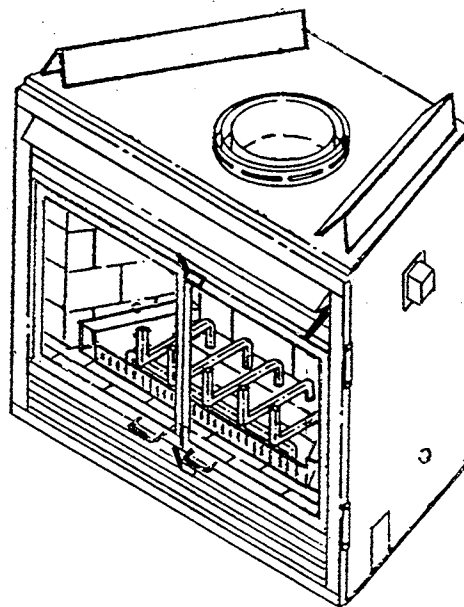


# INSTALLATION AND OPERATING INSTRUCTIONS FOR THE CBS-41 FACTORY BUILT FIREPLACE SYSTEM



This appliance has been retired.  
Service parts pages within have been removed.  
For replacement parts, please refer to the individual  
service parts list located on the brand websites.



**IMPORTANT:** Read all instructions carefully before starting installation. Failure to follow these installation instructions may result in a possible fire hazard and will void the Heat-N-Glo warranty.

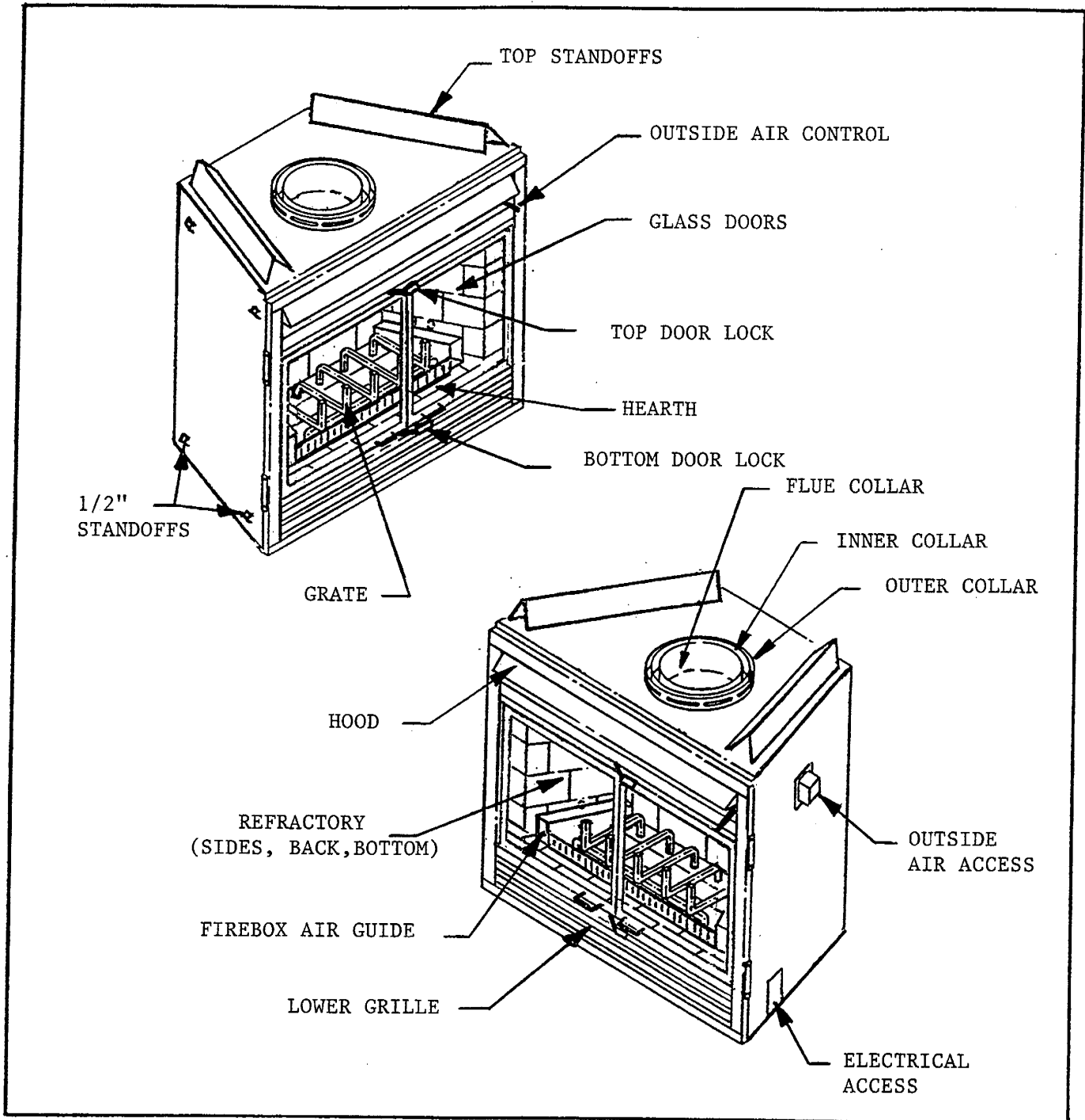
Save this manual for future reference.

Tested by Warnock Hersey, Inc. to U.S.A. EPA 40 CFR 60-1990 and Oregon DEQ.  
Listed by Warnock Hersey, Inc. to UL127 and ULC S610  
Tested by Underwriters Laboratories, Inc. to UL-127



030-981-C 11/98





**Fig. 1 Parts of the Heat-N-Glo CBS-41 Fireplace System**

**Table of Contents**

	<b>Page</b>
Identification of Parts	1
Installation Precautions	2
Installation Instructions	2
Reference Data	14
Operating Instructions	17
Operating Precautions	18
System Maintenance	18
Accessory Parts	20

## INSTALLATION INSTRUCTIONS

This Heat-N-Glo Fireplace system and its components have been tested and will operate safely when installed in accordance with this Installation Manual. Read all instructions before starting installation, then follow these instructions carefully during installation to maximize fireplace benefit and safety.

Report to your dealer any parts damaged in shipment.

Since this fireplace and chimney assembly is a highly engineered system, unless you use Heat-N-Glo, Equus, Security, or Oliver-MacLeod components which have been designed for the system, you may create a possible fire hazard.

**The Heat-N-Glo warranty will be voided by, and Heat-N-Glo disclaims any responsibility for, the following actions:**

- **Installation of any damaged fireplace or chimney component;**
- **Modification of the fireplace, chimney assembly or any of the component parts thereof; (except for chase flashings as detailed in their individual installation instructions.)**
- **Installation other than as instructed by Heat-N-Glo; or**
- **Installation on and/or use of any component part or accessory not manufactured or approved by Heat-N-Glo in combination or assembly with a Heat-N-Glo fireplace system, notwithstanding any independent testing laboratory or other third party approval of such component part or accessory.**

**Any such action may create a possible fire hazard.**

Consult your local building codes.

This fireplace and chimney system must be vented out-of-doors.

Do not obstruct or modify air inlet/outlet grilles in any manner.

**Do not install combustible materials onto the black fireplace surround.**

**Burn solid wood fuel only.**

**Do not install a fireplace insert or other products not specified for use with this fireplace.**

**THE CBS-41 FIREPLACE SYSTEM IS NOT APPROVED FOR INSTALLATION IN MOBILE HOMES.**

Prior to first firing, read this manual completely.

### WARNING

**THIS FIREPLACE WAS NOT TESTED BY THE FIREPLACE MANUFACTURER FOR USE WITH AN UNVENTED GAS LOG HEATER. DO NOT INSTALL AN UNVENTED GAS LOG HEATER IN THIS FIREPLACE. A HAZARD MAY BE CREATED THAT CAN RESULT IN A STRUCTURE FIRE.**

## INSTALLATION INSTRUCTIONS

### A. INSTALLING THE FIREPLACE

#### A-1. CHECK HOW ACCESSORIES ARE INSTALLED

Determine where selected accessories fit into this fireplace installation procedure by checking the installation instructions provided with each accessory. See Accessory Parts section.

**NOTE: The outside air system and electrical junction box cannot be installed after the fireplace is completely installed.**

#### A-2. DETERMINE FIREPLACE LOCATION

The fireplace can be mounted on any of the following surfaces:

- 1) A flat, hard, combustible surface.
- 2) a raised wooden platform.
- 3) On four (4) corners of the fireplace so contact is made on all five (5) dimples and perimeter edges on the bottom of the unit.

The fireplace must maintain a 1/2 inch air space at back and 1/2 inch air space at sides to combustible materials and insulation. Nearby combustible floors and walls must be protected as detailed in Section G.

Be aware that in some installations, if you install the fireplace with 1/2-inch clearance from the fireplace back to a combustible material, this will not always provide for proper pipe clearance to combustibles. Make sure you are aware of the clearance.

Refer to Air Space Data and Dimensions sections of this manual to be sure that the location which you have selected for your fireplace provides for clearance and framing restrictions.

At this point you should have decided what components to include in your installation, where the fireplace is to be located, and how the chimney will be mounted to the roof (straight-up, offset, or chase\*). If this has not been done, stop and consult your Heat-N-Glo Dealer for assistance with this planning.

\* A chase is a vertical box-like structure which encloses the fireplace and/or its chimney, typically built on the outside of the house with the fireplace opening cut in the outer wall of the home.

Note that the installed length of any chimney section is less than its total length (except for the last section installed), because of its overlap at joints. (See Fig.2.)

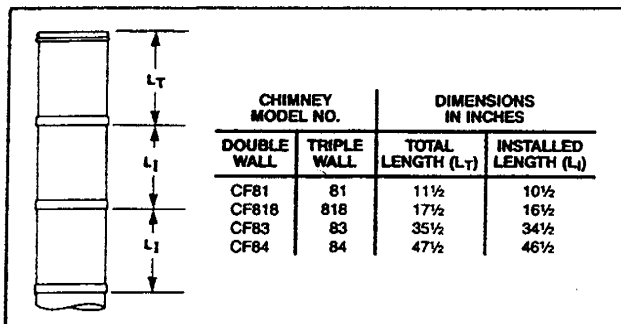


FIGURE 2

**□ A-3. INSTALL METAL SAFETY STRIPS UNDER FIREPLACE**

See Step F, Insulating Fireplace Enclosure for Cold Climates, before completing Step A-3.

Thoroughly clean intended fireplace location area. Move fireplace to the location where it is going to be installed. Lift fireplace front slightly to slide metal safety strip(s) under front bottom edge about 1 1/2 inches, allowing the remainder to extend out in front of the fireplace. Overlap the strips at least 1/2 inch to provide a positive joint. (see Fig.3.) (Safety strips are packed with fireplace.)

In the event the fireplace is elevated above the floor, a "Z" shaped metal safety strip should 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 1 1/2 inches wide — equal in length to the metal strips provided with each fireplace.

When positioning the fireplace on all mounting surfaces (see Step A-2), the metal safety strips must be installed as described above to provide protection to combustibles (burnable) surfaces in front of the fireplace.

**NOTE:** Safety strip is not required over non-combustible floors where all supports at the base of the fireplace are non-combustible.

