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**FIREPLACE MODEL BIS  
INSTALLATION  
AND OPERATION  
MANUAL**

**BIS<sup>®</sup>**



**SECURITY CHIMNEYS LTD**

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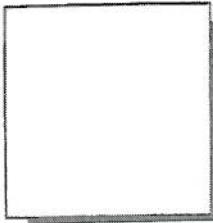
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# SECURITY FIREPLACE MODEL BIS

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## Installation and Operating Instructions

Read these Instructions and keep them for future reference. Before installing the fireplace, consult your local building authority to obtain a building permit as well as information on the specific requirements in your area. Install the fireplace only as described in these instructions and using only Security components. The BIS is not intended for use with a gas log. Failure to follow these instructions will void the certification and the warranty of the fireplace, and may result in an unsafe installation.

### Parts Required

- Fireplace Model BIS
- 7" Security Model ASHT chimney including:
  - Chimney lengths
  - Insulated elbows (where necessary)
  - Firestop-Radiation Shield, Attic Radiation Shield
  - Roof flashing
  - Rain cap
- Hot Air Duct Kit

### Optional Parts

- Outside Air Kit - Fan Kit - Single or Double Hot Air Duct System - Steel Hearth Extension  
Brass louvers, brass grills

**NOTE:** The BIS has to be installed only with a 7" ASHT or S-2100 chimney manufactured by Security Chimneys.

Listed: Warnock Hersey 190-0165

Standards: ULC S610, UL 127, I.C.B.O. report 4336, Oregon DEQ 184, US EPA 87

## OPERATING THE BIS

### FUEL

The BIS is designed to work best when fueled with seasoned cordwood. Hardwoods are preferred to softwoods since the energy content of wood is relative to its density. Hardwoods will result in a longer burning fire and less frequent refueling. The BIS should be fueled with wood cut to 18" or less in length. A moisture content of 15% to 20% (seasoned) is preferred. Excessively wet wood will be difficult to burn, and will result in lower efficiency, increased creosoting, and deposits on the glass. Excessively dry wood will burn well but will also have higher emissions and shorter burn times.

Do not burn scrap or garbage, treated wood, or wood such as driftwood from the ocean which has been exposed to salt or other chemicals. Salt or chemicals can corrode the firebox and chimney. Do not abuse the unit by burning large amounts of paper, cardboard, Christmas tree branches or building construction materials such as pressed wood, plywood, or lumber. Intense firing with these may overheat the fireplace, causing damage to the unit, a fire, or even possibly igniting a chimney fire, if the chimney is creosoted.

### FIRST FIRES

Before using the fireplace, remove the protective plastic tape from the brass doors. Clean off any glue remaining with a mild soap. Labels which may have been applied to the glass are easily removed once the glass is hot.

The first 5 or 6 fires should be small fires of short duration (about 30-60 minutes). The first fire should be especially short. This will help cure (dry) the refractory bricks, and allow a buildup of ashes to protect the ashpan from the intense heat of the fire, and minimize any warpage to it. The first fires may produce slight smoking due to drying of the paint and steel, and any dust accumulated on the fireplace will be burnt off at this time. For this reason the room should be well ventilated for the first few fires.

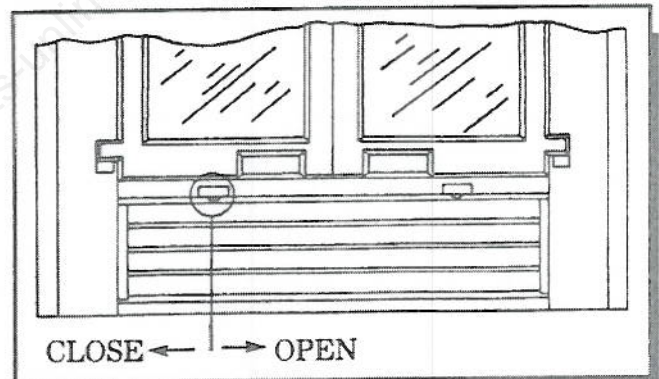
### BUILDING A FIRE

To start a fire, place several crumpled up balls of newspaper on top of the grate. Place small dry pieces of kindling on top of the paper, crisscrossing the kindling so that there are airspaces inbetween. Place larger pieces of kindling on top of the pile. Keep the fuel far enough back on the grate so that air can get underneath. Open the air controls fully and light the newspaper. Once the newspaper is well ignited, close the doors. Once the kindling fire is well established, cordwood can be added. The unit will burn best with a minimum of 2 pieces of cordwood spaced 1" to 2" apart and allowing air to get under the fuel. Crisscrossing, or arranging the fuel so that air can get underneath, will help the fire to get started easily. The unit should be operated with the air controls fully open long enough to get the cordwood well ignited.

### COMBUSTION CONTROL AND HEAT

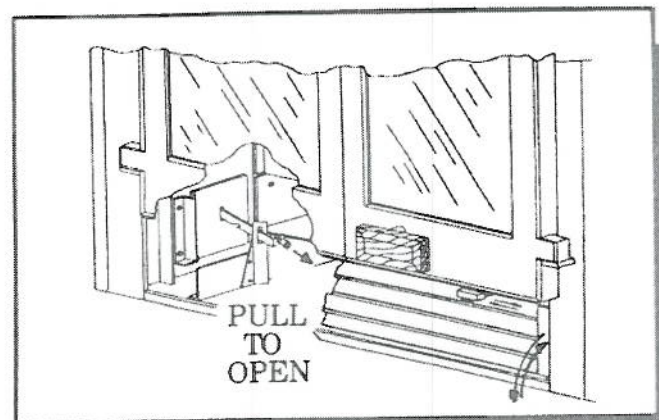
There is no flue damper in the BIS. As is common with air tight stoves, the dampers control the air entering the firebox. This allows more precise control of the fire. There are two combustion air controls located below the doors. They open when moved toward the center of the fireplace. These controls should be in the closed position when the BIS is not in use. This will minimize air leakage up the chimney.

