Chimney Supports

The chimney system is supported by the fireplace for vertical chimney heights less than 30' (9 m) above the hearth. Chimney supports are required if the vertical height exceeds 30' (9 m) with SK8 chimneys or 20' (6 m) with 3-wall chimneys. Locate chimney supports at ceiling holes or other structural framing at 30' (9 m) (SK8) or 20' (6 m) (3-wall) heights. Spacing between chimney supports **must not** exceed 30' (9 m) (SK8) or 20' (6 m) (3-wall). Use Chimney Support Model SKCS8. **(NOTE: The SKCS8 can not be mounted directly to the fireplace.)** Support provided by elbow straps fulfills the support requirement only if they are spaced as previously described. (A chimney support is 2½" (64 mm) long when installed.)

Angled chimney runs require a support every 6' (1.8 m) in addition to the elbow straps. Chimney supports are used for this function. (Fig. 9)

Chase Installation

A chase is a vertical box-like structure which encloses the fireplace and/or chimney. Chases are typically built on the outside of the house with fireplace opening cut into the outer wall of a room. (Page 5, Fig. 5)

If you need help in determining fireplace location or how the chimney system should be run, contact your MHSC Fireplaces dealer for assistance.

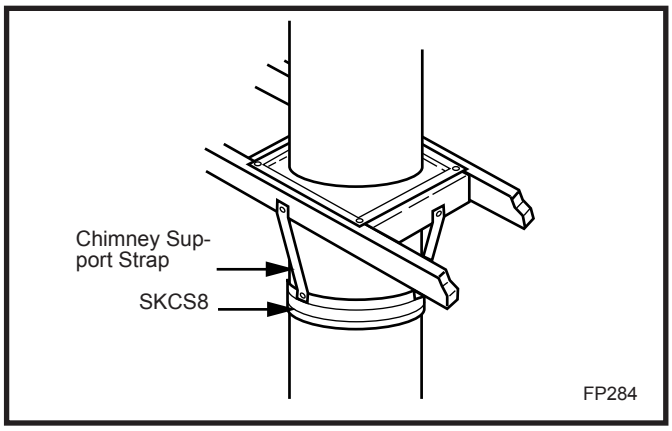


Fig. 9 Chimney support installation

Installation

Insulating Fireplace Enclosure for Cold Climates

If you live in a cold climate, it is not required but **highly recommended** that you insulate fireplace enclosure to eliminate cold air penetration as much as possible.

Insulate base of fireplace with a noncombustible insulation rated for a minimum of 300°F. Insulating is **very important** for outside wall installations over a concrete slab. If fireplace is installed on a platform, insulation should be placed on top of the platform **before** fireplace is set. (Fig. 10)

When a fireplace is installed in a chase or on a outside wall, enclosure should be treated like any outside wall in a home. Insulation should be installed on the inside wall as well as the outside wall(s). In a chase, it is also a good idea to install a firestop at the first ceiling level above the fireplace and enclose the chase with sheeting material. Insulation may then be installed above sheeting material to assure the space around the fireplace is totally protected. (Fig. 5)

When installing the chimney, **DO NOT** caulk between outer pipe and firestop. It is vital that some air be allowed to flow through this very thin gap.

CAUTION: WHEN INSTALLING A FIREPLACE IN AN INSULATED ENCLOSURE, BE SURE ALL REQUIRED AIR SPACES ARE MAINTAINED. (Page 14, Figure 20)

Framing

Framing can be constructed before or after the fireplace is set in place, however, most installers build the frame before setting the fireplace.

Frame fireplace with 2 x 4 lumber or heavier materials. Refer to framing dimensions in Figures 1, 2, 3 or 4 for basic fireplace specifications.

NOTE: When using 2 x 6 framing construction, the allowable air space between the front of the SK8 outer pipe and 2 x 6 framing is reduced to 1" (25mm) as tested and approved by U.L. for use in both the United States and Canada.

NOTE: Framing should be positioned to accommodate wall covering and fireplace facing material.

Installing Electrical Wire (for Circulator Models)

If a circulating fireplace is to be installed, run the 120 VAC, 60 Hz wiring to the left side of installation. Wiring must be completed **before** the fireplace is secured and finish material applied.

Remove the cover plate and electrical knock-out on the lower left side of the fireplace and set aside. Follow the instructions on Page 10 for proper wiring and installation of the EB1.

If the fan kit is not being installed with the fireplace, it is highly recommended that 120 VAC supply be made available since someone may elect to install a blower at a later date.

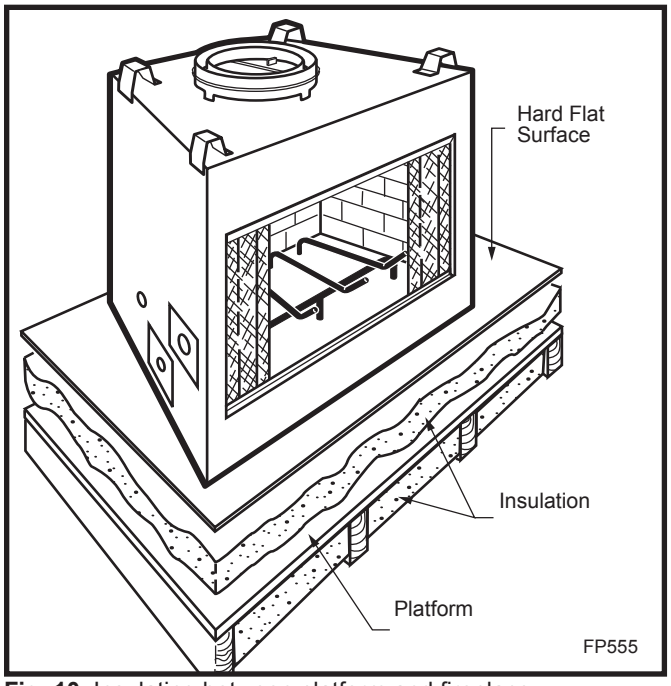


Fig. 10 Insulating between platform and fireplace.

Option For Circulating Models Only —

EB1 (Receptacle) Hook-Up:

- Wiring should be installed by a certified electrician.
- Turn off circuit breaker before wiring models.

Once fireplace is secured, complete wiring the fan kit. Remove knockout in the center of the back of the EB1 and install listed cable clamps. Feed electrical wire through listed cable clamp leaving approximately 6" (152 mm) of wire exposed through the EB1. Secure listed cable clamp to the wire.

Attach white wire from power source to one (1) wire of receptacle and secure with nut. Attach black wire from power source to the other wire of receptacle and secure with nut. Be sure nuts are secured tightly.

Secure EB1 assembly to inside of electrical box coverplate using two screws. Attach cover to face of the EB1 while being careful to position excess wire completely within the EB1, then attach coverplate to fireplace.

