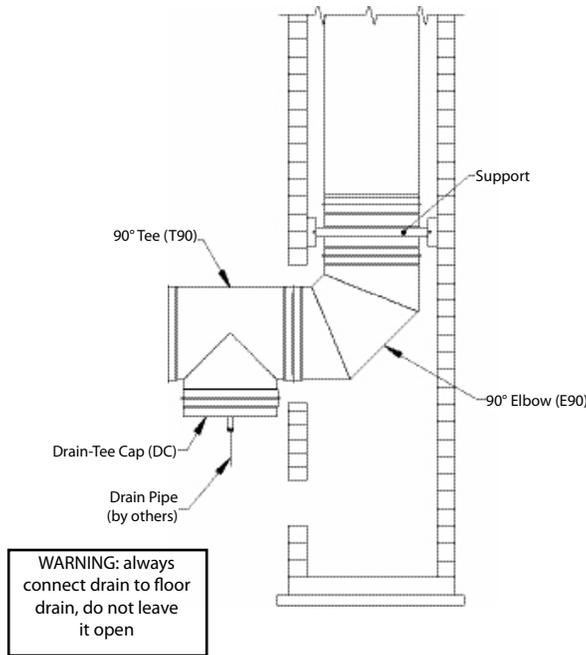


Tees and Adjustable Length

90° ELBOW (E90)

Another assembly option is to use a 90° Elbow (E90) with a 90° Tee (T90) and Drain-Tee Cap (DC). (See Fig. B-3)

Fig. B-3 - 90° Elbow (E90) Assembly



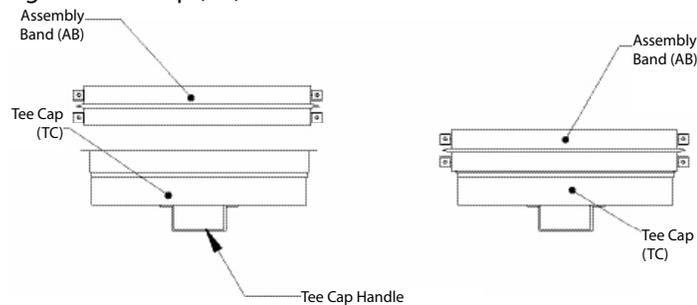
TEE CAP (TC)

1. Used to block the horizontal opening of the tee, see Fig. B-1. Removable, it facilitates access for inspection and maintenance of the chimney (Fig. B-4).

2. The assembly includes an Assembly Band (AB).

3. Joint assembly between the Tee Cap (TC) and the Tee is done in the same manner as described in Section A Piping and Fitting Assembly.

Fig. B-4 - Tee Cap (TC)



DRAIN-TEE CAP (DC)

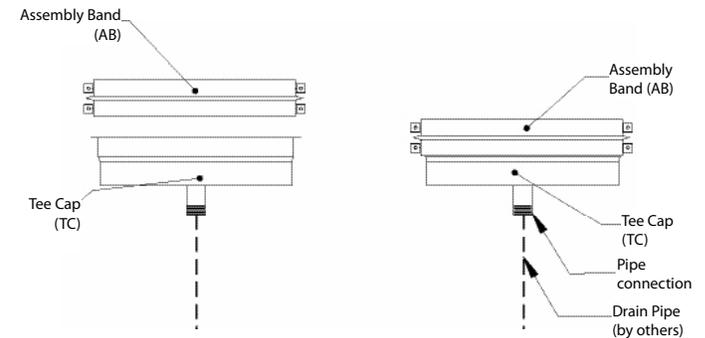
1. Used in some configurations to block the lower vertical opening of a tee, see Fig. B-3. It serves to collect rainwater that may enter the chimney (Fig. B-5).

2. Removable, it facilitates access for inspection and maintenance of the chimney.

3. To be connected to a drain of 1" diameter-NPT. It is connected to the tee with the joint assembly.

4. Joint assembly between the Drain-Tee Cap (DC) and the tee is done in the same manner as described in Section A Piping and Fitting Assembly.