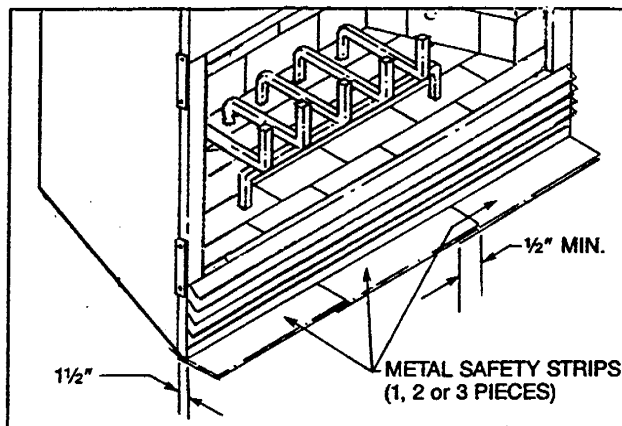


FIGURE 3

**□ A-4. ANCHOR FIREPLACE IN POSITION**

To prevent shifting of the fireplace and to maintain sealing (described later), anchor the fireplace. Two methods are possible on the CBS-41. One method is to use the side fastening tabs on the fireplace. (See Fig.4.) The fireplace can then be secured to the vertical framing members. Refer to Framing and Finishing Section G. The second method requires pounding a nail through the lower hem of the fireplace into the floor.

**NOTE:** Be certain that the unit is square before anchoring it in place with framing members.

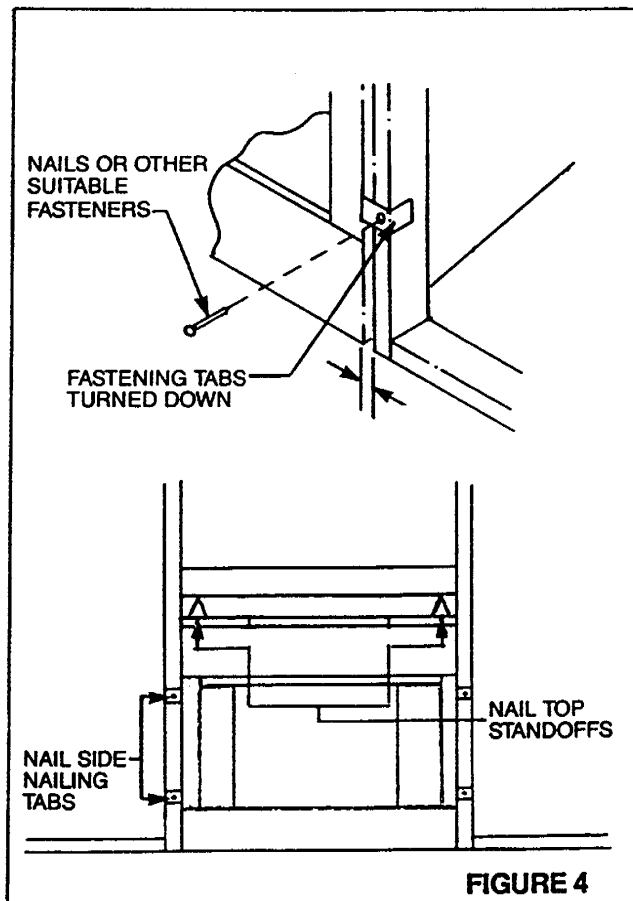


FIGURE 4

## B. INSTALLING THE CHIMNEY

**NOTE: REFER TO OLIVER-MACLEOD OR SECURITY MANUALS FOR PART NUMBERS AND INSTALLATION LENGTH DIMENSIONS WHENEVER REFERENCES TO PIPE ARE MADE.**

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

For purposes of clarification, throughout this manual all HEAT-N-GLO chimney components and Equus chimney components have identical model numbers, except Equus does not have an H prefix.

**NOTE:** The CBS-41 fireplace system may use HEAT-N-GLO Model HCF or Model HSK, 2-wall chimney components HEAT-N-GLO Model HS, 3-wall chimney components, Oliver MacLeod model HT3103 8" chimney components, or Security model ASHT 8" chimney components. The installation procedure described in Section B (Installing the Chimney), applies to all systems. Any system may be used, but chimney components may not be mixed. Refer to Security or Oliver-MacLeod installation manual for installed length dimensions.

When using either a 2 wall or 3 wall chimney system in CANADA, a chimney collar enclosure MUST be used. This enclosure kit is installed to the outer top of the fireplace and provides outside air to assist in cooling the chimney system during fireplace operation.

### B-1. LOCATE CENTERPOINT OF CHIMNEY-STRAIGHT UP INSTALLATION

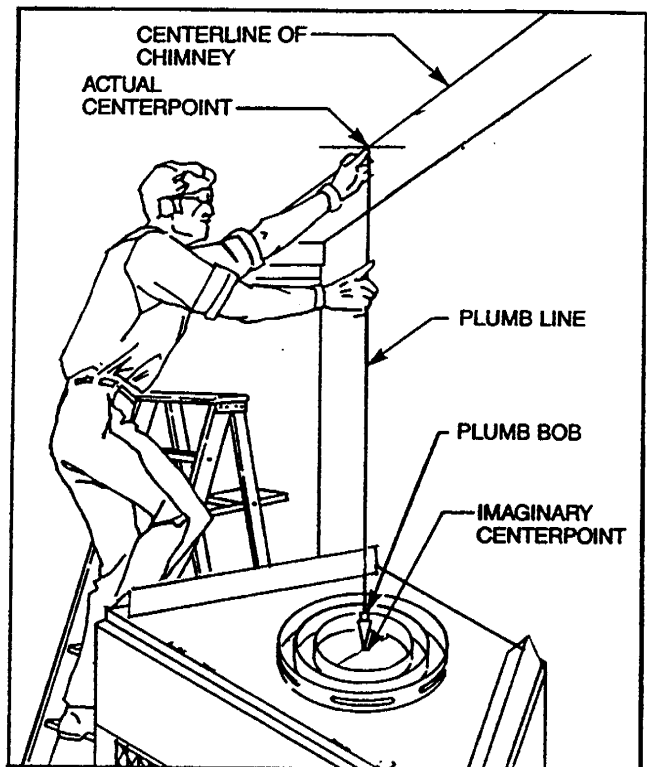
To locate the centerpoint of a chimney, position a plumb bob directly over the centerpoint of the fireplace flue collar, mark the ceiling to establish the chimney centerpoint. (See Fig. 5.)

### B-2. LOCATE CENTERPOINT OF CHIMNEY-OFFSET INSTALLATION

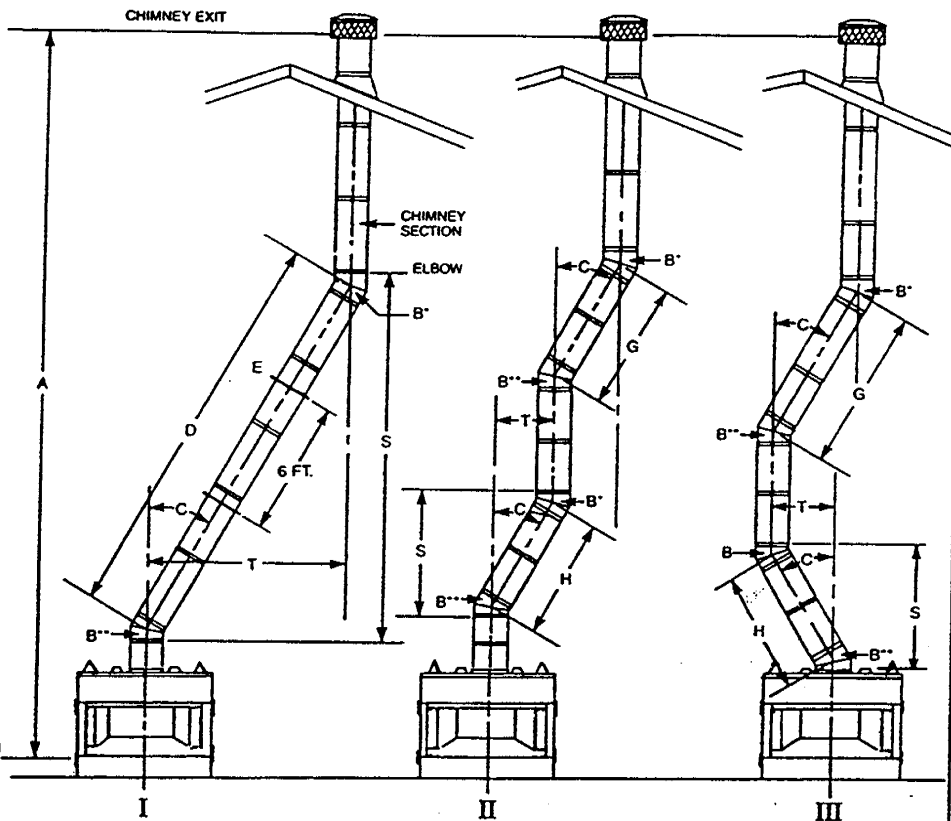
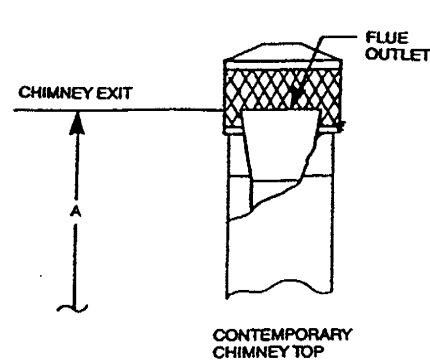
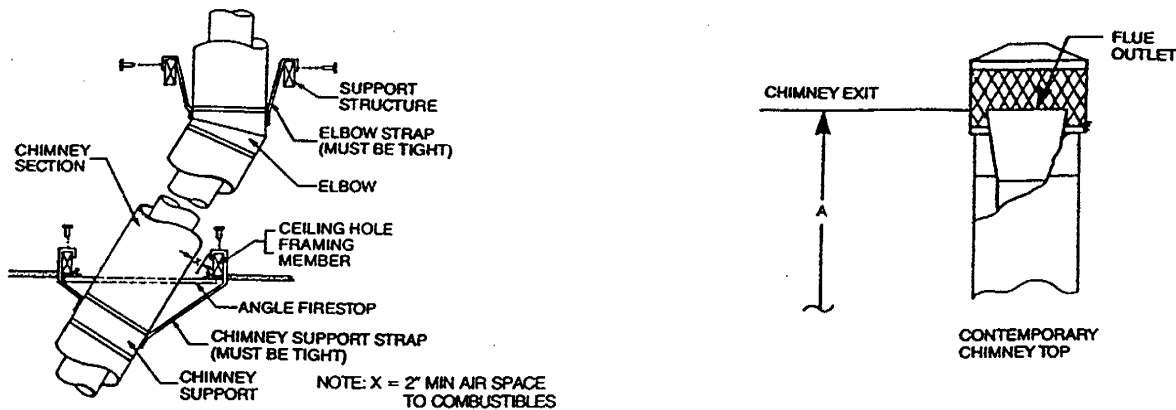
In order to clear an obstruction or provide for proper combustible clearances, it may be necessary to offset the chimney from the vertical plane. This is done by using listed Chimney Elbows. Each offset requires a pair of elbows. Use Table 1 and Fig. 6 to determine the offset that may be obtained using the various elbows. In some installations, back to back offsets must be off the top of the fireplace to provide minimum pipe clearance to combustibles. The following safety rules apply to offset installations. (The letters below match the letters in Fig.6)