Install Fan Kit Assembly

Refer to optional Model FK12 fan kit assembly installation instructions for field installation.

Chimney Set-up

Since you have already preplanned the chimney run, you should know exactly how the installation is to be accomplished — how much pipe is required, the number of elbows, if any, and type of termination to be used.

CAUTION: REPORT TO YOUR DEALERS ANY PARTS DAMAGED IN SHIPMENT, SPECIFICALLY CHECK THE END CONNECTION OF CHIMNEY SECTIONS AND ELBOWS.

NOTE: Fireplaces may use MHSC Model SK8, or Model S (three wall) chimney systems. The BR/BC Series Fireplace will accept the SK8 chimney system as is; but a TWABR adapter collar is required when using the Model S (triple wall) chimney system. The installation procedure described in this manual applies **only** to the SK8 system. Either chimney system may be used, but **may not** be mixed.

Straight-Up Chimney Installation

To mark the centerline of the flue, put the fireplace in final position and measure out from the wall: 8¼" (210 mm)

Mark a spot on the ceiling directly above the fireplace. Draw a line parallel to the back wall through this mark. (Fig. 11)

Using a plumb bob positioned directly over center point of fireplace flue collar, mark the ceiling to establish the chimney center point. (Fig. 11)

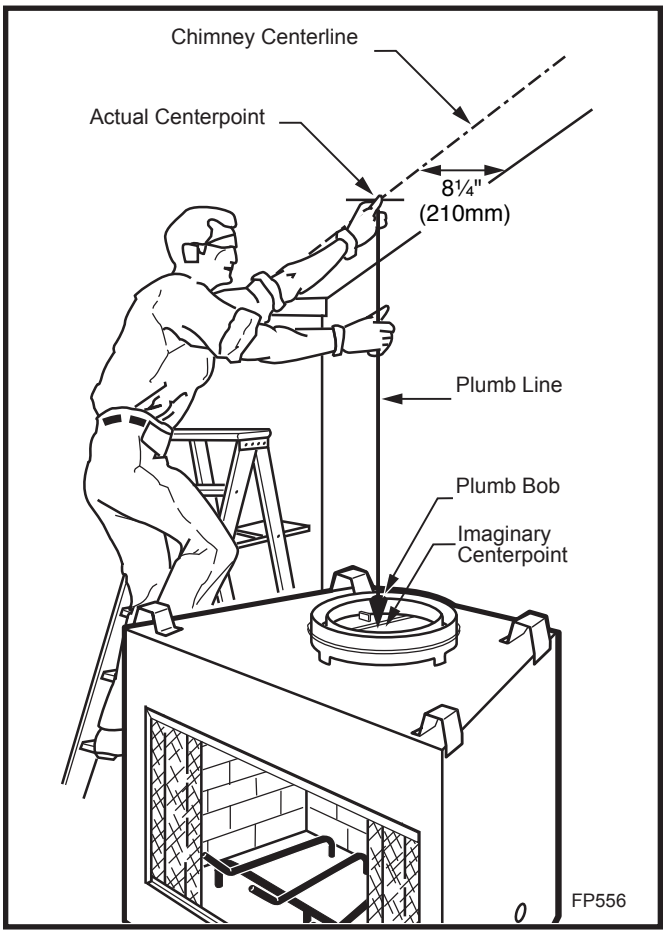


Fig. 11 Locate centerline of chimney with plumb line.

Offset Installation

In order to clear an obstruction, it may be necessary to offset chimney from vertical. This is accomplished by using MHSC elbows. Use the *30° Offset Elbow* table on Page 6 to determine proper offset and parts required.

Each offset requires two (2) elbows. The second elbow is equipped with support straps. It is very important to install the second elbow in each offset as close to the ceiling or support as possible so that the elbow straps can be secured to framing members to help support the weight of the chimney.

Determine offset distance of your chimney arrangement from centerline of fireplace to centerline of chimney where it is to pass through ceiling.

Locate center point of the chimney on ceiling as though a straight up chimney arrangement is to be used. Measure your offset dimension from straight up chimney center point on ceiling.

Ceiling Chimney Hole/ Possible Obstructions

The size of the hole in ceiling will vary with the angle at which the chimney passes through ceiling.

Drive a nail up through ceiling at marked chimney center point. Go to floor above and see where hole will be cut. Check to see where existing ceiling joists and other possible obstructions are located...i.e. wiring, plumbing etc... If necessary, re-position chimney and/or fireplace to avoid obstructions.

Cutting the Hole

Cover fireplace collar opening and cut proper sized chimney hole in chimney. The SK8 pipe allows you to run pipe through a typical 16” on center joist without cutting joists.

Framing the Ceiling Hole

Frame the ceiling chimney hole as shown in Figure 12. It is good practice to use framing lumber that is the same size as the ceiling joists; this is a requirement at attic level.

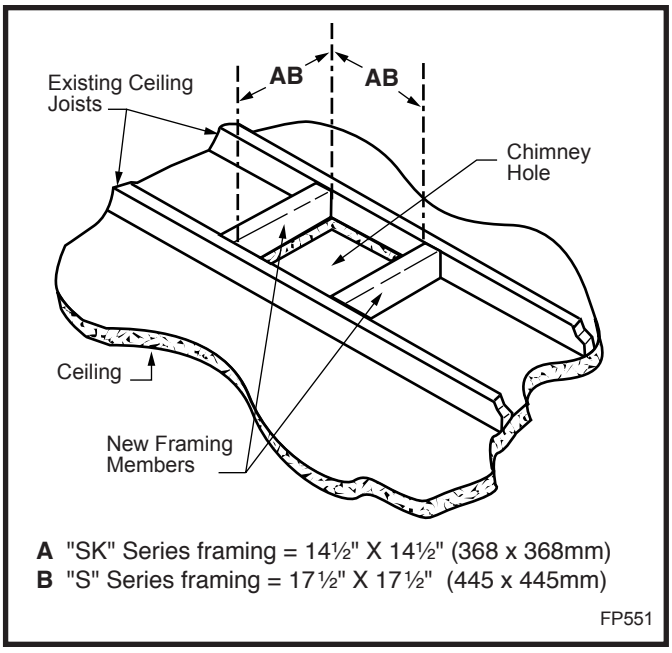


Fig. 12 Typical frame for ceiling chimney hole.

The following table gives firestop spacer model numbers:

Size of Chimney	Angle of Chimney at Ceiling	
	Vertical	30°
8" Flue "SK" Series	SKFS2A 14½" x 14½" (368 mm x 368 mm)	SKFS6A 14½" x 25½" (368 mm x 648 mm)
8" Flue "S" Series 3-Wall	FS2A 17½" x 17½" (445 mm x 445 mm)	FS6A 17⅞" x 29⅝" (454 mm x 753 mm)

Fig. 13 Ceiling chimney hole sizes necessary for installing firestop spacer.