Fig. B-5 - Drain-Tee Cap (DC)



ADJUSTABLE LENGTH (AL)

1. Used in horizontal straight runs of models CBI and CBH, the Adjustable Length (AL) serves two major functions:

- a) To make up for odd lengths of pipe in short runs
- b) To extend the Tee Cap (TC) outside the masonry chimney

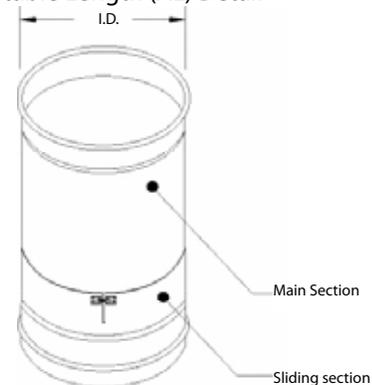
2. This part is designed to be adjustable to any needed exact length and its internal joint must be sealed by working sealant under the seal section, as well as at the joint between the male and the female ends to be closed with the Assembly Band (AB).

3. The adjustable length includes a main section and an outer sliding section that can be secured in the desired length position. Cutting the main section may be required for proper fitting.

4. The sliding section is designed to fit outside the standard main section.

5. Once the final length of the section is set, it is secured using a single clamp and screw. This seal section will prevent the inner section from slCBlng after the assembly.

Fig. B-6 - Adjustable Length (AL) Detail



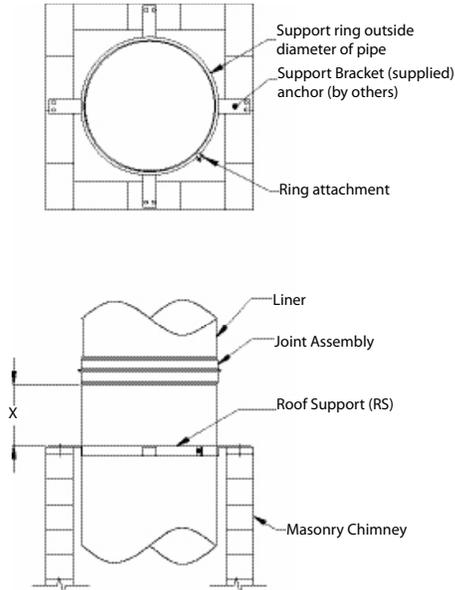
SPECIAL PARTS

Available when specified are special parts or components used in chimney systems that can be factory-built to accommodate field situations where standard parts cannot be used.

ROOF SUPPORT

Used to support and guide the portion of the chimney which extend to the masonry chimney. It is attached to the masonry chimney by means of four angles (See Fig. C-1). It maintains a minimum distance between the liner and the masonry chimney.

Fig. C-1 - Roof Support (RS)

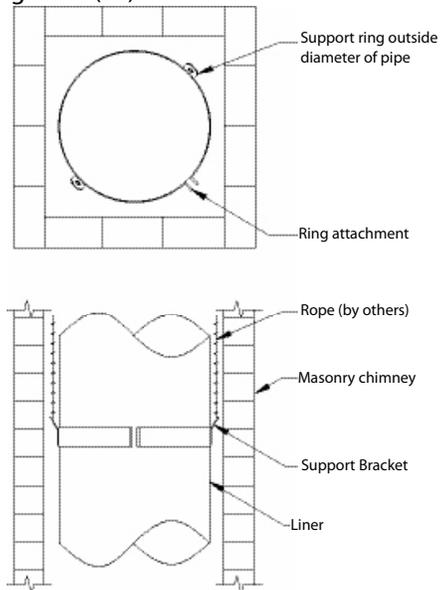


Keep joint away From support $X=6''$ Min. above and under

LOWERING BAND (LB)

Used to insert the liner in the masonry chimney by supporting the liner during the lowering.

Fig. C-2 - Lowering Band (LB)

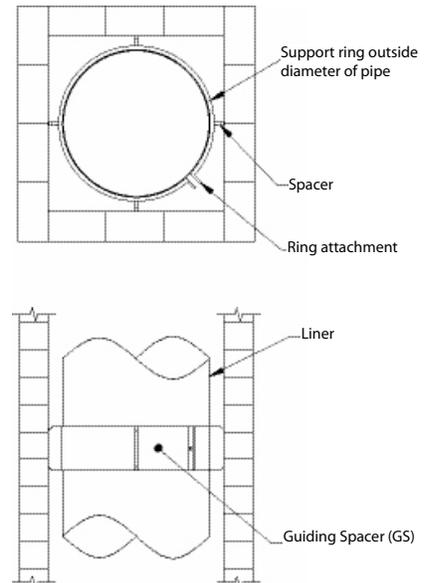


Note: Must be used with shackles.