**TABLE 1**

	DIMENSIONS	
	T	S
	CF830A or 830A	CF830A or 830A
No Intermediate Section	0'3"	0'11"
One 1' Section	0'8¼"	1'8"
One 1½' Section	0'11¼"	2'1¼"
Two 1' Sections	1'1½"	2'5¼"
One 1' and One 1½' Section	1'4½"	2'10¼"
One 3' Section	1'8¼"	3'4¾"
Two 1' and One 1½' Sections	1'9¾"	3'7½"
One 4' Section	2'2¼"	4'3¼"
One 3' and One 1½' Section	2'4¼"	4'7¼"
One 4' and One 1' Section	2'7½"	5'0¼"
One 1', One 3' and One 1½' Section	2'10½"	5'5½"
Two 3' Sections	3'1½"	5'10¾"



**FIGURE 5**



**ELBOW OFFSETS**

1'	1½'	3'	4'	Chimney Support	Offset	Rise
0	0	0	0	0	0	11"
0	1	0	0	0	3"	20"
0	1	0	0	0	8¼"	25¼"
0	2	0	0	0	11½"	29¼"
0	1	0	0	0	13½"	34¼"
0	2	0	0	0	16½"	40¼"
0	1	0	0	0	20¼"	43½"
0	2	0	0	0	21¾"	51¼"
0	1	0	0	0	26¼"	55¼"
0	2	0	0	0	28½"	60¼"
0	1	0	0	0	31½"	65½"
0	2	0	0	0	34½"	70¼"
0	1	0	0	0	37½"	77¼"
0	2	0	0	0	41½"	83¼"
0	1	0	0	1	45"	87½"
0	2	0	0	1	47¼"	94"
0	1	0	0	1	51"	98"
0	2	0	0	1	53¼"	103¼"
0	1	0	0	1	56¼"	106½"
0	2	0	0	1	59¼"	113½"
0	1	0	0	1	62¼"	117½"
0	2	0	0	1	64½"	124"
0	1	0	0	1	68¼"	128"
0	2	0	0	1	70½"	134¼"
0	1	0	0	2	74¼"	140¼"
0	2	0	0	2	78"	146"
0	1	0	0	2	81"	151¼"
0	2	0	0	2	84"	156½"
0	1	0	0	2	87"	160¼"
0	2	0	0	2	89¼"	166¼"
0	1	0	0	2	93"	170¼"
0	2	0	0	2	95¼"	177¼"
0	1	0	0	2	99¼"	181¼"
0	2	0	0	2	101¼"	186¼"
0	1	0	0	2	104¼"	191½"
0	2	0	0	2	107¼"	196¼"
0	1	0	0	2	110¼"	203¼"
0	2	0	0	2	114"	209¼"
0	1	0	0	3	117¼"	213½"
0	2	0	0	3	120"	

**FIGURE 6**

NOTE: G + H CANNOT EXCEED 20'

A. Height of the chimney measured from the hearth to the chimney exit at top:

MODEL:	CBS-41
Maximum:	90 Feet
Minimum:	
Without Elbow	14 Ft. 6 In.
With 2 Elbows	14 Ft. 6 In.
With 4 Elbows	24 Ft. 6 In.

B. Do not use more than four elbows per chimney. Attach the straps of the top elbows to a structural framing member. The first elbow of any pair does not have straps.

C. The chimney cannot be more than 30 degrees from the vertical plane.

D. The maximum length of the angled run of the total chimney system is 20 feet. (G plus H cannot exceed 20 feet.) For Oliver-MacLeod or Security pipe, refer to their respective manuals.

E. A chimney support is required every 6 feet of angled run of chimney. Chimney supports are required at 30 feet and 60 feet of chimney height above the hearth also.

Locate on the ceiling the centerpoint of the chimney, as though a straight up chimney arrangement is to be used, by following the procedure outlined in Step B. Then measure your offset dimension from the actual chimney centerpoint on the ceiling. (Fig.7.)

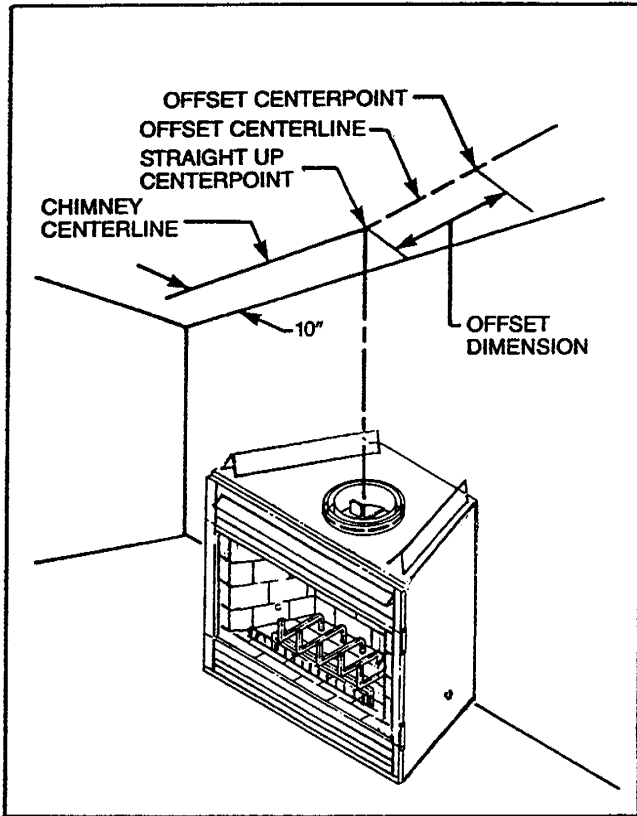


FIGURE 7

**B-3. MARK AREA OF CEILING CHIMNEY HOLE**

The size of the ceiling chimney hole will vary with the angle at which the chimney passes through the ceiling. Refer to Table 2.

Drive a nail up through the ceiling at the marked chimney centerpoint. Go to the floor above and check where the hole will be cut, relative to the ceiling joists and any obstructions such as wiring or plumbing runs. If necessary, re-position the chimney and/or the fireplace to better accommodate these joists and/or obstructions.

**B-4. CUT CEILING CHIMNEY HOLE**

After covering the opening of the fireplace collar, cut the chimney hole through the ceiling. Recheck the hole to be sure that it measures the hole size selected from Table 2.

For Oliver-MacLeod and Security pipe, refer to their respective instruction manuals.

TABLE 2

Type of Chimney	Angle of chimney at ceiling	
	Vertical	30°
HCF & HS	17 1/2 X 17 1/2	17 7/8 X 29 5/8
HSK	14 1/2 x 14 1/2	14 1/2 X 25 1/2

**B-5. FRAME CEILING CHIMNEY HOLE**

Frame the ceiling chimney hole as shown in Fig.8. It is good practice to use framing lumber that is the same size as the ceiling joists. (This is a requirement at the attic level.)

The inside dimension of the framing must be the same as the hole size selected from Table 2 in order to provide the required 2 inch air space between the outside diameter of the chimney and the edges of the framed ceiling hole for CF and S-series pipe, 1 1/2 inch clearance is required for SK pipe.

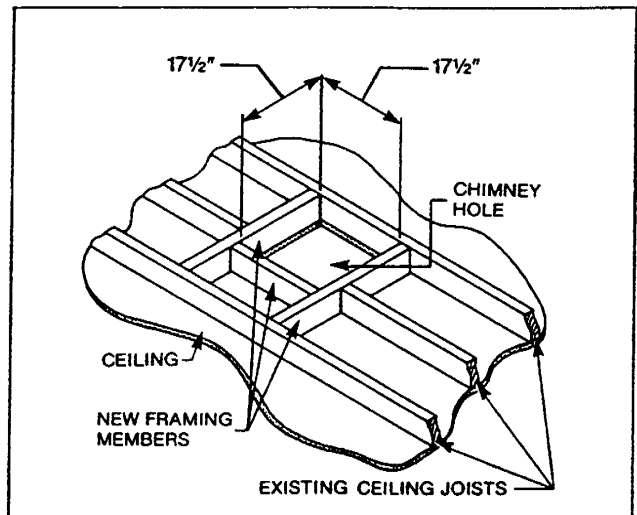


FIGURE 8

**B-6. INSTALL FIRESTOP SPACER**

Firestop spacers are required for safety. The hole sizes listed in Table 2 for angled firestop spacers provide the minimum required air space to the chimney pipe for ceiling thicknesses up to 8 inches. When the combined thickness of the ceiling material, ceiling joists and flooring material exceeds 8 inches, adjustments must be made in the framing to assure that the minimum air spaces to the chimney are maintained.

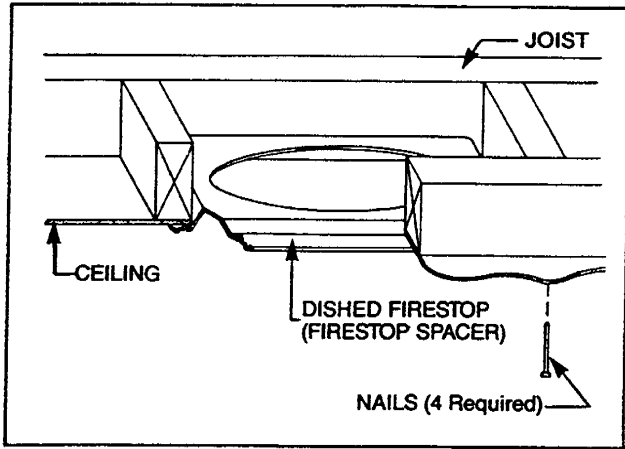
If the area above the ceiling is not an attic, position the firestop spacer with the flange on the ceiling side and the dished or angled portion extending up into the hole. (See Fig.9.) If the area above the ceiling is an attic, an attic insulation shield MUST be installed. Nail each corner of the firestop spacer to the framing members of the ceiling hole.



**TABLE 3**

TYPE FLUE	TYPE OF SPACER	MODEL NO.	
8" straight	Dished	HS & HCF FS2A	SK HSKS2A
8" 30° inclined	Angled	FS6A	HSKFS6A

For Oliver-MacLeod and Security pipe, refer to their respective instruction manuals.

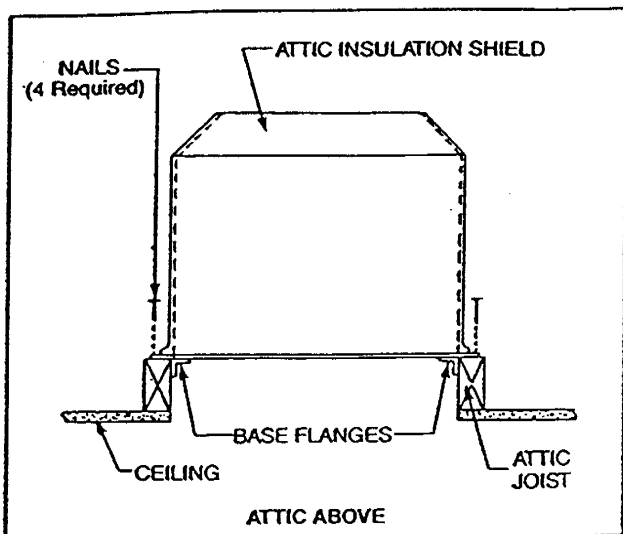


**FIGURE 9**

**□ B-6.1 INSTALLING ATTIC INSULATION SHIELD**

The attic insulation shield is required for safety to prevent attic insulation from contacting the chimney section. The framing dimensions for the chimney hole are shown in Table 2. The attic insulation shield **MUST** be installed on top of the attic joists (above floor joist level). (See Fig. 10.) Install the attic insulation shield with the flanges on its base extending down into the framing hole. (See Fig. 10.) Nail each corner of the attic insulation shield to the framing members of the ceiling hole using 8d nails.