The **inside dimension** of the frame **must be** the same as the hole size selected from Figure 13 in order to provide the required 1½" (38 mm) of air space between the outside diameter of the chimney and the edges of the framed ceiling hole.

Positioning, Safety Strips, Securing the Fireplace

Slide fireplace into position.

Lift the fireplace front slightly and slide the metal safety strips under front bottom edge about 1½" (38 mm), allowing the remainder to extend in front of firebox. Overlap strips at least 1/2" (13 mm) to provide a positive joint. (Flat safety strips are packed with fireplace.) (Fig. 14)

Safety strips are used to ensure that any combustible materials in front of the fireplace are protected even though a noncombustible hearth extension is required.

If fireplace is to be elevated above the floor, a “Z” shaped metal safety strip must be fabricated and used to protect combustible surfaces in front of the fireplace. This “Z” shaped safety strip is not provided but must be fabricated of metal with each horizontal leg at least 1½" (38mm) wide and equal in length to the metals strips provided with the fireplace.

Note: Safety strips are not required over noncombustible floors where all supports at the base of the fireplace are noncombustible.

Four (4) nailing flanges are supplied with the fireplace (found on the fireplace hearth). To level the box and secure it firmly in place, remove the nailing flanges from the hearth and install at the sides of the fireplace as shown in Figure 15.

Installing Outside Air Kit

An outside air kit is installed in all BR/BC Series Fireplaces. If desired, or if local codes mandate the use of an air kit, then an AK-MST is required to complete the installation (from air kit to the outdoors). If the outside air kit is to be used, the AK-MST **MUST** be installed **BEFORE** the fireplace is enclosed. Refer to the AK-MST instructions for field installation.

NOTE: For Canada installations, model CCE-SK Chimney Collar Enclosure must be used on this fireplace with Model SK8 double wall chimney systems.

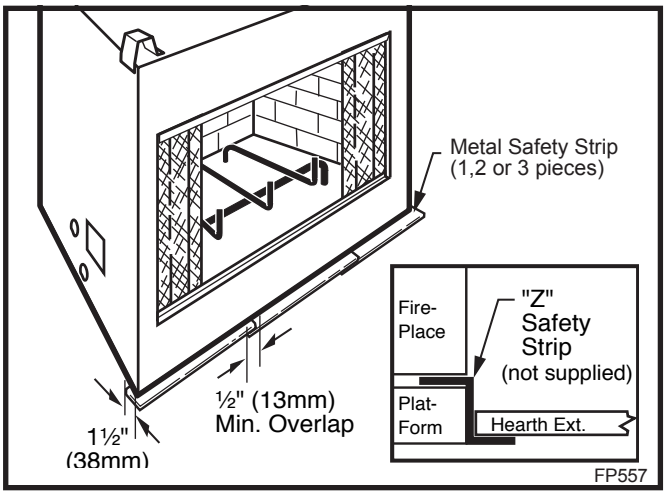


Fig. 14 Safety strip installation.

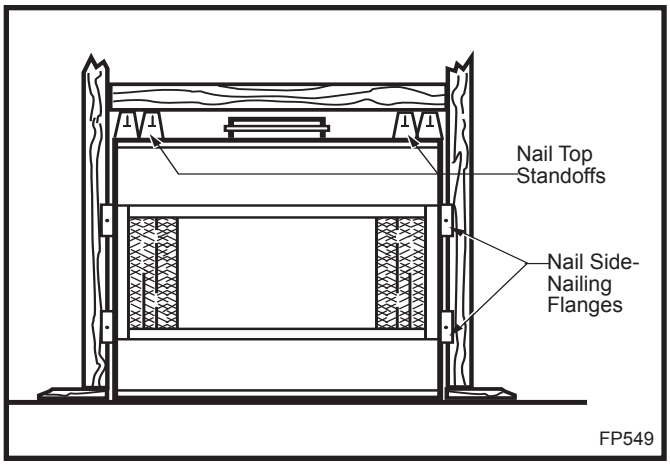


Fig. 15 Fasten fireplace in position.

Installing the Chimney System

Start by attaching the first chimney section to the collar on top of the fireplace.

Install the pipe as pictured in Figure 16. When you get a good lock, you will hear the pipe clearly snap together. Once sections are snap-locked in place, it is extremely difficult to get them apart. **Make sure the pipe is firmly snapped and locked together as each pipe section is mounted.**

When installing elbows, only outer pipe will snap- lock. Middle pipes simply slide into position. Be sure to always attach straps on upper elbow to a structural framing member. (Fig. 17)

Continue installing the pipe as required until pipe is installed up through the ceiling. At this point, you must install a firestop spacer.

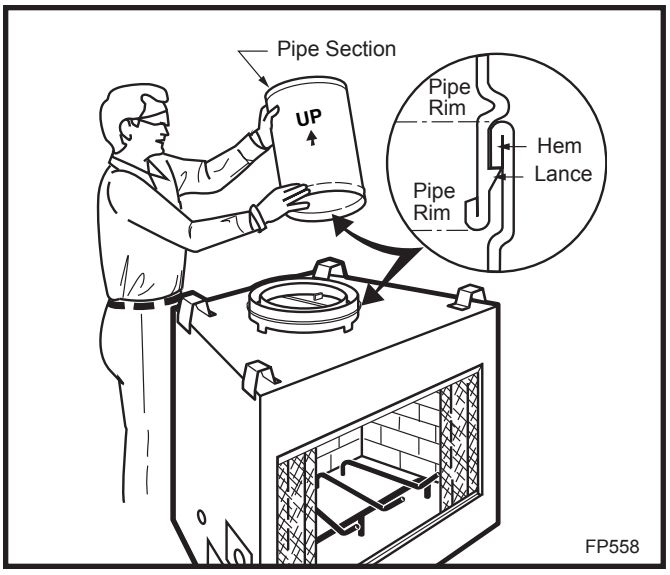


Fig. 16 Install pipe, listening for the snap-lock to fasten.

Installing the Firestop Spacer in the Ceiling Hole

A firestop spacer is used to keep pipe spaced properly and required for safety.

Nail the firestop spacer (at each corner) to the framing members of the ceiling hole. **NOTE:** A firestop spacer is not required at the roof.

Hole sizes listed in Figure 13 for angled firestop spacers provide minimum required air space to chimney pipe for ceiling thickness up to 8" (203 mm). When combined thickness of ceiling material, ceiling joists and flooring material exceeds 8" (203 mm), adjustments must be made in framing to assure that minimum air spaces to chimney are maintained.