As with any appliance, the controls should be opened before opening the door, to minimize the possibility of back draft, or of smoke or flame coming into the room.



### OUTSIDE AIR CONTROL

Installations equipped with the optional outside air (required for mobile homes) should be operated with the outside air supply open. The control is located behind the bottom louver. Pull to open.



## **ACCELERATED COMBUSTION (High Heat Output)**

The maximum heat output for the BIS is achieved by burning with the doors closed and the combustion dampers open. In this mode the BIS can produce 40,000 to 50,000 BTU per hour of heat. It will be necessary to reload with wood every one to two hours. This is the least efficient method of burning the BIS.

Use care when firing with the air controls wide open. Only burn cordwood in this manner. Small dry pieces of softwoods, mill ends, and construction scraps will burn very intensely in this mode and may damage the firebox.

Do not over fill the firebox with wood in an attempt to prolong reloading time. Too much wood may cause an overfire condition with flames reaching up into the chimney. This will greatly reduce efficiency and may damage the firebox.

## **MEDIUM COMBUSTION**

This is the recommended mode of operating the BIS and should be the one normally used since it will deposit the least amount of creosote on the glass and in the chimney.

The combustion air dampers should be approximately 2/3 closed. The precise setting will depend on many factors, including chimney length, house air tightness and the moisture content of the wood. For instance a long chimney in a relatively leaky house will necessitate closing the dampers more. The dampers should be closed down until the flame pattern slows and the flames appear dirty as they leave the firebox. The dampers should then be opened about 1/2". Three medium size pieces of wood (logs split to approximately 4" x 4" x 16") should be burning on a bed of hot coals. The heat output will be approximately 30,000 BTU per hour and the loading time will be 2 to 3 hours. Softwoods may be burned in this mode but the burn time will be substantially reduced.

## **SLOW COMBUSTION**

With the dampers completely closed, the burn rate will be reduced by about one half. Closing the dampers will not stop the fire, but there will be a noticeable change in the flame pattern. The flames will be slow and may appear dirty. Creosote from the fire may accumulate on the glass doors unless the firebox is hot.

This mode of burning should be used only after first operating the BIS with the air controls open to produce a hot fire (see Refueling For Best Performance). Slow combustion can be used at night in order to reduce the heat output and to prolong the burn. Although active burning will appear to cease after about 4 hours, a bed of hot coals will continue to burn and produce heat. These coals will remain hot throughout the night and will facilitate relighting the fire the next morning.

This mode of operation will accelerate creosote accumulation in the chimney. Therefore, it will be necessary to inspect and clean the chimney more frequently.

## **REFUELING FOR BEST PERFORMANCE**

The BIS will operate best if attention is given to operating the unit with the dampers open for a short period of time after refueling in order to bring the fuel load, as well as the fireplace/chimney system, up to its optimum operating temperature. By operating the BIS with a hot start after refueling, the BIS can achieve the burn rates of slow combustion, but with the temperature and performance of medium combustion. Combustion efficiency is relative to firebox temperature, and therefore ensuring that there is sufficient temperature in the firebox will improve performance. Once the firebox is hot enough so that flames reach beyond the baffle, the dampers can be closed to their minimum settings. When operated properly in this manner, flames should continue on beyond the edge of the baffle, even in the dampered down setting. If the flames do not continue beyond the edge of the baffle, the air controls should be reopened to establish a hotter fire. The benefit of this technique will be cleaner glass, less creosoting, greater efficiency, and the most pleasing fire for your enjoyment.

## **OPTIONAL FIRESCREEN (Catalogue #ZB26ZN)**

The BIS will deliver the most heat, efficiency, and performance with the doors closed. An optional firescreen is available for those times when heating is not especially required. The screen simply locks onto the front of the BIS. Do not leave the unit unattended with the doors open.

## **SMOKING: Causes and Troubleshooting**

To reduce the likelihood of smoking when opening the doors, open the dampers before opening the door. Your fireplace has been designed and tested to provide smoke free operation. Occasionally there may be a small amount of smoking upon lighting the fire, until the chimney heats up, but this should not continue. If the fireplace continues to smoke it is probably due to one or more of the following reasons:

### 1. THE DOORS ARE PARTIALLY OPEN

Open both doors fully when opening the doors.

### 2. NOT ENOUGH REPLACEMENT AIR

As the fire burns, air goes up the chimney. This air must be replaced through leakage into the house, or through the outside air duct (if installed). When operating the BIS, the outside air supply should be open. Open a nearby window temporarily to check the adequacy of the replacement air supply.

### 3. VENTILATOR FAN OPERATING

These fans draw air out of the house and may actually draw air down the chimney. Open a nearby window and turn off all fans to determine if this is the cause of the problem.

### 4. TOO BIG A FIRE

Do not burn more than three medium (4" diameter) size logs at a time, and only on the grate area. Do not use the area in front of the grate.

### 5. WET WOOD

Wet or tarred wood will smolder and smoke instead of burning properly.

#### 6. DIRTY OR BLOCKED CHIMNEY

Check to make sure the chimney is clear and reasonably clean.