**NOTE:** A firestop or attic insulation shield are not required at the roof.



**FIGURE 10**

**□ B-7. ATTACH CHIMNEY SECTIONS**

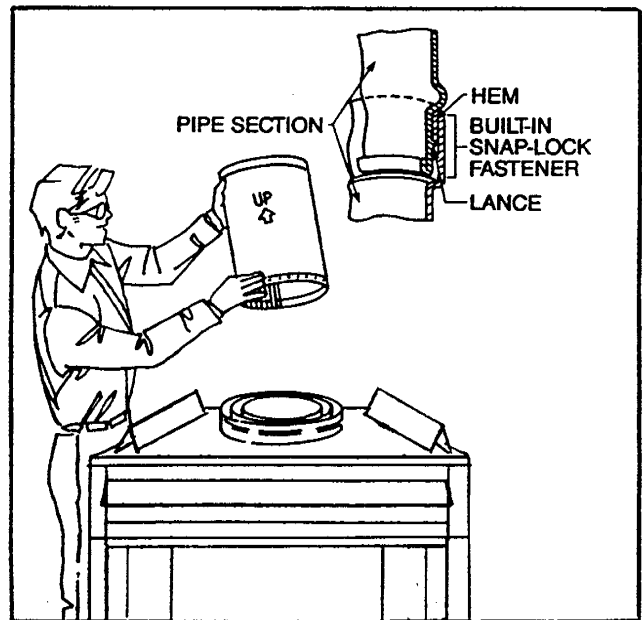
Attach the first straight chimney section to the fireplace collar, or if offset installation, attach elbow to the fireplace collar. (Refer to Step B-8.) Mount the flue pipe first, using the built-in snap-lock fasteners. (See Fig. 11.) Then mount the additional pipe(s). Position each pipe section so the direction arrow is pointing UP. Make sure each pipe is firmly snapped and locked together as it is mounted.

Continue installing chimney sections until **ONE SECTION** (all pipes) extends up through the ceiling hole. To extend through the ceiling, it may be necessary to assemble all pipes, push them up through the ceiling hole and then slide them down one at a time to connect them.

Note that Security and Oliver-MacLeod pipe segments twist lock together. It is good practice to also screw each section with sheet metal screws whenever possible.

**□ B-8. ATTACH FIRST ELBOW-OFFSET INSTALLATION**

If the first elbow is not to be attached to the fireplace, install chimney sections as required. Attach first elbow where required. Note that only the outer pipe snap-locks. Attach the straps of all upper elbows to a structural framing member. (See Fig. 6.)



**FIGURE 11**

**B-9. DETERMINE HOW MANY CHIMNEY SUPPORTS ARE NEEDED**

The chimney system is supported by the fireplace for chimney heights less than 30 feet of vertical height above the hearth. Chimney supports are required if the chimney height exceeds 30 feet. Locate chimney supports at ceiling holes or other structural framing at 30 foot heights. Spacing between chimney supports must not exceed 30 feet for Heat-N-Glo or Equus pipe, 15 feet for Oliver-MacLeod and Security Systems. Use HEAT-N-GLO Chimney Support Models HTCS8A or SHCS-8. (NOTE: The chimney supports can not be mounted directly to the fireplace.) Support provided by elbow straps fulfills the support requirement only if they are spaced as required above.

Angled chimney runs require support every 6 feet in addition to the elbow straps. HEAT-N-GLO chimney supports are used for this function. Refer to Step B-2 to determine how many chimney supports are needed and where they will be placed in the chimney run.

**NOTE:** A chimney support is 2 1/2 inches long when installed. This dimension must be considered when determining how many straight chimney sections are needed to provide the desired offset. Refer to Oliver-MacLeod and Security manuals for their specifications.

**B-10. INSTALL CHIMNEY SUPPORTS**

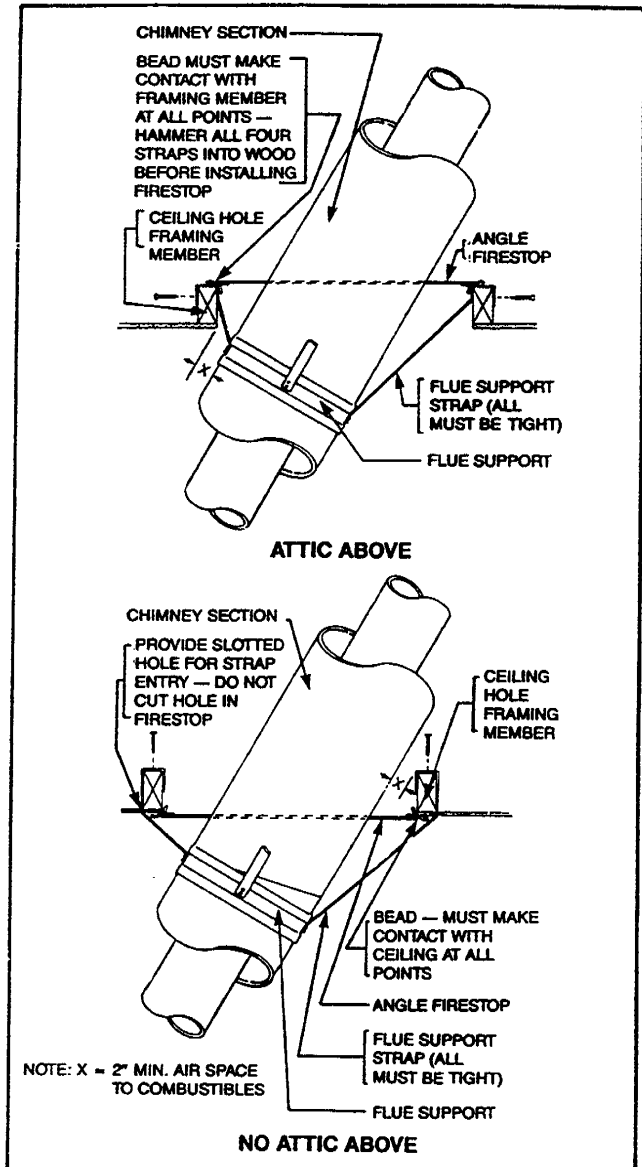
Chimney supports are attached to chimney sections the same way elbows are attached. Refer to Step B-8. Nail the chimney support straps to adjacent structural framing, as shown in Fig.12. Bend the straps as necessary and make sure they are tight so they will be able to support the weight of the chimney.

**B-11. LOCATE CENTERPOINT OF NEXT CEILING HOLE**

**NOTE:** If there is no other ceiling, you have completed Section B. Turn now to Section C, Penetrating the Roof. In a manner similar to that used in Steps B-1 and B-2, mark the centerpoint of the next ceiling hole.

**B-12. PREPARE SECOND CEILING HOLE**

Repeat Step B-3. Mark area of ceiling chimney hole; B-4, Cut ceiling chimney hole; B-5, Frame ceiling chimney hole; and B-6, Install firestop spacer.



**FIGURE 12**

**B-13. CONTINUE INSTALLING CHIMNEY SECTIONS**

Continue installing chimney sections and chimney supports (as required), until the chimney passes through the second ceiling hole.

**NOTE:** Repeat Steps B-11 through B-13 as many times as necessary to pass through all the ceilings in the building and bring the chimney just short of the roof.

**C. PENETRATING THE ROOF**

The chimney system must be vented out-of-doors and must be terminated in an approved HEAT-N-GLO top termination.

**NOTE:** If you are using a chase, go to Section D.

### C-1. LOCATE CHIMNEY CENTERPOINT AT ROOF

Use the same procedure detailed in Steps B-1 and B-2. Drive a nail up through the roof at the marked centerpoint. This will mark the centerpoint on the outside of the roof.

### C-2. CUT AND FRAME ROOF HOLE

The size of the roof hole varies with the type of chimney top that will be installed. Refer to the installation instructions provided with your HEAT-N-GLO chimney top termination to find the correct size of roof hole for this installation. There must be at least 2 inches (HCF or HS Series) or 1 1/2 inches (HSK Series) of air space between the outermost portion of the chimney sections and any adjacent combustible (burnable) surfaces. Refer to Oliver-MacLeod and Security manuals for their specifications.

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

(Combustible surfaces include such things as ceiling members, joists, flooring, combustible insulation and roof structures.)

Mark the outline of the roof hole around the centerpoint nail. Note: The 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.

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

### C-3. DETERMINE MINIMUM CHIMNEY HEIGHT ABOVE ROOF

Major U.S. building codes specify minimum chimney height above the roof top. These specifications are summarized in the Ten Foot Rule. (See Fig.13.) The key points of this rule are:

1. If the horizontal distance from the center of the chimney to the peak of the roof is 10 feet or less, the top of the chimney must be at least 2 feet above the peak of the roof, but never less than 3 feet in height above the highest point where it passes through the roof.
2. If a horizontal distance from the center of the chimney to the peak of the roof is more than 10 feet, a chimney height reference point is established that

is on the surface of the roof a distance of 10 feet from the center of the chimney in a horizontal plane. (See Fig.13.) The top of the chimney must be at least 2 feet above this reference point, but never less than 3 feet in height above the highest point where it passes through the roof. These chimney heights are necessary in the interest of safety and do not assure a smoke-free operation.

### C-4. INSTALL REMAINDER OF CHIMNEY SECTIONS

Continue installing chimney sections up through the roof hole. Check your chimney top installation instructions for data on how high above the top of roof the CHIMNEY SECTIONS (all pipes) should go.

### C-5. INSTALL CHIMNEY TOP HOUSING OR TERMINATION

Follow the installation instructions provided with the HEAT-N-GLO chimney top you have selected.

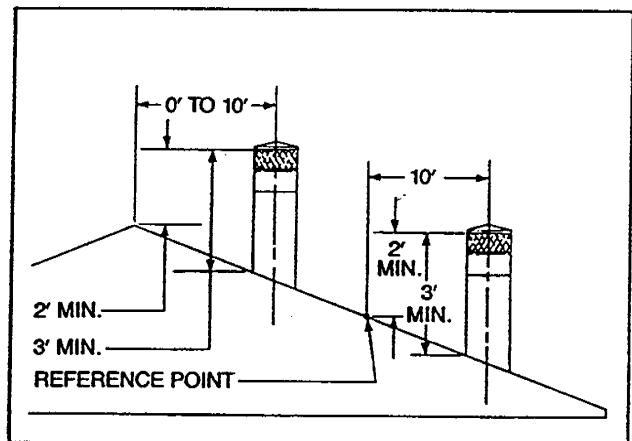


FIGURE 13

### D. Installing Chimney in a Chase

A chase is a vertical box-like structure built to enclose the fireplace and/or its chimney.