GUIDING SPACER (GS)

Used to guide the liner every 50 feet and to keep the clearance between the liner and the masonry chimney. Also, it prevents bending of the liner in the masonry chimney and has for effect to increase the maximum height of the liner.

Fig. C-3 - Guiding Spacer (GS)



Note: See Section D Masonry Chimney Top and Wall Penetrations for complete Roof Support (RS) assembly details an use.

FLAT FLASHING (F) AND VENTILATED FLASHING (VF) ASSEMBLIES

The Flat Flashing assembly (F) is primarily used for boiler or low temperature exhaust to close the masonry chimney exit opening. It is design to be installed on a flat masonry chimney top of a minimum height of 3 feet from the roof (See Fig. D-1). For some areas, greater heights may be needed according to local code requirements. The roof framing dimension and the masonry chimney dimension must provide sufficient opening to comply with the minimum clearance from combustibles. (See Table A-1) The Roof Support (RS) is secured to the top of the masonry chimney using two 1/4" masonry screws in each support bracket. The Flat Flashing (F) is then lowered on the top of the masonry chimney and the Storm Collar (SC) secured to the chimney section with the screws supplied. A Ventilated Flashing (VF) option is also available where air circulation between the liner and the masonry chimney is wanted. The Ventilated Flashing (VF) option may serve as a ventilation outlet in small boiler rooms with gravity air supply.

Fig. D-1 - Masonry Chimney Top Assembly

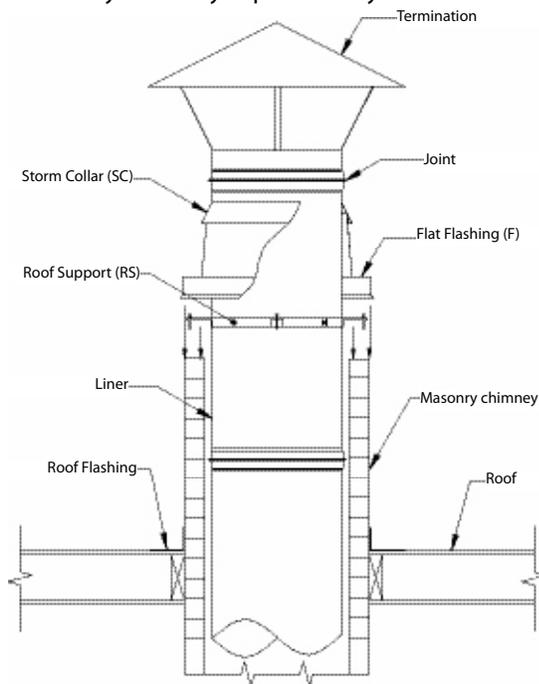
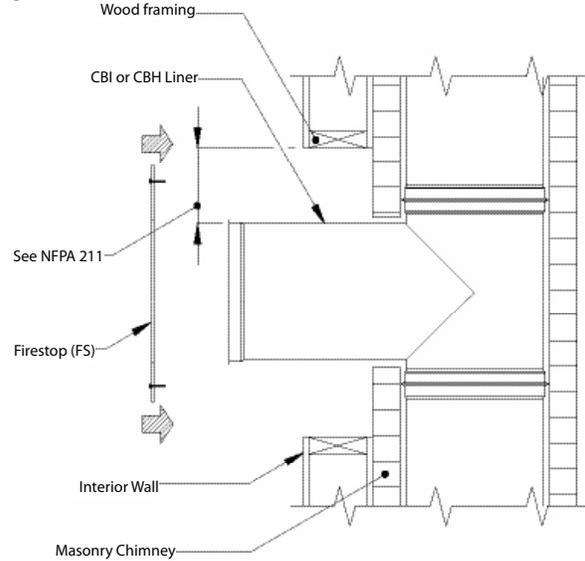