#### 7. CHIMNEY NOT LONG ENOUGH

The chimney must extend at least 3' above its point of contact with the roof and at least 2' higher than any roof or wall within 10' of it. When installed with offsets, additional height is required to maintain the minimum height and to compensate for the decrease in draft. Additional height will increase draft and will decrease the tendency to smoke if caused by low draft.

#### 8. THE CHIMNEY IS NOT SELF STARTING

With no fire, there should be sufficient draft to exhaust cigarette or other smoke introduced under the baffle. If the chimney has been installed properly and is operating properly, then the smoke should go up the flue. Chimneys which have an installation deficiency, or one or more of the above problems, may be drawing cold air down the flue and into the room. These chimneys will often smoke temporarily on startup until the chimney is heated up. Closing upstairs windows, and opening a nearby window, will help to overcome smoking caused by house depressurization.



#### IMPORTANT POINTS:

1. Do not block the hot air vents or air inlets to the fireplace as this will cause the fireplace to overheat.
2. Never start a fire using gasoline, kerosene, charcoal lighter fluid, or any other combustible liquid.
3. Do not burn coal. The sulfur in coal will corrode the firebox.
4. Do not burn driftwood which has been in the ocean or salt water. The salt will corrode the firebox and chimney.
5. Do not operate the unit with the doors partially open, or with one door open, since this may cause smoke to be drawn into the room.
6. Do not burn wood in the area in front of the grate.
7. Do not abuse the unit by overfiring or by burning paper, cardboard, or construction material such as pressed wood, plywood, or lumber.
8. Do not allow the unit to smoulder or burn without flame, since this will produce excessive creosote.

## MAINTAINING YOUR BIS

### CREOSOTE

When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form a black deposit called 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. If the creosote accumulation is large, a creosote fire in the chimney can damage the chimney and overheat the surrounding wood framing. Creosote formation in a chimney can be minimized by making small hot fires rather than slow burning, smoldering fires, and by proper refueling technique. The BIS is designed and tested to produce a low amount of emissions when operated correctly.

### CHIMNEY MAINTAINANCE

Regular chimney inspection and maintainance combined with proper operation will prevent chimney fires. Keep your chimney clean. Do not allow more than a 1/16" build up of creosote in your chimney. The amount of creosote will depend on variables such as frequency of use and type of fire. We recommend that you:

1. Initially inspect the chimney system weekly. From this you will learn how often it will be necessary to clean your chimney.
2. Have your chimney cleaned by a qualified chimney sweep. If you wish to clean it yourself, we recommend using a stiff plastic or non-metallic brush. If a metal brush is used, its size should be slightly smaller than the flue to avoid damaging the chimney. Do not use a brush that will scratch the stainless steel interior of the chimney.
3. Do not expect chemical cleaners to keep your chimney clean.

The rain cap can be removed for inspection and/or cleaning of the chimney. Using gloves, firmly grip the lower portion of the rain cap. Turn the cap 1/8 of a turn counter-clock-wise and lift it off the chimney.

### DEALING WITH A CHIMNEY FIRE

Regular chimney maintainance and inspection, combined with proper operation can prevent chimney fires. If you have a chimney fire follow these steps:

1. Close the fireplace doors and combustion air dampers.
2. Alert your family to the possible danger.
3. If you require assistance, alert your fire department.
4. If possible, use a dry chemical fire extinguisher, baking soda or sand to control the fire. Do not use water as it may cause a dangerous steam explosion.
5. Watch for smoldering or fire on combustibles next to the fireplace and chimney. Check outside to ensure that sparks and hot embers coming out of the chimney are not igniting the roof.
6. Do not use the fireplace again until your chimney and fireplace have been inspected by a qualified chimney sweep or Fire Department Inspector.

### BRASS DOOR CARE

Before using the fireplace, remove the protective plastic tape from the brass doors. Clean off any glue with a mild soap. We recommend cleaning the doors with a brass cleaner. Do not use abrasives such as steel-wool or S.O.S. pads on the doors. They will scratch the door's finish. Overheating the doors may cause the brass to change tint. If this occurs, the doors should be cleaned using a brass cleaner. The original brass colour will return.

### ASH PAN

Do not operate the fireplace without the ash pan in place, as it shields the fireplace hearth from the intense heat of the fire.

Keep about 1/2" of ashes in the pan. This will help protect the pan and will also increase combustion efficiency in the firebox. The ashes retain and reflect the heat of the fire, enabling the fire to burn more intensely and more completely. The extreme heat of the fire may warp the ash pan. This should not reduce its usefulness.

### ASHES

Remove ashes only when the fire is out and the ashes are cold. Do not allow the ashes to build up to the grate level, at this will overheat it and shorten its life. Keep at least 1/2" of ashes in the ash pan. To remove the ash pan, lift up the front edge of the grate until it is held in the raised position. The ash pan can now be removed. Put the ashes outside in a metal container with a tight fitting lid. Do not put ashes in a cardboard box, and do not place the container on or near combustible material. The ashes remain hot for days and can start a fire. Do not leave the ashes in the house as they give off carbon monoxide and other toxic gases.

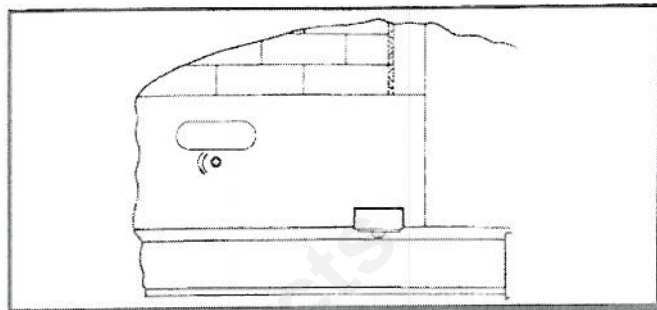
Replace the ash pan, and then lower the grate by first lifting it up and forward slightly to free it from the lock, the lower it back to its normal resting place on top of the ash pan. Do not operate the unit without the grate in place.