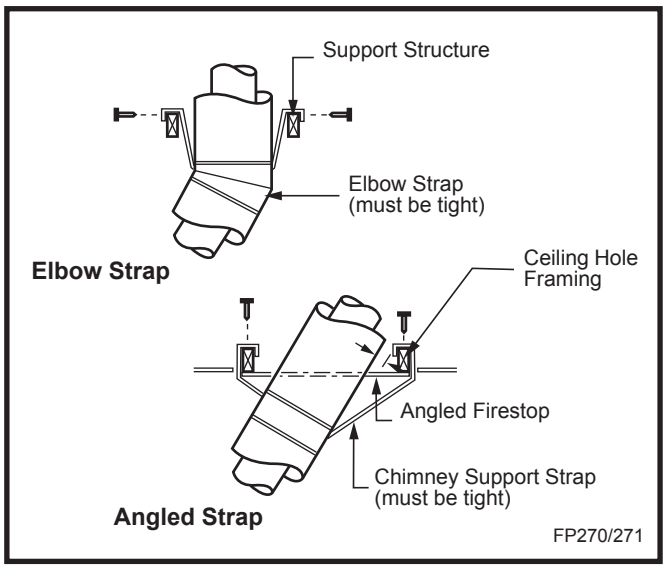


Fig. 17 Attach straps to a structural framing member.

Proper Firestop Spacer Installation

Figure 18 shows different installation procedures for both an area that *is* an attic and an area that *is not* an attic.

If the area above the ceiling **is not** an attic, position the firestop spacer with the flange on the ceiling side and the angled portion extending up into the hole.

If the area above the ceiling **is** an attic, position the firestop spacer with the flange on the top of the framed hole and the angled portion extending down into the hole.

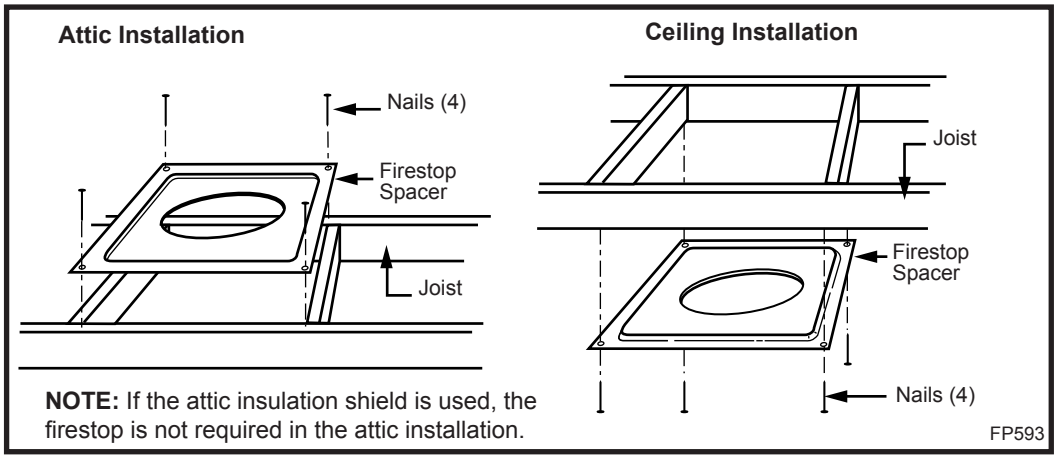


Fig. 18 Installing firestop spacer.

Firestop spacers are not available for nor are they required on vertical walls.

DO NOT put any sealant around the area where the outer pipe slides through the firestop spacer. If you seal this area, **it may cause a fire hazard.**

Canadian Requirements for Insulation Shield

In Canada, an attic insulation shield is required to prevent attic insulation from contacting the chimney section. **NOTE:** If the attic insulation shield is used, the firestop is not required in the attic installation. Framing dimensions for the chimney hole should measure 14½" x 14½" (368 x 368 mm). An attic shield MUST be installed on top of attic joists (above the floor level). (Fig. 19)

NOTE: In the U.S., it is a good idea, although not always required, to install an attic insulation shield where blown-in insulation is planned to be used in the attic.

Install the attic insulation shield with the flanges on its base extending down into the framing hole. Nail each corner of attic insulation shield to the framing members of the ceiling hole using 8d nails. Attic shields are not required at the roof.

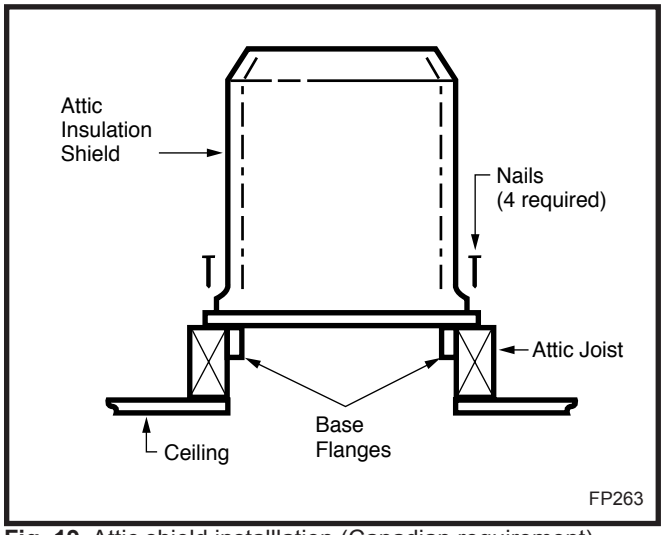


Fig. 19 Attic shield installlation (Canadian requirement).

Continue Installing Pipe to Complete Run

Continue attaching pipe sections to complete system to next level always being careful that the pipe is firmly snapped locked in place before proceeding to next pipe section.

Chimney Supports

If chimney supports are required, they are installed the same as elbows. Nail chimney support straps to adjacent structural framing, as shown on Figure 9, Page 8. Bend straps as necessary and make sure they are secure so they will support the weight of the chimney.

A chimney support is 2½" (64mm) long when installed. Consider this dimension when determining how many straight chimney sections are needed.

NOTE: Chimney supports are generally used in long runs in a chase installation.

Additional Ceilings

If you encounter additional ceilings, repeat same steps required for first ceiling installation. See firestop illustration on Page 12, Figure 18.

Penetrating the Roof

Run pipe to roofline. Since chimney system must be vented to the out-of-doors, you **must** use an approved termination.

If a chase is used, refer to the installation manual provided with the termination cap.

Locate Chimney Centerpoint On Roof

Use same procedure detailed in locating center point of the flue system.

Drive a nail up through roof at the center point. This will determine center point on outside of the roof.

Cut and Frame Roof Hole

Size of roof hole varies with the type of chimney termination installed. Refer to installation instructions provided with the chimney termination to find correct size of roof hole.

There must be a 1½" (38mm) air space between outermost portion of chimney sections and any adjacent combustible surfaces. (Combustible surfaces include burnable materials such as: ceiling members, joists, flooring, combustible insulation and roof structures.)