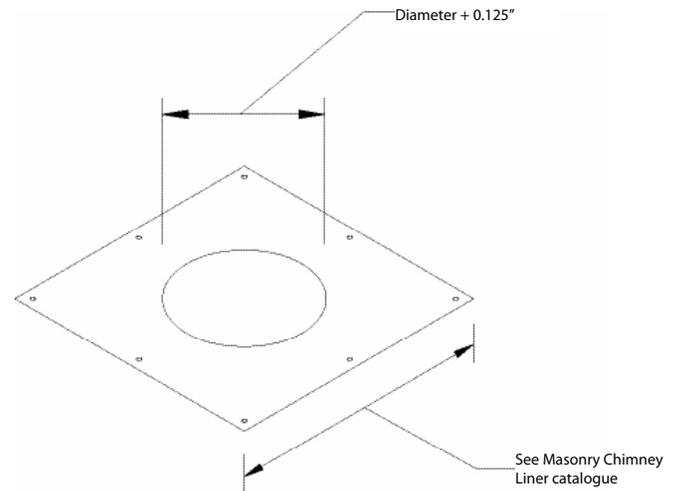
Fig. D-2 - Wall Penetration



FIRESTOP (FS)

Used to close the opening of a masonry chimney where a liner passes through. see Fig. D-3.

Fig. D-3 - Firestop (FS) Assembly



WALL PENETRATION

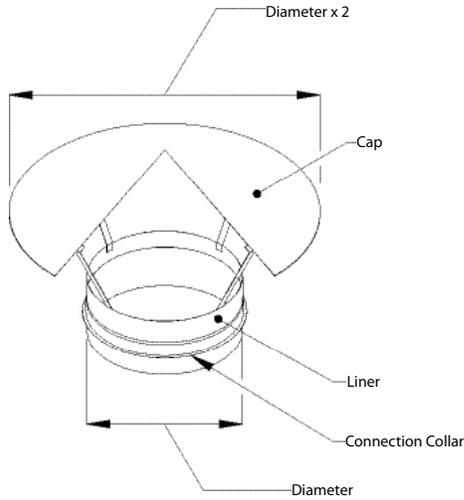
Where a liner section passes through a wall and a masonry chimney, the combustible material need to be at a minimum clearance from the exterior of the liner to be protected from radiation heat from the liner. See NFPA 211 or local codes for minimum distances to respect (Fig. D-2). Also, used a FireStop (FS) to close the masonry chimney inlet opening.

Terminations

RAIN CAP (RC)

Installed at the top of the CBI liner, it prevents entry of rain into the chimney. (See Fig. E-7 for assembly)

Fig. E-1 - Rain Cap Detail (RC)

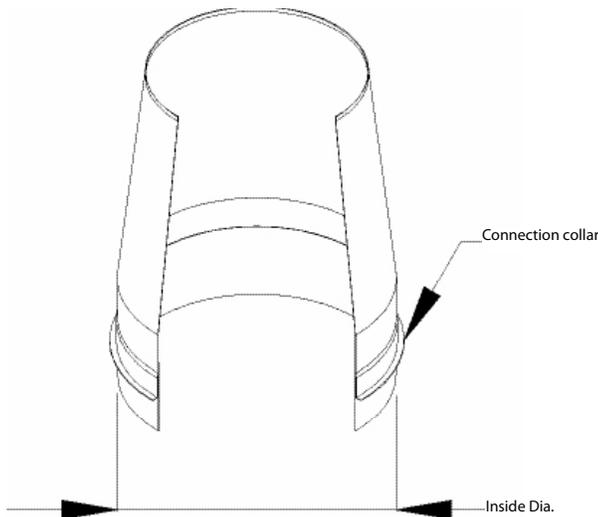


Note: Do not use with CBH model.

EXHAUST CONE (EC)

Installed at the top the chimney, it improves the draft and increases the speed of escaping gases by 50%. Installation of a drain at the base of the liner is required to collect rainwater. For installation details Exhaust Cone (EC) (See Fig.E-7).