### REFRACTORY

The intense heat of the fire will normally cause hairline cracks in the refractory. These cracks can be minimized by proper curing as described in "First Fires". They will not normally diminish the effectiveness of the refractory. If large cracks develop, then the refractory should be replaced. To remove the refractory, first remove the baffle, then remove the two screws holding the side retainers in place.

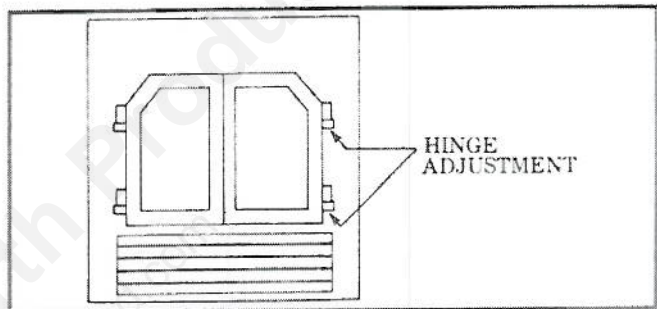
## DOOR ADJUSTMENT

The doors may be adjusted to close tighter to compensate for seating of the gasket by means of an Allen screw. This screw is located on the fireplace front just below the right door handle catch hole. Turn the screw clockwise to tighten the doors.



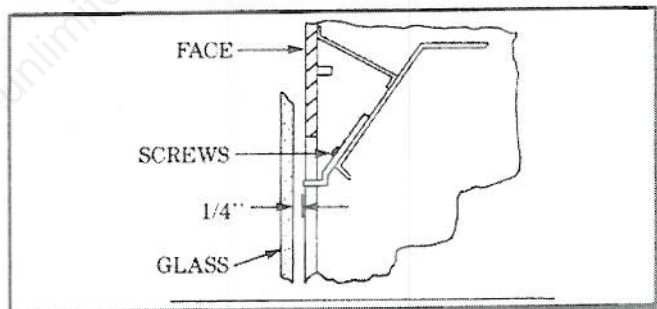
## HINGE ADJUSTMENT

The doors are also equipped with adjustable hinges. This adjustment has been made at the factory, and adjustment will not normally be required.



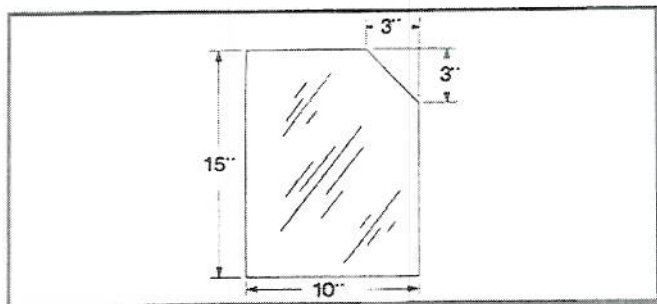
## AIR DEFLECTOR ADJUSTMENT

The air deflector at the top of the door opening is preset at the factory to a 1/4" spacing to the glass. It will not normally require adjusting but can be adjusted by loosening the three retaining screws, and adjusting it to the correct spacing. The gap can be measured by leaving the left door open to provide access while reaching through the opening to the back of the right door and measuring the gap with a tape measure.



## GLASS CARE - REPLACEMENT

The glass used for the BIS doors is a high temperature ceramic glass. If the glass breaks, it must be replaced with a ceramic glass such as Neoceran. Tempered or ordinary glass will not withstand the high temperatures of the BIS. Replacement glass should be purchased from Security Chimneys. Do not operate the unit with cracked or broken glass.