WARNING: DO NOT PACK REQUIRED AIR SPACES WITH INSULATION OR OTHER MATERIALS.

Mark an outline of the roof hole around the center of the point nail. **NOTE:** Hole dimensions given in the chimney top installation instructions are **horizontal** dimensions; therefore, the hole size must be marked on the roof accordingly.

Cover the opening of the installed chimney so debris cannot get into the system.

Cut and frame the hole. It is good practice to use framing lumber that is the same size as the rafters. Install the frame securely because the chimney top and flashing anchored to the frame must be able to withstand heavy winds.

Install Remainder of Chimney Sections

Since you have already preplanned the height of your termination according to the *Ten Foot Rule*, continue to install pipe to the predetermined height.

Check the chimney top installation instructions for details on how high above the roof top the chimney sections (all pipes) should extend.

Installing Top Housing or Termination

Follow the installation instructions provided with the chimney termination you have selected.

Installing Chimney In a Chase

Refer to Page 5, Figure 5 for an illustration of a typical chase installation.

CAUTION: Treatment of firestop spacers and construction of chase may vary with type of building. These instructions are not a substitute for local building codes. You **must** check your local building codes to determine specific requirements for your city or state. **NOTE:** Other building materials may be required in addition to Firestop Spacers.

Finishing

CAUTION: All joints between the finished wall and the fireplace surround (top/sides) must be sealed with noncombustible material to prevent cold air leakage into the room. Only noncombustible material may be applied to the facing of the fireplace surround. (Black painted area) (Fig. 20)

Finish Wall

Finish the wall with material of your choice. **Do not install a combustible mantel shelf less than 12" (305mm) from the top of the fireplace opening for radiant models and 12" (305mm) from top of grille opening for circulating models. Do not install a mantel face plate less than 6" (159mm) from top of fireplace opening for radiant models and 6" (159mm) from top of grille opening for circulating models.** (Fig. 22) If a combustible material is used below a flat mantel shelf, consult your local building codes for minimum clearance from top of fireplace opening to bottom of mantel shelf.

All joints (top, bottom and sides) where wall or decorative facing material meets fireplace surround must be completely sealed with a noncombustible material. (Figures 21 and 22)

NOTE: No side wall protection is required for fireplaces installed at 45° to two (2) side walls (corner installation).

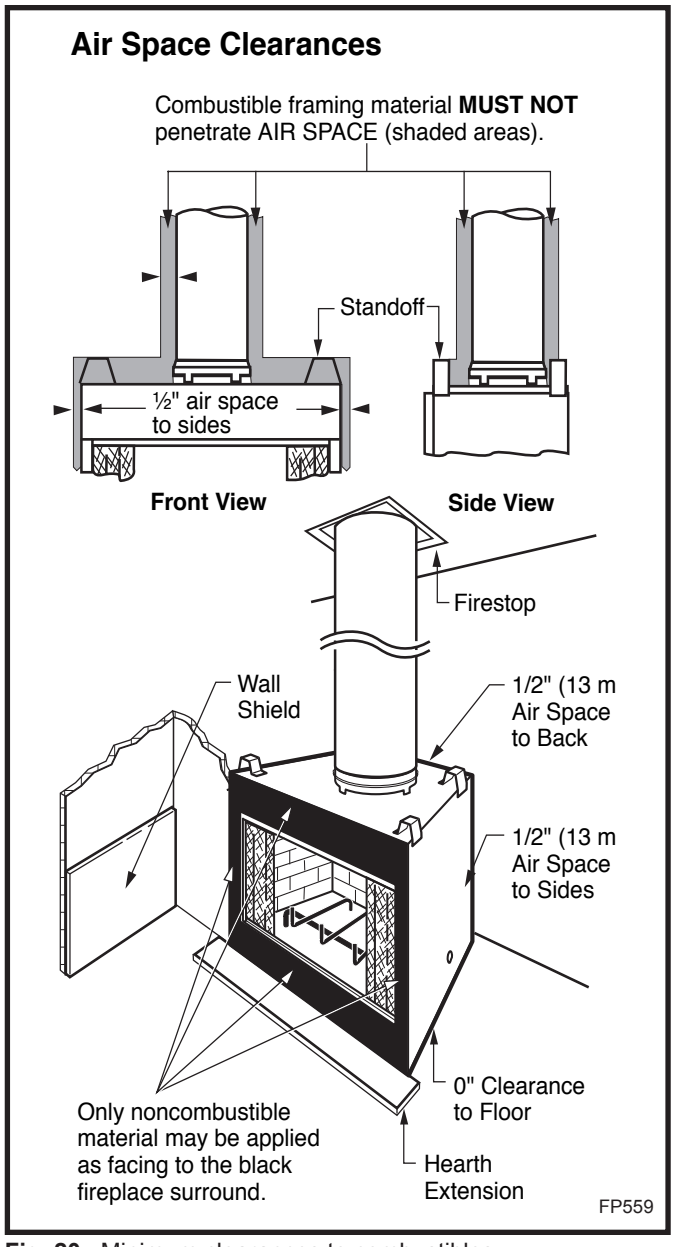


Fig. 20 Minimum clearances to combustibles.

Often a decorative surround or vertical portion of the mantel is desired. If this is constructed of any combustible material it must be within the safe zone indicated in Figure 23.