Fig. E-2 - Exhaust Cone (EC) Detail



CLOSURE SECTION (CS)

Installed at the chimney extremity, the use of a drain at the base of the liner is required to collect any excess rain that may enter the chimney.

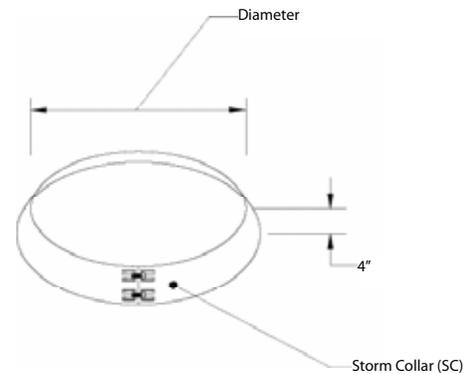
Fig. E-3 - Closure Section (CS) Detail



STORM COLLAR (SC)

Used for sealing the opening between the chimney and the Flat Flashing (F), the Storm Collar (SC) must be sealed to the chimney with silicone putty. It is supplied with the Flat Flashing (F) roof assembly or Adjustable Flashing (AF) roof assembly.

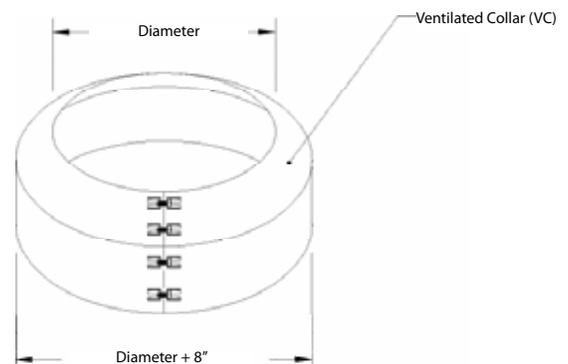
Fig. E-4 - Storm Collar (SC) Detail



VENTILATED COLLAR (VC)

Used for sealing the opening between the chimney and Ventilated Flashing (VF), the Ventilated Collar (VC) must be sealed to the chimney with silicone putty. It is supplied with the Ventilated Flashing (VF).

Fig. E-5 - Ventilated Collar (VC) Detail



Terminations

FAN ADAPTER (FA)

Installed at the chimney extremity. It is used to connect the chimney to an up-blast exhaust fan.

Fig. E-6 - Fan Adapter (FA) Detail

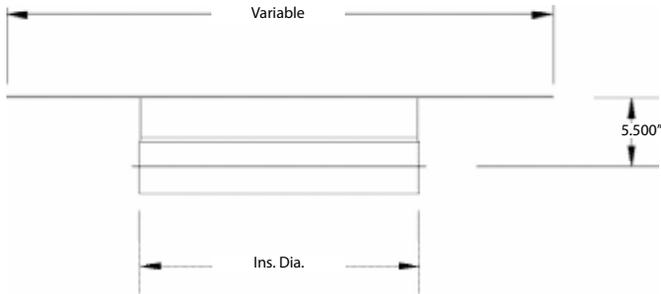


Fig. E-7a - Typical Installation for Rain Cap (RC)

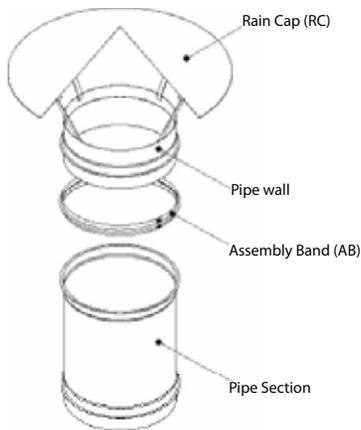
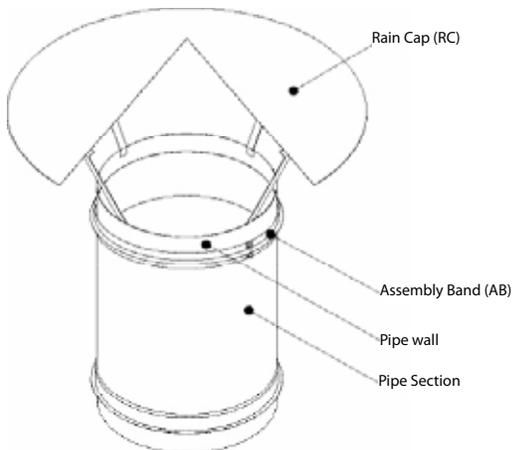