## GLASS CARE - CLEANING

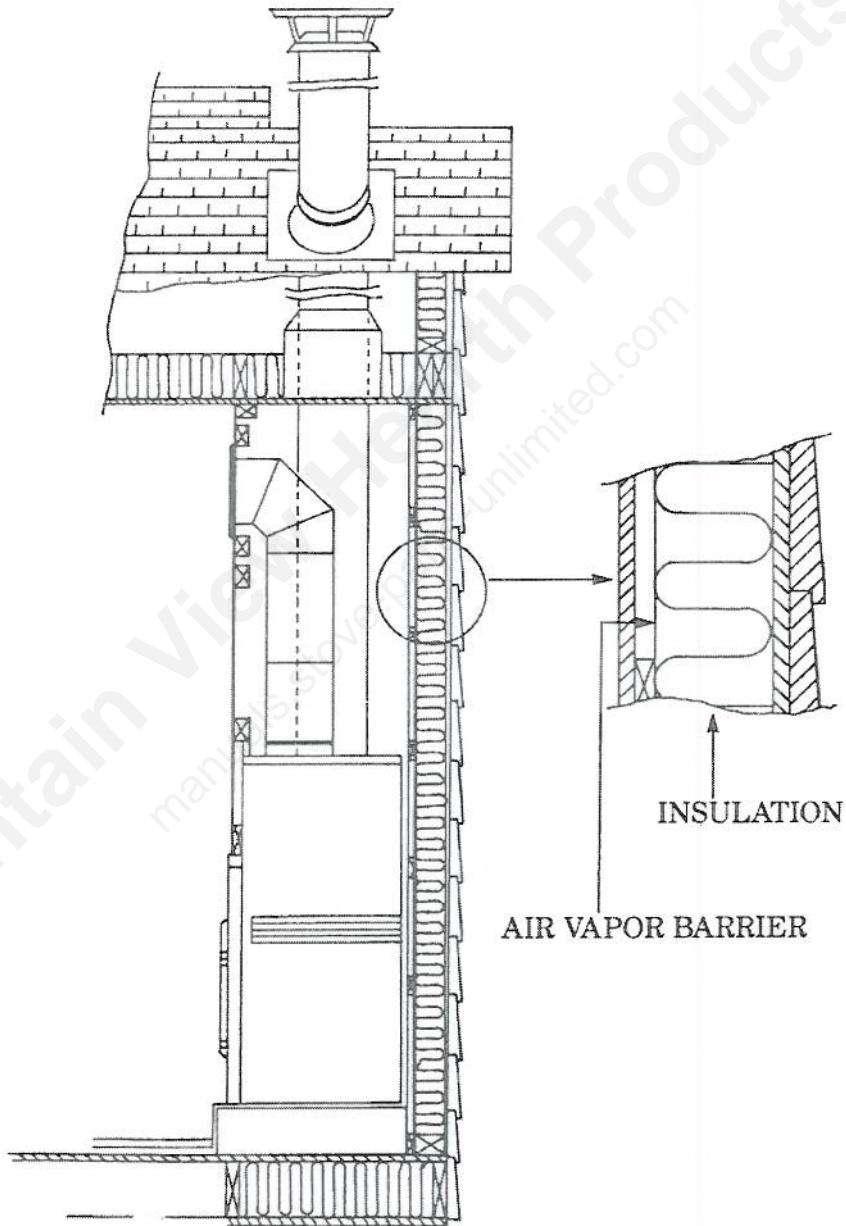
The BIS has an air wash system designed to keep the glass clean under normal operating conditions. A small amount of creosote may build up on the lower glass area, especially if the doors are not sealing tightly (see door adjustment). Under low fire conditions (combustion dampers closed) the glass will tend to get dirty, unless the fuel, firebox, and glass are maintained at hot temperatures (see refueling).

To clean the glass, there are a number of specially designed cleaners. Your authorized Security Dealer can recommend a suitable cleaner which is available in your area. Regular household glass cleaners will not clean creosote. Do not use abrasives such as S.O.S. pads, steel wool, or oven cleaner as they will scratch the glass.

## GASKET REPLACEMENT

Remove the doors from the unit and lay them gasketside up on a clean unabrasive surface. To replace the gasket, first remove all of the old gasket and gasket cement. Make sure that the surface is totally clean before applying new cement or adhesion problems may result. Apply gasket cement to the gasket channel, and install the new gasket, available from your Security Dealer. Gasket size is 3/4" x 42", NO. 7B26A3NB6.

# INSULATED CHASE CONSTRUCTION



## INSTALLATION FIREPLACE INSTALLATION NOTES

### LOCATING THE BIS:

1. The best location for your fireplace is determined by considering the location of windows, doors, and the traffic flow in the room where the fireplace is located, allowing space in front of the unit for the hearth extension and the mantle, and taking into consideration the location of the hot air ducts, outside air duct (if so equipped), and chimney. If possible, you should choose a location where the chimney will pass through the house without cutting floor or roof joists.
2. If possible install an interior chimney as it will provide better performance. In areas with continuous temperatures below  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) the use of an exterior chimney increases the likelihood of operating problems such as low draft, high rate of creosoting, and poor startup characteristics. Exterior chimneys are also prone to downdrafting and flow reversal. Installations which are located low in the house such as in a basement, in combination with outside chimneys, are especially prone to flow reversal.

The fireplace must be installed against a finished wall. It must not be installed against a vapour barrier or exposed insulation. Do not insulate the chase cavity with blown, loose fill or any type of insulation. Firestopping at the ceiling level of a chase is recommended for safety as well as for the reduction of heat loss.

3. Usually no additional floor support is needed for the fireplace. The adequacy of the floor can be checked by first estimating the weight of the fireplace system. Weights are given in the appendix. Next measure the area occupied by the system. This will normally be  $33'' \times 24''$  for the fireplace. Note the floor construction as to the sizes and type of flooring and joists, and then consult your local building code to determine if additional support is needed.
4. The BIS can be installed above the floor level on a base, provided that there is a minimum of 7' measured from the base of the appliance to the ceiling.