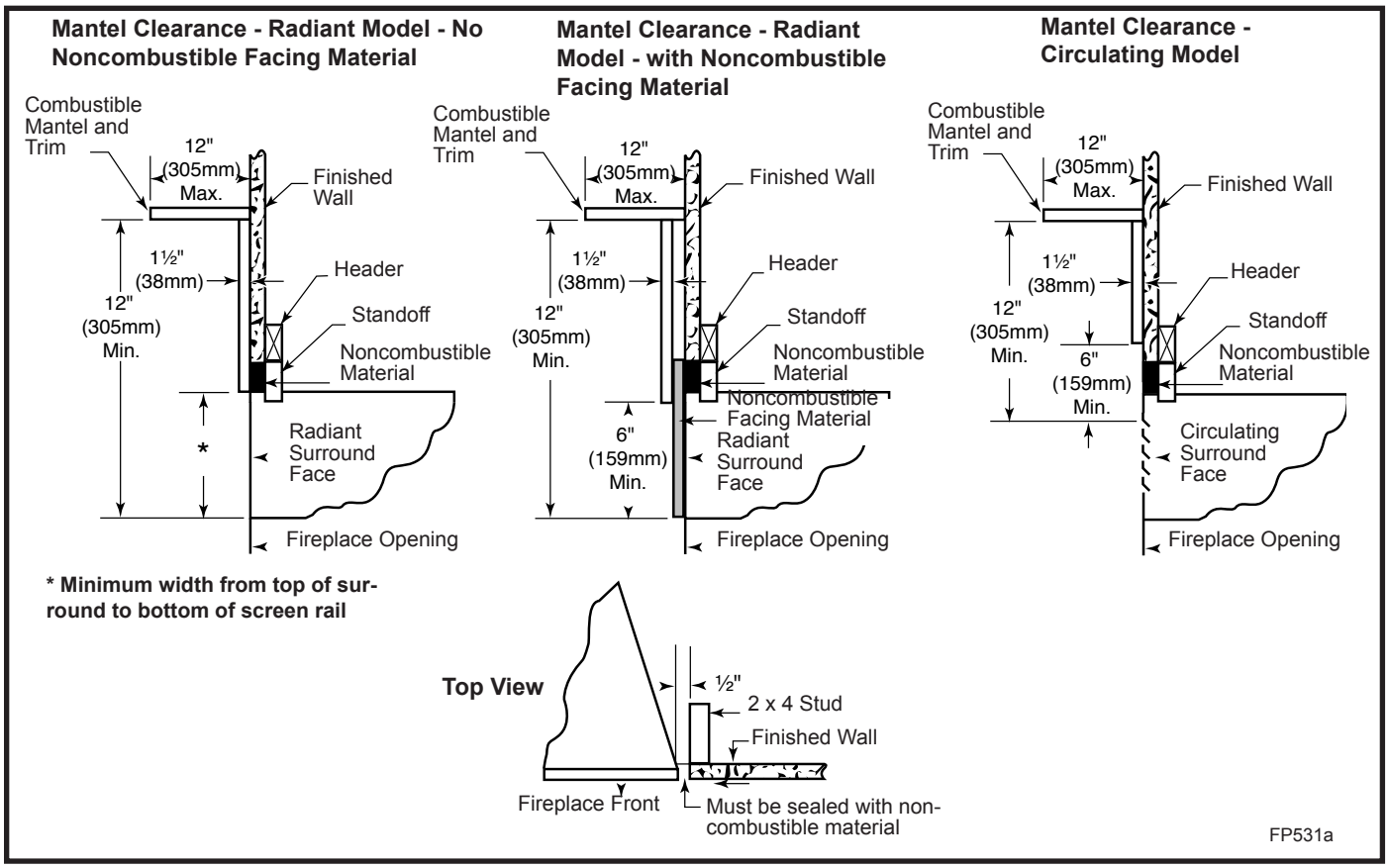


Fig. 21 Mantel clearances.

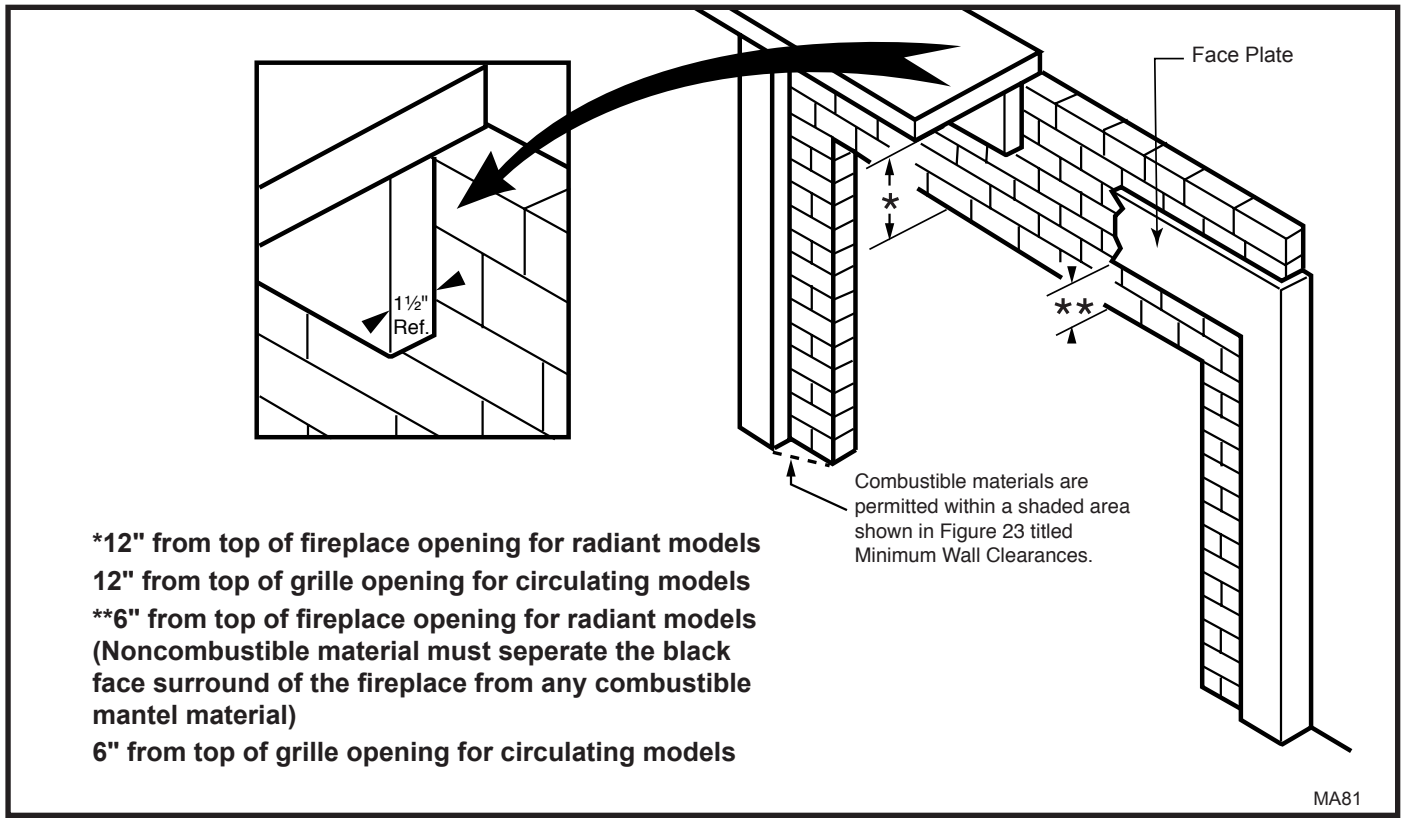


Fig. 22 Combustible mantel clearances.

Side Wall Protection

Adjacent combustible side walls that are within minimum dimensions shown in Figure 23 of the fireplace opening must be protected with MHSC Wall Shield Model SP40 or a specifically built wall shield described in Figure 20.

The special wall shield design described in Figure 20 is an alternate method of adding protection to side walls and can be used in place of the SP40 with the same wall clearances specified for the SP40. Rt must =1.85 minimum.