Fig. E-7b - Finished assembly for Rain Cap (RC)



Terminations use and application

Termination	Model	Temperature from 0°F to less than 570°F continuous or boiler applications
Rain Cap	CBI	6" to 24" diameter
Exhaust Cone	CBI and CBH	6" to 48" diameter
Closure Section	CBI and CBH	6" to 48" diameter

CLEANING OF THE MASONRY CHIMNEY

Prior to install, we recommend to check the masonry chimney for cracks, loose, other materials that could inhibit correct installation of the liner and missing bricks or mortar. Also, clean and neutralize the existent masonry chimney.

1. Clean with a water jet all interior surfaces of the masonry chimney in order to remove any residue of combustion and materials releases or not healthy. After cleaning, all surfaces must be solid and healthy.
2. Wash with clean water on air pressure with a mixture of 10% of potassium carbonate all surface interns chimney. Let act at least 12 hours the alkaline solution in order to neutralize the accumulated acid. Rinse with clean water on air pressure.

INSERTION OF THE CBH LINER

1. If the welded 90° Tee (T90) (see section B) can pass through the masonry chimney, use same steps as model CBI.
2. If the dimensions of the masonry chimney doesn't allowed the 90° Tee (T90) to pass through, the masonry inlet opening must be enlarges to permit the tee section to be install.
3. Joint the clean-out 90° Tee section with the flue gases 90° Tee and inserts the assembly in the masonry chimney by enlarging the inlet opening (Fig. F-1).

Note: Verify the integrity and the solidity of the masonry chimney prior to demolishing the masonry

4. For the liner sections above the 90° Tee (T90), the use of a lowering band (see section C) and a rope is necessary. The lowering band is to be installed at the base of the liner section for easy access to remove the rope at the end. Two shackles are to be installed on each side of the lowering band and the rope must be attached to them (Fig. F-2).
5. The section is lower in the masonry chimney until the edge of the liner is above the top of the chimney. The rope must be blocked to support the liner and another liner section can be added on the first one (Fig. F-2).
6. Continue step 2 until the liner system is resting on the top of the 90° Tee (T90) by adding section one by one.

Fig. F-1 - Installation of CBH Tee section in Masonry Chimney

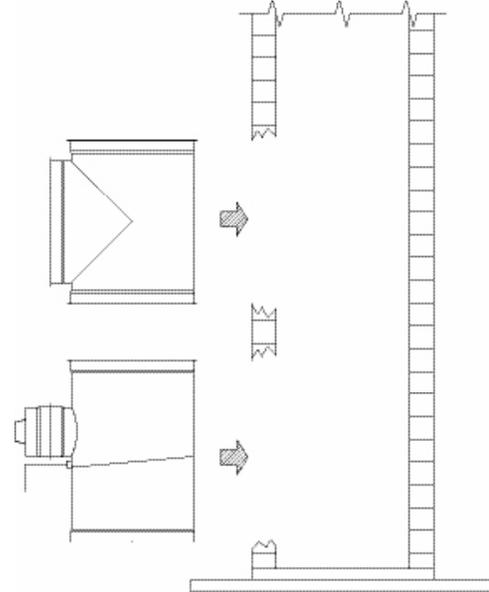
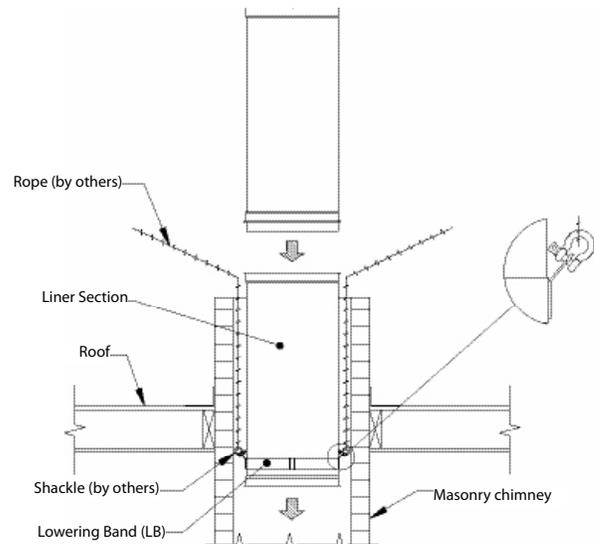