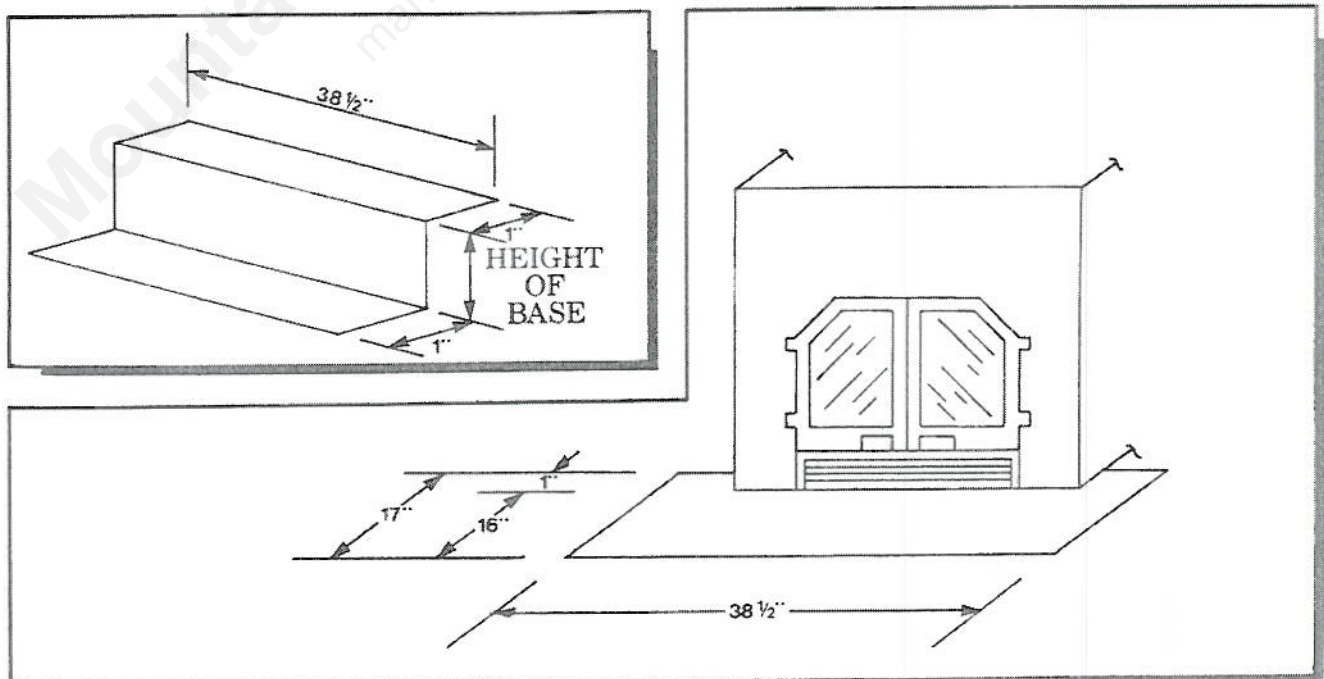
### HEARTH EXTENSION REQUIREMENTS:

The BIS can be installed directly on a combustible or wood floor, however if the floor is combustible, then the hearth extension (the area in front of the unit) must be protected from sparks and ashes by a noncombustible hearth extension. The minimum size of the protected area is  $16'' \times 38\frac{1}{2}''$  extending in front of the loading door. The BIS is certified for use with either of the following materials:

- 1) 0.018'' thick sheet metal (can be purchased as part 7B26ZM)
- 2) 3/8'' thick milboard or the equivalent

Hearth Extensions must be constructed according to the following guidelines:

1. Normally acceptable materials are a layer of sheet metal or 3/8'' thick milboard or the equivalent. Check with your local building authority before installation to determine what other materials will be acceptable in your area.
2. The hearth extension must not be built higher than 1/2'' above the base of the fireplace.
3. Means must be provided to prevent sparks or ashes from falling into the gap between the fireplace and the hearth extension. This can be accomplished by extending the steel piece of the hearth extension 1'' under the unit (i.e. the steel part of the hearth protector must be a minimum of  $17'' \times 38\frac{1}{2}''$ ) or by placing metal strips under the gap so that 1'' of the metal strip extends under the unit.
4. The hearth extension should be secured to the floor.
5. If installing on a raised base or raised hearth, fabricate a "z" shaped piece of metal to joint from under the fireplace to the hearth extension.



## MOBILE HOME INSTALLATIONS

The BIS is listed for use in mobile homes with the following restrictions:

1. The unit is listed for vertical installations only. No offsets or elbows are permitted.
2. The unit must be installed with the outside air kit.
3. The unit must be secured to the floor of the mobile home. Secure the unit with 2" nails through the perforations around the base of the unit on the side and back.
4. Chimney installations in conventional flat roof mobile homes must be carried out as follows:

	CANADA	U.S.A.	S-2100
Radiation shield	RSA	RSMH	XRSA
Flashing	FMH	FMH	XF
Cap	CPR or CC or CPE	CPE (1)	XCPE, XCPR, XCC
Support	ST (2)	ST (2)	XST (3)

Notes:

- (1) Mobile home units in the U.S.A. must be installed with a spark arrestor cap (CPE).
- (2) ASHT must be supported at the ceiling if the height of chimney exceeds 10'.
- (3) S-2100 chimney must be supported at the ceiling.
5. Installations in mobile homes with peaked roofs and attic spaces should be installed according to the same guidelines as conventional homes.
6. Do not install the unit in a sleeping room.
7. The structural integrity of the mobile home floor, wall, and ceiling must be maintained.
8. Mobile home units must be installed with the hot air duct grill plate removed.