**CAUTION:** Treatment of firestop spacers and construction of the chase may vary with the type of building. These instructions are not substitutes for the requirements of local building codes. Therefore, your local building codes must be checked to determine the requirements for these steps.

**NOTE:** Other material may be required in addition to HEAT-N-GLO Firestop Spacers.

When installing a CBS-41 fireplace and chimney in a chase, it is always good building practice to insulate the chimney chase as you would an outside wall of your home. See Section F, which describes insulation methods.

Refer to Framing and Finishing (Section G). Upon completion of building your chase frame, install the chimney system. Follow the instructions for Installing the Chimney - Section B. Then proceed to Step D-1.

**D-1. INSTALL FLASHING AND CHIMNEY TOP**

Follow the installation instructions provided with the HEAT-N-GLO chimney top you have selected.

**E-1. INSTALL OUTSIDE AIR KIT**

Outside air kit Model AK-225 is required and must be installed per installation instructions supplied with the kit and per local codes. This kit **MUST** be installed before the fireplace is enclosed.

UL Listed Class 1-4" flexible air duct should be installed to bring outside air from the exterior of the structure to the fireplace. The house vent should be installed on the exterior of the structure and located so that the vent does not terminate in an attic space, garage or other area that may contain combustible fumes.

**E-2. INSTALL FAN KIT AND WIRING KIT**

A GFK-160A fan kit is approved for use in CBS-41. The JB-11 junction box is factory installed. It **MUST** be field wired before the fireplace is enclosed. See Figure 14.

**NOTE:** The temperature sensor in the GFK-160A fan kit is **NOT** used in CBS-41. Discard the sensor switch. The wiring diagram is shown in Figure 14.

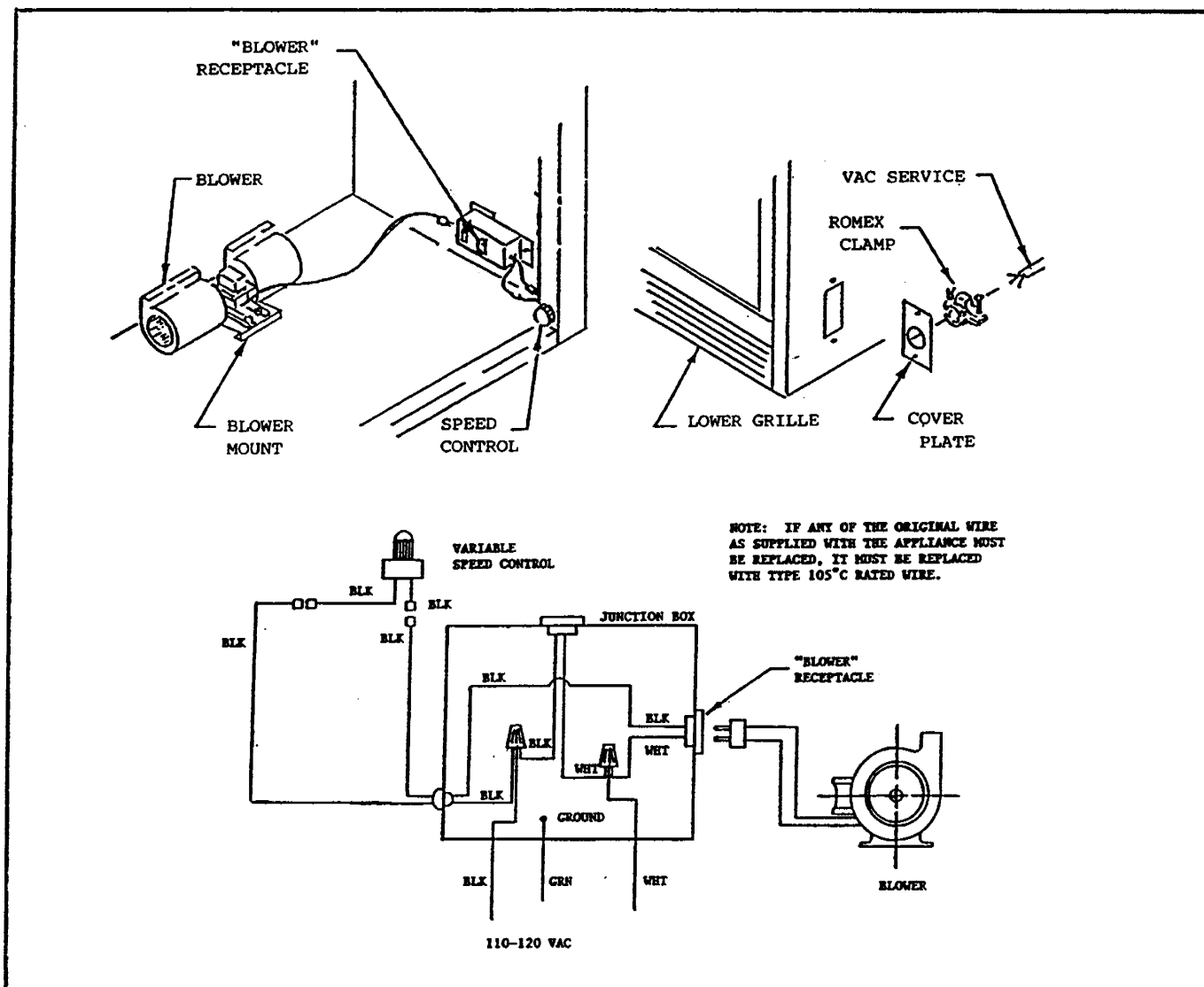


FIGURE 14

**F. INSULATING FIREPLACE ENCLOSURE FOR COLD CLIMATES**

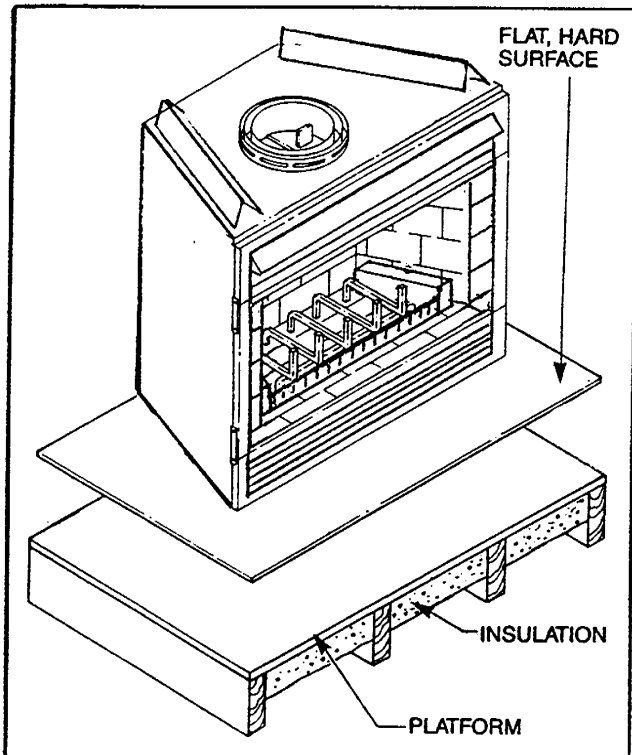
When installing the fireplace, it is always good building practice to insulate as you would an outside wall of your home. In cold climates, insulation of the enclosure around the fireplace is critical to avoid future problems with cold air. The following steps are suggested (not required) to minimize potential cold air problems.

**F-1. INSULATE BASE OF FIREPLACE**

Insulate the base of the fireplace. This step is particularly important for outside wall installations over concrete slab floor construction. (See Fig.15.)

**F-2. INSPECT JOINTS**

Inspect joints of the fireplace as well as the points of sealing between the fireplace and the finishing materials. Any cracks should be sealed with high temperature (350 degrees F. minimum) caulking or insulation. See Fig. 16 for details of sealing spaces between the fireplace and finishing materials.



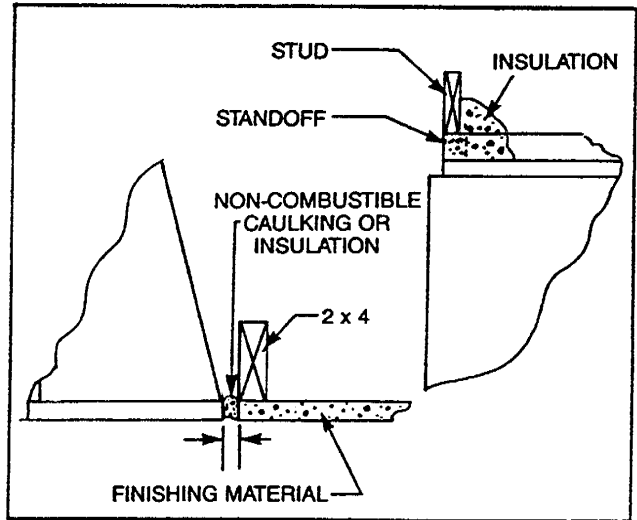
**FIGURE 15**

**F-3. INSULATION OF ENCLOSURE**

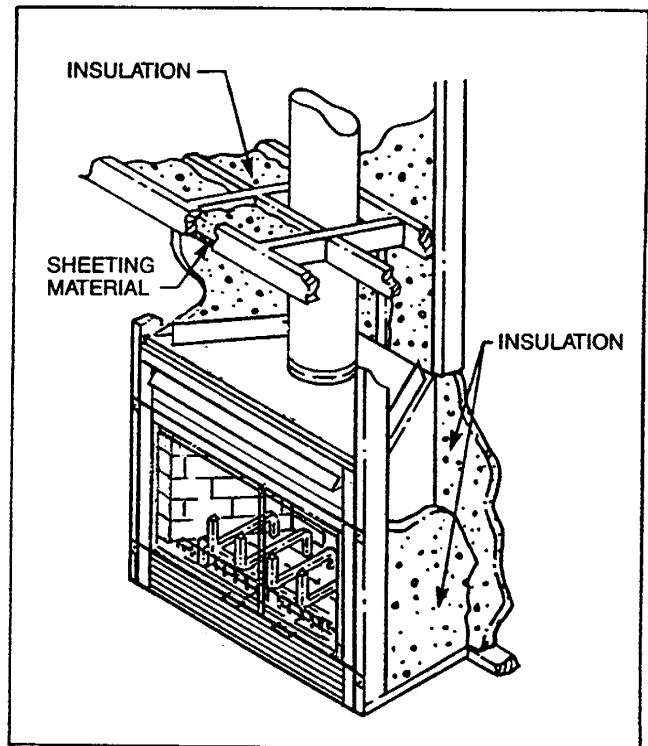
When a fireplace is installed in a chase or on an outside wall, the enclosure should be insulated like any other wall of the home. Insulation should be installed on the inside wall as well as the outside wall(s). In a chase, it is also a good idea to install a firestop at the first ceiling level above the fireplace and close the chase with sheeting material. Insulation may then be

installed above the sheeting material to assure the space around the fireplace is totally protected. See Fig. 17 for additional details of suggested insulating methods.