Examples of wall shield insulation:

1. Manville - CERAFORM 126, K=.27, 1/2 inches thick
2. MHSC - EH2416, K = .458, 1 inch thick required.

Hearth Installation

A hearth extension is required to protect a combustible floor in front of the fireplace. Refer to Figure 23 for minimum dimensions and mounting detail.

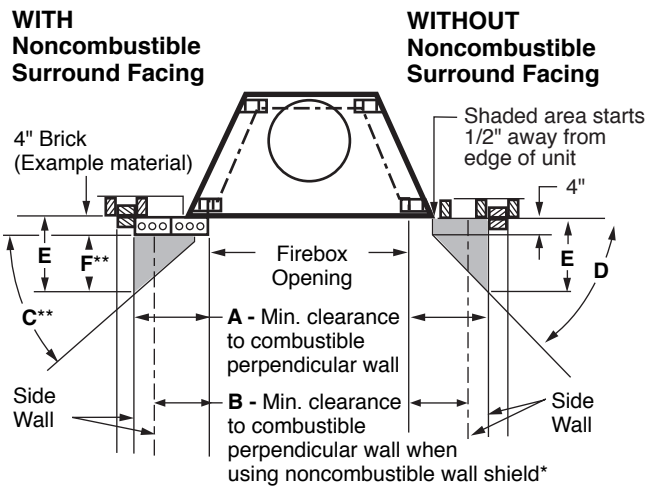
NOTE: Hearth Extension must not cover the air inlet opening of a fireplace.

The hearth extension described in Figure 23 must be a durable noncombustible material with a minimum (total) Rt value of 1.09; see Figure 24 for examples. The overall height (above a combustible floor), depth and width must be as indicated, with the extension centered to the fireplace opening.

The top of insulation must be covered with a noncombustible decorative covering **or** a piece of .018" minimum sheet metal, to protect hearth extension material. (Fig. 23)

Secure the hearth extension to the floor to prevent shifting, using trim molding or other similar means at three (3) outer edges. Seal crack between the fireplace hearth and hearth extension with a noncombustible material. (Figs. 23 and 25)

Minimum Wall Clearances



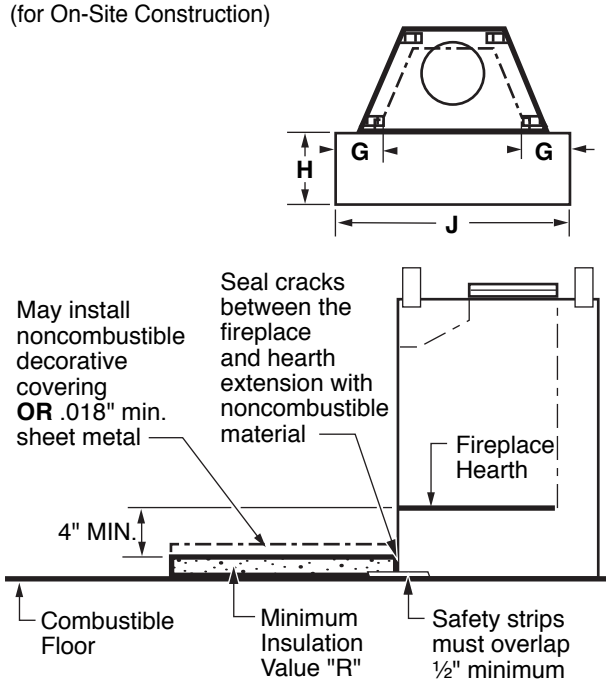
Combustible material permitted within shaded area.

* Noncombustible wall shield requires 1" CFM Corporation EH2416 insulation (minimum R Value = 1.85) between decorative noncombustible rigid covering and combustible wall. Minimum height and width is 40" x 40".

** Dimension/degree of angle will vary depending on thickness of noncombustible surround facing.

Minimum Hearth Extension Dimensions

(for On-Site Construction)



	A	B	C	D	E	F	G	H	J
BR/BC36	16" 406 mm	12" 305 mm	48°	41°	18" 457 mm	14" 356 mm	9" 229 mm	16" 406 mm	54" 1372 mm
BR/BC42	20" 508 mm	12" 305 mm	42°	35°	18" 457 mm	14" 356 mm	12" 305 mm	20" 508 mm	66" 1676 mm

FP594

Fig. 23 Combustible side wall protection and hearth extension dimensions.

WARNING: HEARTH EXTENSION MUST BE INSTALLED IN ACCORDANCE WITH FIGURE 23 AND MUST NOT COVER THE BOTTOM FRONT OPENING OF THE CIRCULATING MODEL.

Alternate noncombustible materials may be used providing the (total) thermal resistance (Rt value) of the alternate material employed is greater than or equal to R = 1.09 Thermal resistance (R) or thermal conductivity (K), may be obtained from manufacturer of the material. Factors are related by the formula K = 1/R. (Fig. 24)

T = given thickness
R = thermal resistance for a given thickness (T)
K = thermal conductivity

Noncombustible material with a lower R value may be used, provided thickness of material is sufficiently greater to maintain an equivalent (total) thermal resistance (Rt).

COMMON MATERIALS AND FACTORS

MATERIAL	K*	R	MINIMUM THICKNESS
EH2416 *(CFM Corporation)*	0.458	1.09	0.50 in.**
Common Brick	5.0	0.10	5.46 in.**

R Value is for 1/2 inch.
* Units of K = BTU/SQ FT/HR/˚F/IN
** Thickness of Listed Material

FP533ADD

Fig. 24 Hearth extension material factors.

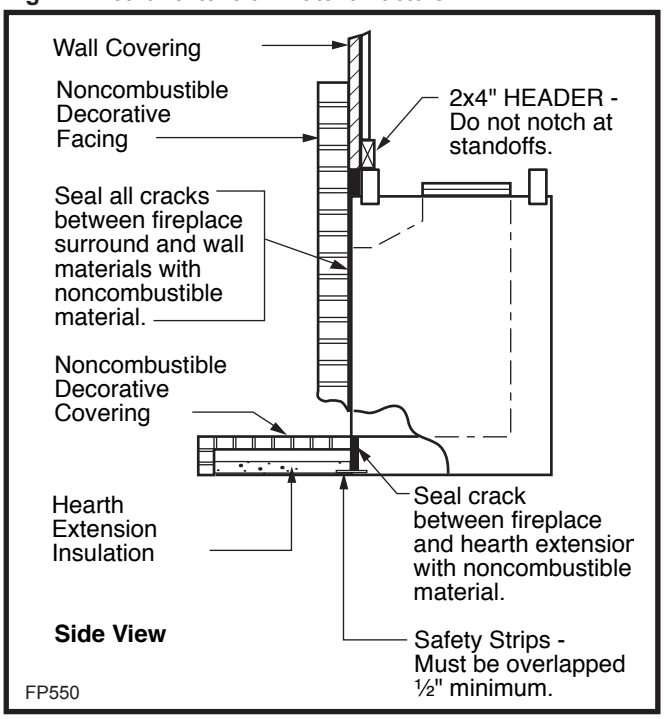


Fig. 25 Sealing gaps.