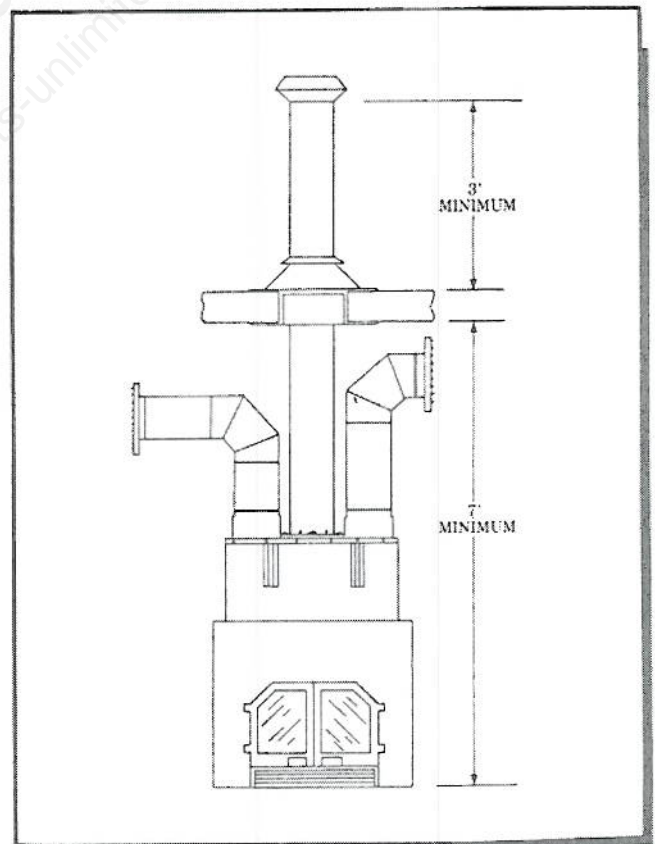
## OUTSIDE AIR REQUIREMENTS

During operation, the fireplace requires air for combustion and draws air out of the house. It may starve other fuel burning appliances such as gas or oil furnaces. As well, exhaust fans and fan driven appliances may compete for air, causing a negative pressure in the home, and resulting in smoke entering the home from the appliance. This situation is aggravated in modern air tight houses. To overcome this potential problem, we recommend installing an Outside Air Kit with the BIS. The kit is required for mobile homes, and is mandatory in some areas. Check with your local building authority for the requirements in your area.

The outside air damper should be open when the BIS is being used. The outside air control is located behind the fireplace's lower louver. Pull this lever to open.

The outside air kit must be installed according to the following guidelines:

1. The maximum length of duct is 10'. Duct length should be kept to a minimum.
2. The air intake register must not be installed more than 7' above the base of the appliance.
3. The fresh air must come from outside the house. It must not draw air from the attic or from the basement.
4. Locate the outside register where it will be well away from automobile exhaust fumes, gas meters, or other vents.
5. The air intake register should be installed where it is not likely to be blocked by snow or exposed to extreme wind.
6. The duct and register may be installed above or below floor level.
7. Use only Security components.



## FRAMING, FACING AND MANTLE

The construction of the framing, facing, and mantle must be in accordance with these guidelines and illustrations for a safe installation:

### Framing:

1. Frame the fireplace using 2" x 3" or heavier lumber. **Exception:** the header above the front black facing of the fireplace must be 1" x 4" on edge.
2. **WARNING:** The 1" x 4" header must rest on top of the metal spacers. Do not alter the spacers or notch the header to fit around them.
3. **WARNING:** Do not build in the area directly above the fireplace. This area must remain empty for a height of 7' measured from the base of the appliance.

Frame the fireplace with vertical studs at the sides and back of the fireplace running from floor to ceiling. The enclosure can be framed prior to installation, allowing 33" wide and 24" deep. If combustible facing is to be used, position the studs back from the front edge of the fireplace a space the thickness of the facing material in order that the facing can be installed flush with the fireplace facing. Frame headers between the vertical studs only as follows:

- Place a 1" x 4" header as described above
- Place 2" x 3" or 2" x 4" headers between the studs only along the front, side and back faces. Do not put wood or any combustible material within the area above the fireplace.
- Place headers only as required to support the facing and mantle, and place all headers on edge.

### Facing:

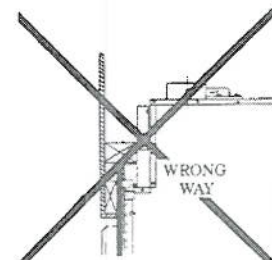
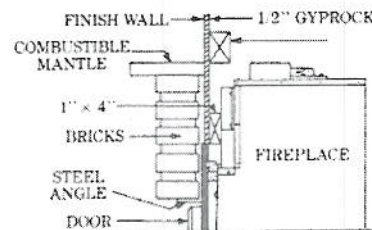
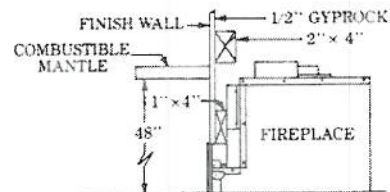
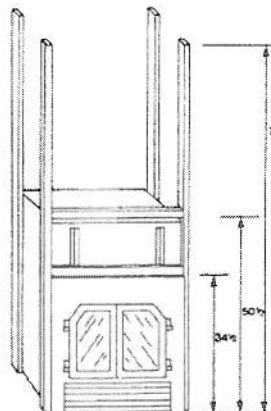
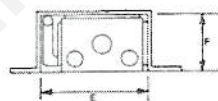
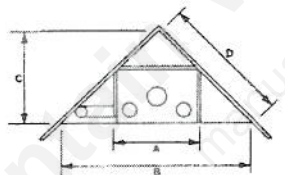
1. Combustible material must be installed flush with the fireplace facing. It may not project out in front of and on the fireplace facing (i.e. the steel faceplate of the BIS).
2. Non-combustible materials such as brick, stone, or ceramic tile may project in front of and onto the fireplace facing.