**CAUTION:** WHILE INSTALLING A FIREPLACE IN AN INSULATED ENCLOSURE, BE SURE ALL MARKED AIR SPACES ARE MAINTAINED.



**FIGURE 16**



**FIGURE 17**

**G. FRAMING AND FINISHING**

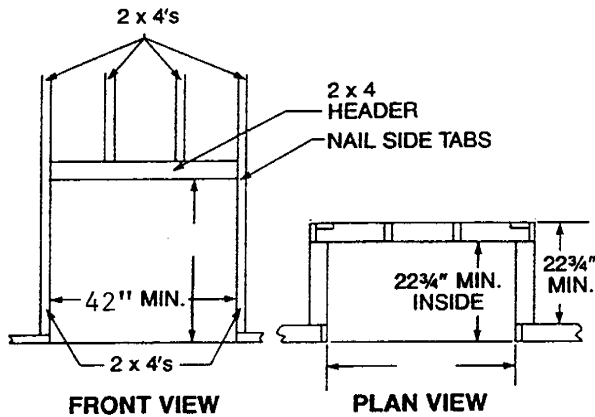
**G-1. DETERMINE WHEN TO INSTALL FRAMING**

Fireplace framing can be built before or after the fireplace is set in place. Fig. 18 shows the minimum framing dimensions.

**G-2. BUILD FRAMING**

The fireplace framing should be constructed of 2 x 4 lumber or heavier. Refer to Dimensions page for basic fireplace dimensions that will affect the framing dimensions. The header may rest on the fireplace standoffs.

**NOTE:** These dimensions may not work in all instances, evaluate your needs and adjust accordingly.



Minimum fireplace enclosure dimensions.

**FIGURE 18**

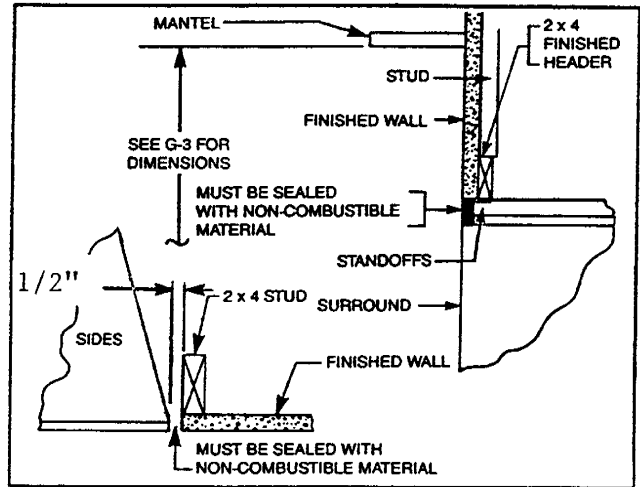
Framing should be positioned to accommodate wall covering and fireplace facing material. (See Figs. 19, 20, 21 and 22 for typical arrangements.) Fastening tabs provided on the side of the fireplace can be used to anchor the fireplace. Nail through the tabs into the vertical framing members. (See Fig.4.)

**CAUTION:** All joints between the finished wall and the fireplace surround (top and sides) should be sealed with high temperature (minimum 350 degrees F.) material. Only non-combustible material may be applied as facing to the fireplace surround.

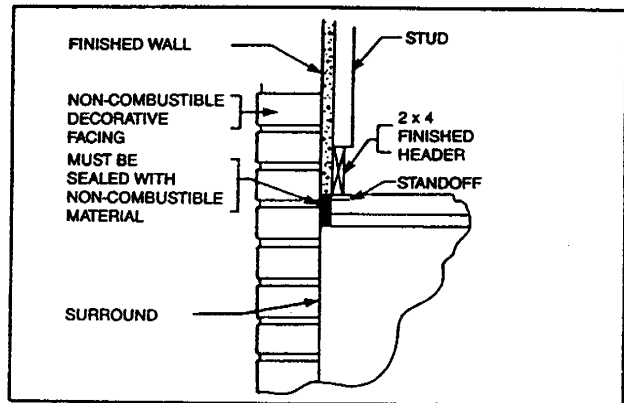
**G-3. FINISH WALL**

Finish the wall with material of your choice. Do not install combustible mantel closer than 12 inches above the top opening for the hood. If a combustible material is used below a flat mantel shelf, consult your local building codes for the minimum clearance from the top of the fireplace opening to the bottom of the material.

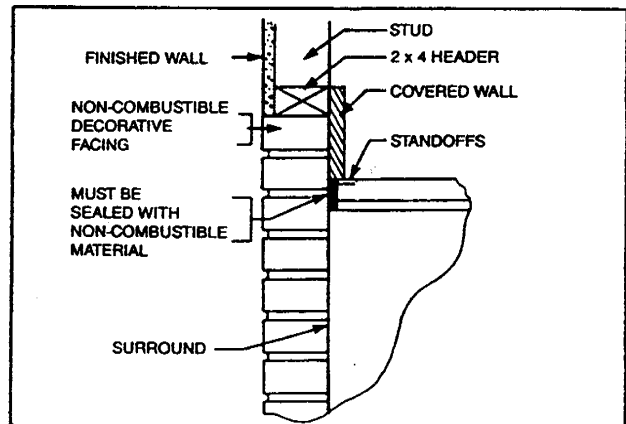
All joints (top, bottom and sides), where the wall or decorative facing material meets the fireplace surround should be completely sealed with a high temperature (minimum 350 degree F.) material. (See Figs. 19, 20, 21 and 22.)



**FIGURE 19**



**FIGURE 20**



**FIGURE 21**

Only non-combustible material may be applied as facing to the black fireplace surround. When finishing the fireplace, never obstruct or modify the air inlet/outlet grilles in any manner. (See Fig.22.)

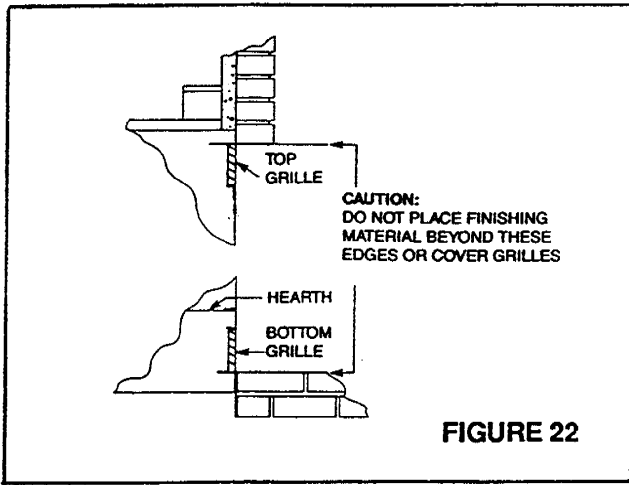


FIGURE 22

**G-4. INSTALL HEARTH EXTENSION**

A hearth extension is required to protect combustible floor construction in front of the fireplace. Use a Hearth Extension design built in accordance with Fig.23.

**NOTE:** Hearth Extension must not cover the grille opening of the unit.

The hearth extension described in Fig. 23 must be a durable non-combustible material with a minimum (total) RT value of 1.09. (See Table 4 for examples.) The overall height (above combustible floor), depth and width must be as indicated with it centered to the fireplace opening. (See Fig. 23.)

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

Secure the hearth extension to the floor to prevent shifting, using trim molding or other similar means at the three (3) outer edges. Seal the crack between the fireplace hearth and the hearth extension with non-combustible material. (See Figs. 23, 24 and 25.)

**WARNING: HEARTH EXTENSION MUST BE INSTALLED IN ACCORDANCE WITH FIGS. 23, 24, or 25 AND MUST NOT COVER THE GRILLE OPENING OF THE MODEL.**

MATERIAL	K*	R	MINIMUM THICKNESS
U.S. Gypsum	0.458	2.18	0.50 in.**
Common Brick	5.0	0.20	5.46 in.

R Value is for one (1) inch

\* Units of K = BTU/SQ FT/HR° F/IN

\*\* Thickness of Listed Material

TABLE 4

Alternate, non-combustible materials may be used, providing the (total) thermal resistance (RT value) of the alternate material employed is greater than or equal to an R = 1.09. The thermal resistance (R) or the thermal conductivity (K), may be obtained from the manufacturer of the material. The factors are related by the formula  $K = 1/R$ .

T = given thickness

R = thermal resistance for a given thickness (T)

K = thermal conductivity

Non-combustible material with a lower R value may be used, provided the thickness of the material is sufficiently greater to maintain an equivalent (total) thermal resistance ( $R_T$ ).

**EXAMPLE OF DETERMINING HEARTH EXTENSION EQUIVALENT**

To determine the thickness required for any new material:

$$\text{NEW required thickness} = \frac{K \text{ of new material (per inch)}}{K \text{ of listed material (per inch)}} \times \text{thickness of listed material}$$

**EXAMPLE FOR COMMON BRICK**

$$T \text{ (new)} = 5.0/0.458 \times 0.50 \text{ in.} = 5.46 \text{ in.}$$

(new required thickness)