Fig. F-2 - Lowering of CBH Sections in masonry Chimney



7. Remove the rope and the shackle from the lowering band at the bottom of the liner.

8. Rebuild the masonry chimney wall and install a Firestop (FS) to close the masonry chimney inlet opening.

9. Install the Roof Support (RF), the Flat Flashing (F), the Storm Collar (SC) and a termination section on the top of the masonry chimney (See section D and E).

Note: If those configurations can not be used, please call manufacturer, the engineering team can provide solutions.



35T5
CHIMNEY LINER LISTED FOR APPLIANCES WHICH BURN NATURAL GAS, PROPANE OR OIL FUEL THAT PRODUCE GASES AT A TEMPERATURE OF MAX 570°F (300°C).

28KJ
ALSO LISTED AS SPECIAL GAS VENT CATEGORY II, II, IV ; GAS VENT TYPE BH CLASS I AND II MAX 550°F / 288°C

MODEL CBH □

WARNING / AVERTISSEMENT

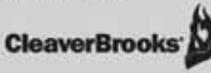
IN CANADA, CHIMNEY LINER IS LISTED ONLY FOR EXISTING MASONRY OR FACTORY-BUILT CHIMNEY AND VENTS. LINING SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALSO LISTED FOR NEW AND EXISTING MASONRY CHIMNEYS IN UNITED-STATES.

Minimum clearance to combustible material (in)													
Used as a Liner			Used as special gas vent										
Diameter	6" to 24"	Diameter	1 1/2"	2"	3"	4"	5"	6"	7"	8"	9"	10"	
Between masonry chimney exterior and combustibles	0"	Unenclosed vertical	1.5	2	3	4	5	6	7	7	8	9	10
Between masonry chimney interior and the liner	1"	Unenclosed horizontal	3	3	4	5	6	6	6	7	7	8	9

RISK OR CARBON MONOXIDE POISONING AND RISK OF FIRE IF IMPROPERLY INSTALLED. FOLLOW ALL CAUTIONS, WARNINGS AND INSTRUCTIONS REGARDING INSTALLATION OF THIS VENT PIPE SYSTEM.

SUITABLE FOR EXTERIOR INSTALLATION





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INSTALLATION DATE / DATE D'INSTALLATION :



35T5
MODEL IPP & HEP CHIMNEY LINER PART LINER FOR EXISTING CHIMNEY.