Example of Determining Hearth Extension Equivalents

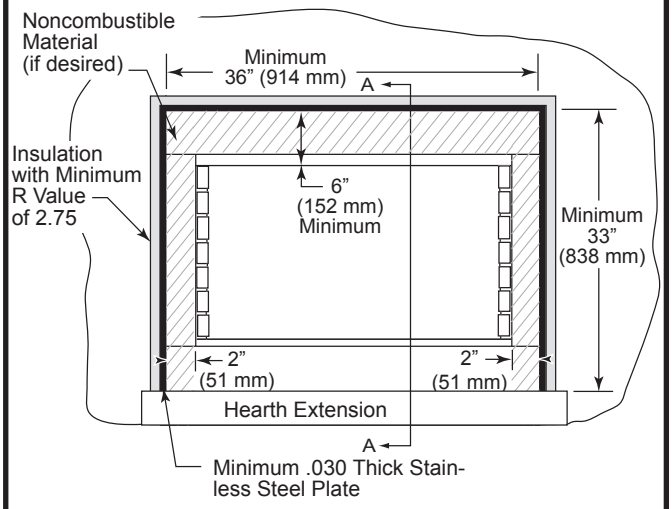
To determine the thickness required for any **new** material:

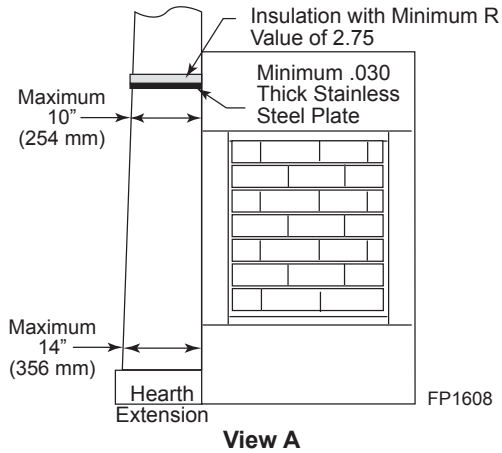
NEW required thickness of listed material = (K of new material (per inch) / K of listed material (per inch)) X thickness of material

Example for Common Brick

T (new) = 5.0/0.458 x 0.50 in. = **5.46 in.** (new required thickness).

Recessed Installation - BR/BC36 Only





View A

NOTE: If noncombustible material is not used between the stainless steel plate and fireplace opening, the steel must be attached to the front of the unit a minimum of four (4) places on each piece with sheet metal screws no longer than 1/2".

NOTE: The size of the insulation and stainless steel plate must be within limits stated above and covers all combustible framing material.

Fig. 26 Recessed installation.

Installing Line For Gas Log

MHSC fireplaces are designed to accept a 1/2 inch gas line for installation of an approved gas appliance. (MHSC manufactures a wide variety of gas logs for use in MHSC fireplaces.)

Be sure to have the appliance installed in accordance with building codes.

Gas connection may enter from either left or right side of the fireplace.

Locate appropriate gas line in the outer casing of fireplace and remove insulation from gas line tube. (Fig. 27)

From inside the fireplace, locate the knockout on the firebrick -- be sure you are on the appropriate or "gas line" side of the fireplace. Using a flat bladed screwdriver or small chisel and hammer, carefully tap around the knockout until it loosens and falls out.

Install 1/2 inch certified gas pipe through opening. After gas pipe installation is complete, use insulation that was removed from gas line tube to repack space around the pipe. Material should be inserted from outside of the fireplace and packed tightly to totally seal between the pipe and tube.

Note: Gas pipe should not come in contact with any wood structures until it has reached a point at least one (1) inch away from fireplace side.

NOTE: When installing an ANSI Z21.11.2 ventless appliance, the finishing material used for the mantel must be rated at 250°F or greater.

BTU input of a gas appliance installed in fireplace should be rated less than 100,000 BTU/Hr.

Gas pipe installation is intended for connection to a decorative gas appliance only when (1.) incorporating an automatic shutoff device and (2.) complying with the Standard for Decorative Gas Appliances for Installation in Vented Fireplaces (ANSI Z21.60) **or** CSA draft requirements for Gas-Fired Log Lighters for Woodburning Fireplaces (Draft No. 4, August 1993).

Decorative gas appliance should be installed in accordance with the National Fuel Gas Code, ANSI Z223.1/ NFPA 54 (latest edition).

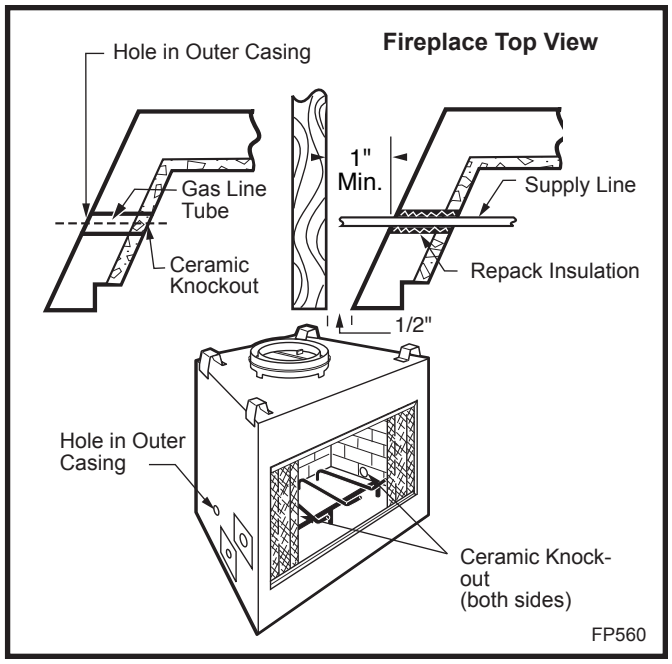


Fig. 27 Gas line access.

CAUTION: WHEN USING DECORATIVE GAS APPLIANCE, FLUE DAMPER MUST BE SET IN FULLY OPEN POSITION. IF YOU HAVE GLASS DOORS ON THE FIREPLACE, THEY MUST ALSO BE FULLY OPENED.

WARNING: DO NOT OPERATE AN UNVENTED GAS LOG SET IN THIS FIREPLACE WITH THE CHIMNEY REMOVED.

WARNING: WHEN INSTALLING AN UNVENTED GAS LOG SET, THE MHSC MODEL CABL OR CABR 4" ADJUSTABLE HOOD MUST BE USED.

Only unvented gas log sets which have been found to comply with the Standard for Unvented Room Heaters, ANSI Z21.11.2, are to be installed in this fireplace.