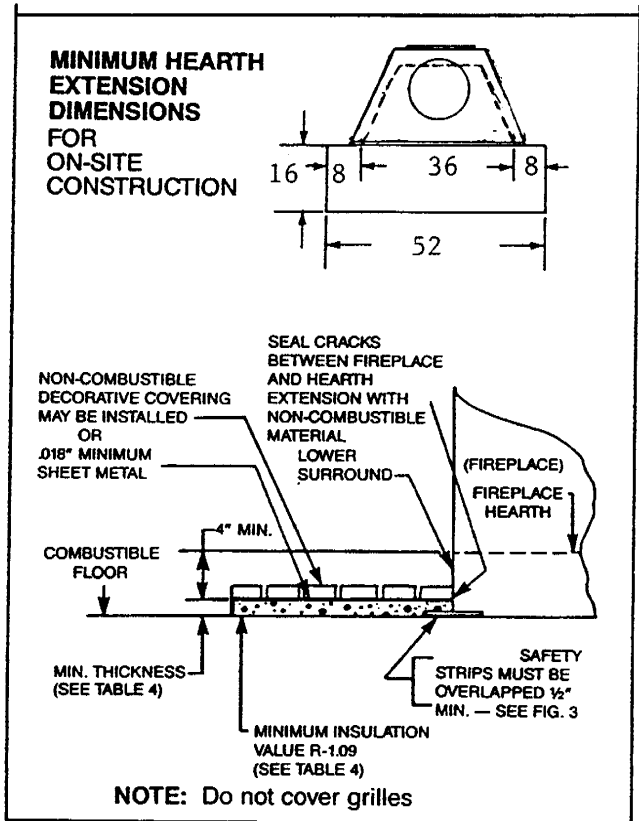


FIGURE 23

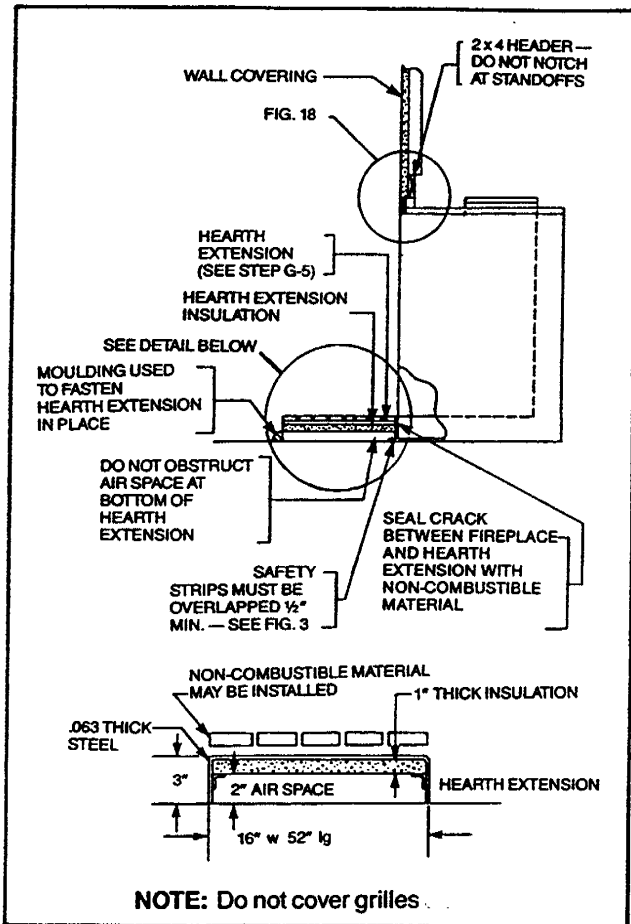


FIGURE 24

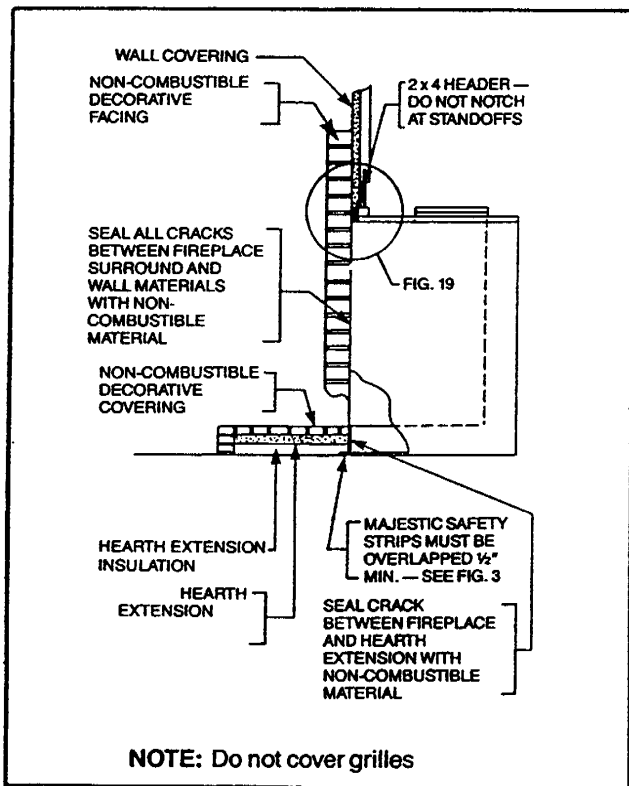


FIGURE 25

**G-5. INSTALL FIREBOX TOP REFRACTORY**

Remove the piece of refractory from its shipping location in the center of the grate. Take this piece and slide it into the channels at the top of the firebox. Position it such that the edge of the refractory is back tight against the rear of the support bracket.

**REFERENCE DATA**

**AIR SPACE DATA**

Heat-N-Glo Model CBS-41 fireplace system can be located directly on a flat hard-surfaced combustible floor or on a wooden platform without air space from combustible construction. Some protection, however, is required for adjacent surfaces as detailed in Fig. 26. The minimum air space-to-combustibles requirements for chimney sections are detailed in Fig. 26.

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

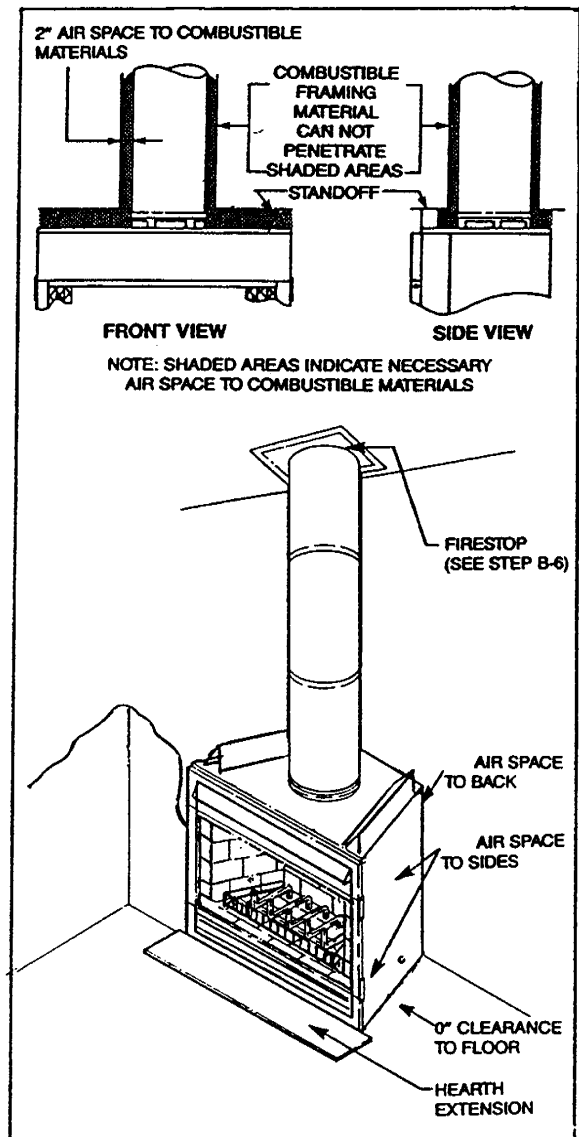
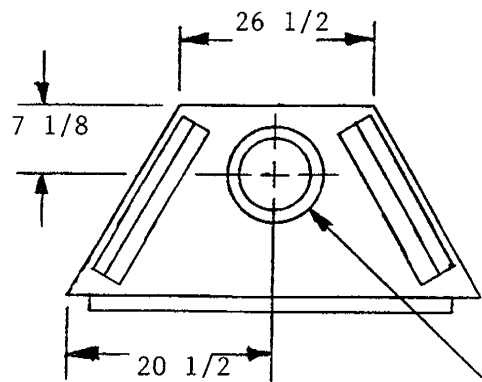


FIGURE 26





VENTING STARTING COLLAR

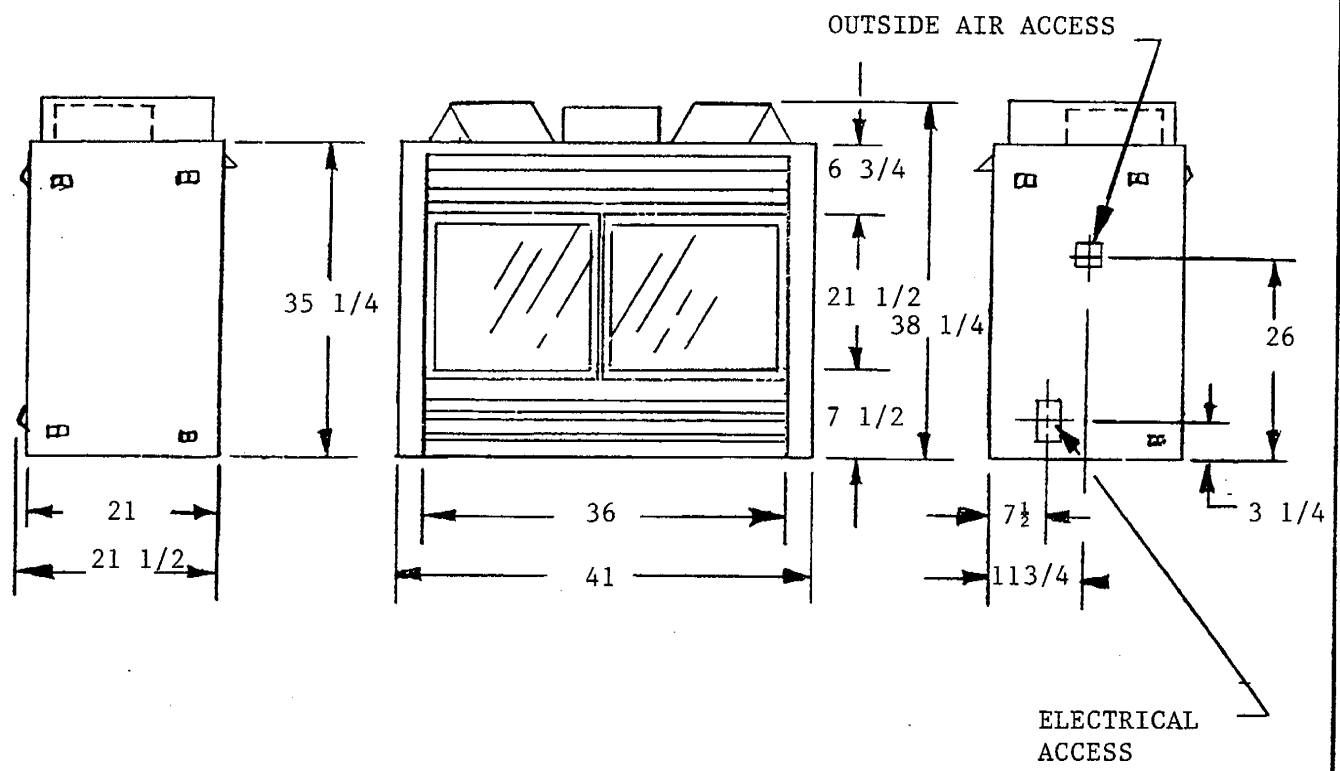
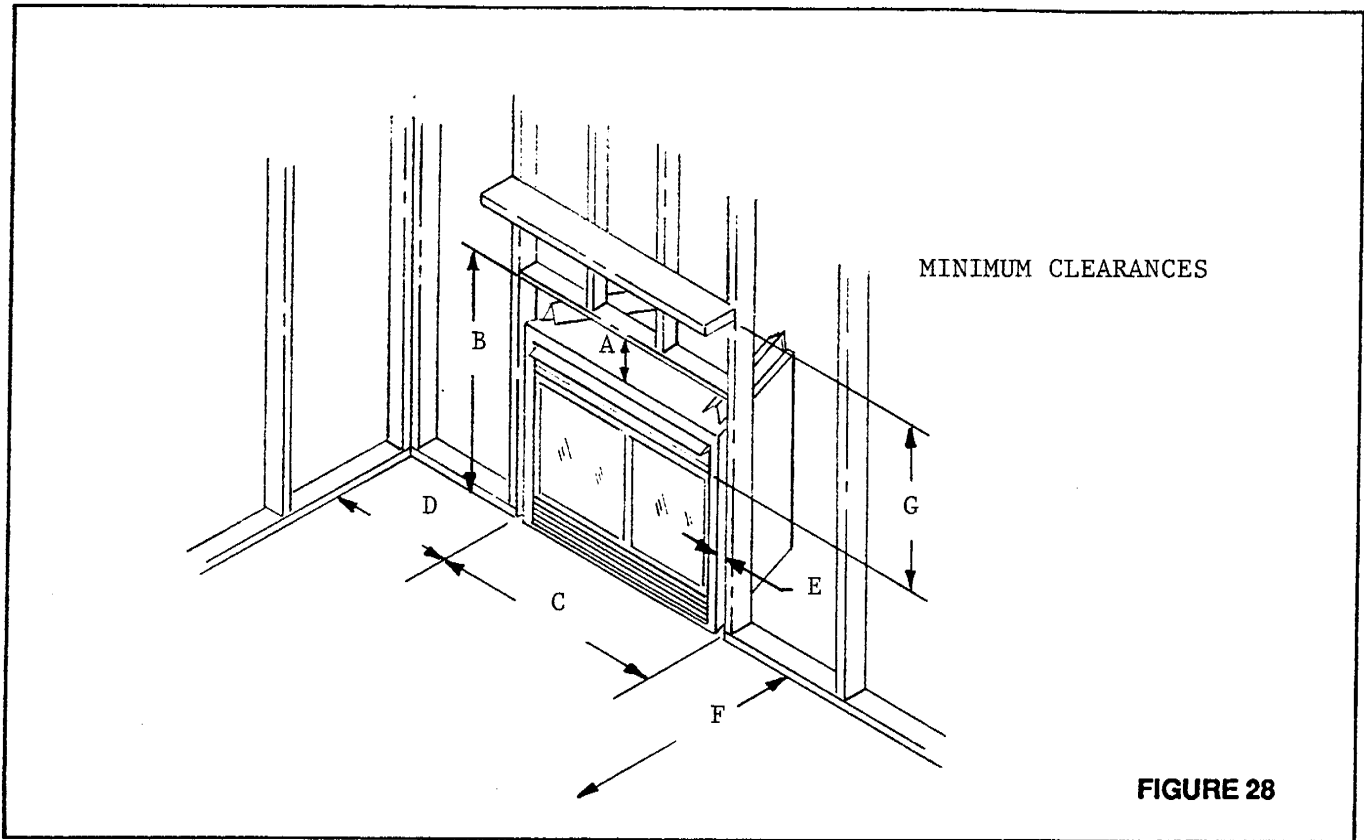