MODEL HEP ALSO LISTED AS SPECIAL GAS VENT CATEGORY II, II, IV ; GAS VENT TYPE BH CLASS I AND II MAX 550°F / 288°C

MODELS CBI □ CBH □

LINER COMPONENT

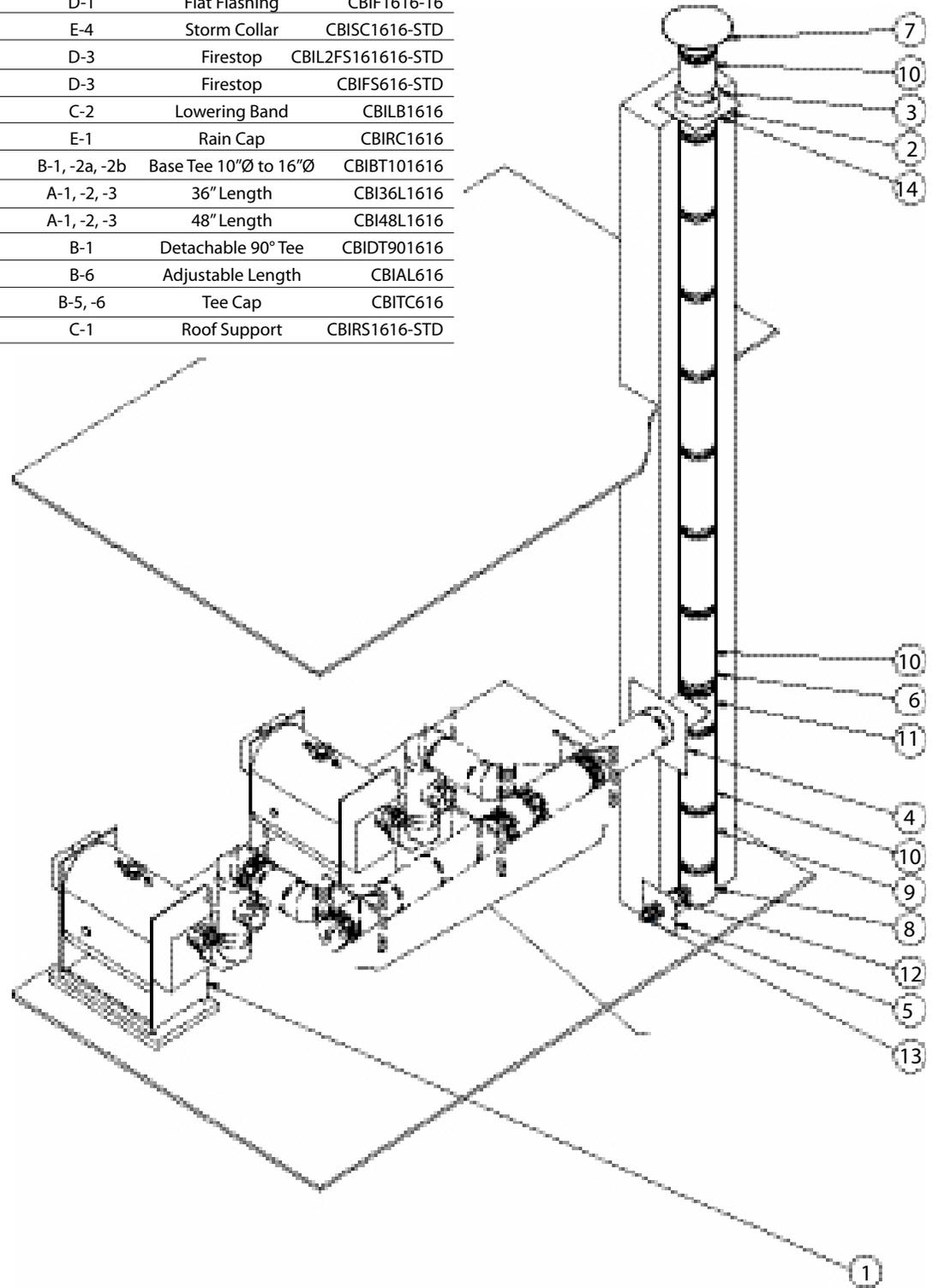
MATERIAL FOR USE WITH FACTORY BUILT CHIMNEY MODEL IPP OR HEP.

CHIMNEY LINER LISTED ONLY FOR EXISTING CHIMNEY IN CANADA. LINING SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALSO LISTED FOR NEW AND EXISTING MASONRY CHIMNEY IN UNITED-STATES.



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No.	Section	Page	Fig.	Description	Part no.
1	---	---	---	Appliance	---
2	D	12	D-1	Flat Flashing	CBIF1616-16
3	E	13	E-4	Storm Collar	CBISC1616-STD
4	D	12	D-3	Firestop	CBIL2FS161616-STD
5	D	12	D-3	Firestop	CBIFS616-STD
6	C	11	C-2	Lowering Band	CBILB1616
7	E	13	E-1	Rain Cap	CBIRC1616
8	B	9	B-1, -2a, -2b	Base Tee 10"Ø to 16"Ø	CBIBT101616
9	A	6-7	A-1, -2, -3	36" Length	CBIS36L1616
10	A	6-7	A-1, -2, -3	48" Length	CBIS48L1616
11	B	9	B-1	Detachable 90° Tee	CBIDT901616
12	B	10	B-6	Adjustable Length	CBIAL616
13	B	10	B-5, -6	Tee Cap	CBITC616
14	C	11	C-1	Roof Support	CBIRS1616-STD





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