FIGURE 27



**FIGURE 28**

**TABLE 5**

DESCRIPTION	LETTER	CBS-41
TOP CLEARANCE (NONCOMBUSTIBLE ONLY) MIN.	A	3 1/2"
FRAMING DIMENSIONS (HEIGHT) MIN.	B	39 1/4"
FRAMING DIMENSIONS (WIDTH) MIN.	C	42"
CLEARANCE TO SIDE WALL FROM UNIT SIDE MIN.	D	10"
SIDE & BACK CLEARANCE MIN.	E	1/2"
MIN. DISTANCE TO PARALLEL WALL	F	48"
MIN. MANTEL HEIGHT FROM TOP OPENING	G	12"

**NOTE:** FRAMING DIMENSION'S MAY NOT WORK IN ALL INSTANCES, EVALUATE YOUR NEEDS AND ADJUST ACCORDINGLY.

## OPERATING INSTRUCTIONS

### THE CBS-41 (Clean-Burn System)

The CBS-41 is an EPA certified, energy efficient, built-in wood-burning system that exceeds all of the EPA Phase II standards for new residential wood heaters. Pollution is reduced by reburning the flue gases (smoke) before they can exit the system.

The Environmental Protection Agency's Phase II Performance Standards for new Wood Heaters stipulate that particulate matter emissions (PM) must be less than 7.5 grams per hour for a non catalytic wood heater. One emission test is required in four burn rate categories. The emission rating is a weighted average for these four tests.

When wood is heated it undergoes a process called pyrolysis. This is a transformation of the fuel into a mixture of combustible gases and charcoal. The burning of these gases is called secondary combustion. Since these gases are hot, they rise to the top of the heater. Air supplied at the top of the heater to burn these gases is called secondary air. Primary air is the air which is supplied to the lower parts of the heater to support primary combustion.

In the CBS-41 the primary air is introduced through a perforated metal screen at the top front of the unit just behind the glass doors. It then flows down over the doors, forming an air wash, to lower regions of the combustion chamber. The secondary air is introduced in a series of tubes at the top of the combustion chamber. The supply of air to the secondary air manifold is not adjustable. The air supply to the primary air combustion manifold is adjustable and is used to achieve burn rates in the various categories. Measured burn rates vary between seven and two pounds per hour. This translates to burn times of two to seven hours for four medium size pieces of wood (split logs approximately 4" x 4" x 18").

### FUEL

**WARNING:** The firebox grate is an integral part of CBS-41. It **MUST** be in place before loading or operating the unit.

The CBS-41 should be fueled with seasoned cordwood. The use of hardwoods is preferred as longer burning fires and less frequent fueling will result. The logs should be 18" or less in length with a moisture content less than 20% (Properly seasoned wood must be split at least one year prior to usage). The use of excessively wet wood will result in decreased efficiency, increased creosoting, and deposits on the glass doors. To

keep door clean DO NOT burn in the slowest burn mode on a continual basis. Should the door become fogged, burning at a high rate for a short period of time will normally clean glass up. The system is designed to burn four medium size pieces of wood (split logs approximately 4" x 4" x 18"). The use of small pieces of softwood, construction scraps, plywood, etc., will result in intense fires which can damage the firebox. **WARNING:** Never place cordwood or logs in front of the grate in the firebox.

### COMBUSTION CONTROL AND HEAT OUTPUT

The heat output can be varied by controlling the rate of combustion. This is achieved in the CBS-41 by regulating the amount of the combustion air entering the unit. A combustion air control bar is mounted at the top right of the unit. When the bar is pulled out the amount of combustion air is at a maximum and when the bar is pushed in all the way the combustion air is at a minimum. Two intermediate positions are indicated by notches in the bar. The burn rates and burn times achieved by the user of this appliance will be dependent upon the fuel and its moisture content.

### BUILDING A FIRE

Slide the combustion air control bar (located at the upper part of the unit) out all the way to fully open position. Place several crumpled balls of newspaper in the firebox. Place small pieces of kindling on top of the paper, crisscrossing the kindling to maintain air spaces between the pieces. Place larger pieces of kindling on top. When the newspaper is completely ignited, close the doors. When the kindling fire is adequately established, add cordwood.

### FAST COMBUSTION

With the combustion air control bar fully open (all the way out), the CBS-41 will produce between 40,000 and 60,000 BTU per hour of heat. It will be necessary to refuel the system about every two hours. This is the least efficient method of operating the CBS-41.

### MEDIUM COMBUSTION

This is the recommended method of operating the CBS-41. The most efficient utilization of heat content of the fuel is achieved at the intermediate settings of the combustion air control bar. Heat output between 15,000 and 30,000 BTU per hour can be achieved with burn times of 3 to 5 hours.

## SLOW COMBUSTION

With the combustion air control bar completely closed, the burn time will be considerably longer. This method of operating the CBS-41 should only be used after operating the system with the air control fully open for a time to produce a hot firebox. Creosote may be deposited on the glass doors unless the firebox is hot. Slow combustion may be used at night to reduce the heat output and to extend the burn. Even though active burning will appear to cease after a few hours, the bed of hot charcoal will continue to burn and produce heat.

## FAN OPERATION

The optional fan should be operated at high speed only when the CBS-41 is operating in the fast combustion (maximum burn rate) mode.

## GLASS DOORS

Model GD41CB Glass Doors for Model CBS-41 are shipped in a separate carton and **MUST** be installed before using the fireplace. These doors **MUST** be closed and locked after the fire has been started. Alignment of the doors can be made by loosening the top or bottom pin hinge screws, aligning one door with the other and with the door opening, and re-tightening the pin hinges. Lock the doors closed by moving the top and bottom lock handles to the right.

### GLASS DOOR WARNINGS:

- Cracked or broken glass doors must be replaced before using the fireplace.
- Replace glass doors only with factory door assembly part numbers: 030-600A Right Hand Door and 030-601A Left Hand Door - no substitutes.
- Do not slam glass doors when closing them. Clean glass doors using a mild soap. Do not use abrasive cleaners.
- Do not clean glass doors when they are hot.
- Remove broken or damaged glass doors by lifting each door frame up and out of its pin hinge mounting holes. Care should be taken when handling broken glass.

## OPERATING PRECAUTIONS

The following operating precautions are stated here for emphasis and to provide a quick reference.

1. Make sure all passageways of the chimney system are clear and unobstructed.
2. Be sure fire is provided with sufficient air to prevent smoking, sooting and the formation of harmful gases.

3. Always use a grate to support the fire. If the basket grate burns out, it must be replaced by an approved grate from Heat-N-Glo. Refer to replacement parts pages.
4. Never burn scrap lumber, pine branches, trash, plastics, flame colorants, soot cleaners or other chemicals or compounds.
5. Never use liquid fuels or liquid fire starters.
6. Build your fire within approximately 1/2-inch of the back of the firebox for good burning.
7. Never use more than one artificial log at one time.
8. Always use care when adding wood to the fire and when using fireplace tools (shovels, tongs, pokers, etc.).
9. The first few fires should be small.
10. Do not create too large a fire, keep the fire in **your** control always.
11. Always keep the glass doors completely closed while the fire is burning.
12. Always remain present while the fire is burning.
13. Never place any combustible objects (furniture, pillows, etc.) closer than 24 inches to fireplace.
14. Never let anything obstruct the air inlet/outlet grilles.
15. Do not use a solid fuel fired fireplace insert or other products not specified for use with this fireplace.
16. Do not use a gas log lighter in this fireplace.
17. Use only solid wood fuel.

**WARNING:** Gas log lighters, gas log sets, and similar gas products are not approved for use in the CBS-41 Fireplace System.

## SYSTEM MAINTENANCE

Model CBS-41 is built to operate trouble-free with little need for extensive time-consuming maintenance. As with any such piece of equipment, your fireplace will operate better and provide longer service if a few basic housekeeping procedures are followed.

1. Inspect the roof in the area of the chimney and remove any obstructions or foreign material such as hanging tree limbs, broken tree branches, leaves, etc.
2. Inspect the chimney top housing, removing any - foreign obstructions from cooling air inlets and bird guard screen.

3. Inspect the flue for obstructions and foreign materials and remove them if any are found.
4. **CREOSOTE - FORMATION AND NEED FOR REMOVAL.** When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow burning fire. As a result, creosote residue accumulates on the flue lining. When ignited this creosote makes an extremely hot fire.

Inspect the flue for creosote build-up. The chimney should be inspected at least once every two (2) months during the heating season.

If 1/8" or more of creosote has accumulated, it should be removed to reduce the risk of a chimney fire. Special tools and expertise are required to clean a flue. It is recommended that a qualified chimney sweep provide this service.

To gain access to the flue for inspection and/or cleaning. The chimney cap or top housing needs to be removed. Remove screws as indicated.

5. Inspect the firebox hearth and liner for any unusual deterioration or erosion.

The hearth and firebrick liner of the CBS-41 are made of a special fire-clay material. While it is quite sturdy, it can become cracked by normal expansion and contraction from heat or abuse. If hairline cracks should develop in the hearth or firebrick liner, they can be ignored as they will NOT affect the operation or safety of your fireplace.

If large, wide cracks or deterioration occurs, the area should be repaired or replaced. Contact your dealer to obtain repair material.

6. Disposal of ashes:

Frequent removal of ashes is recommended. This is most easily accomplished by removing the piece of metal under the front of the grate and shoveling out the ashes. (This piece is held in place by friction.) The grate is not designed to be removed easily, and must be in place to meet EPA standards.

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled.