### Mantle:

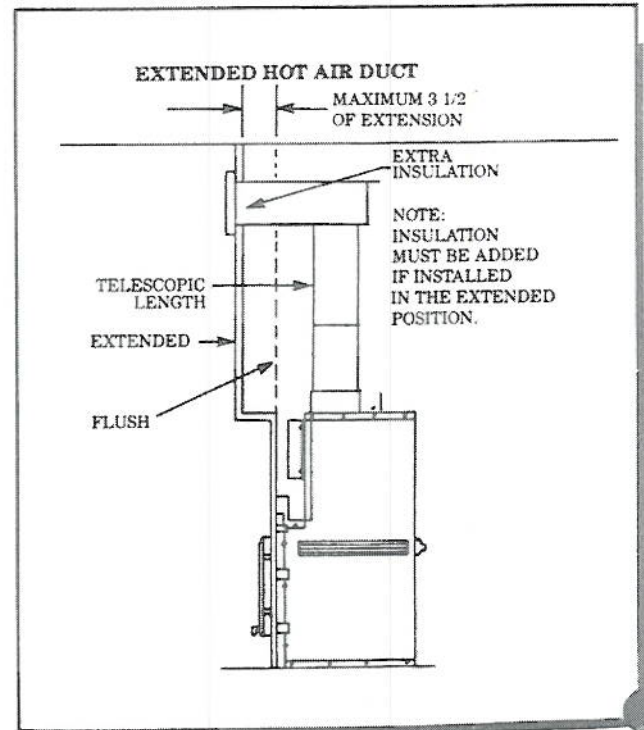
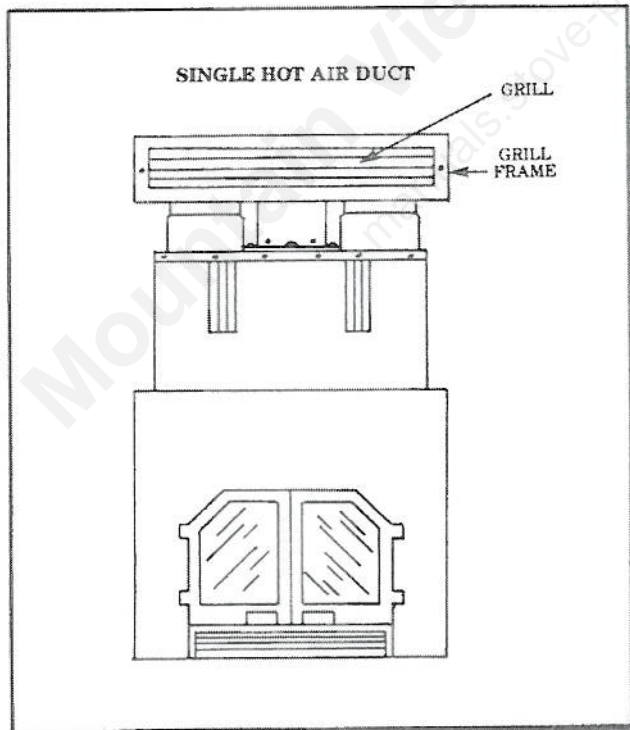
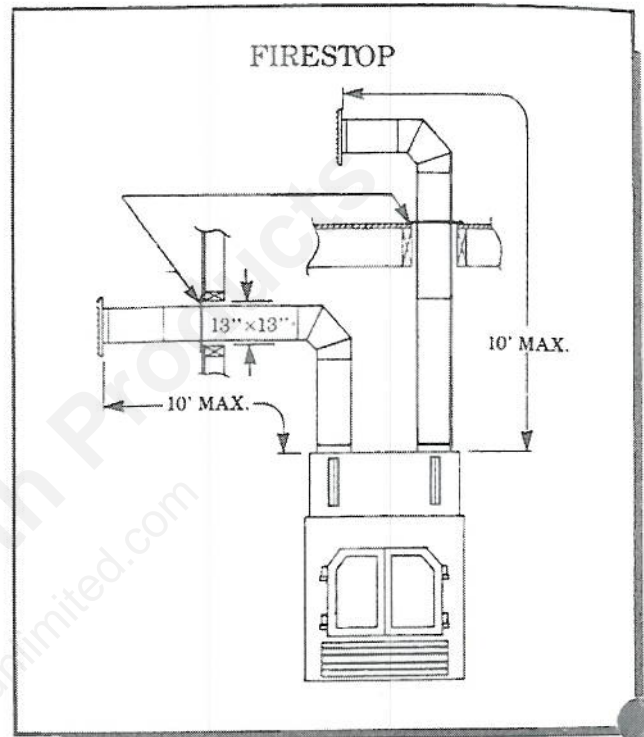
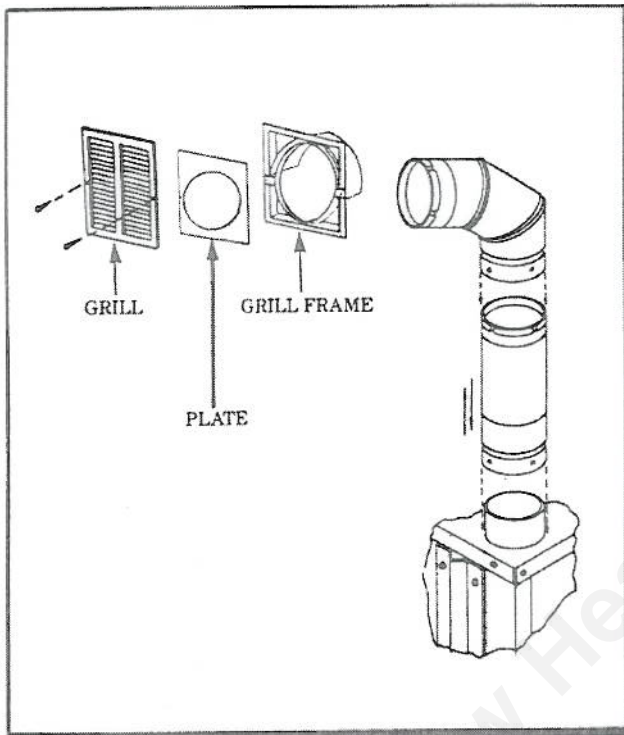
1. The mantle must be installed at least 48" above the base of the fireplace, and at least 6 1/2" away from any hot air outlet framing.

## RECOMMENDED FRAMING SIZES

	A	B	C	D	E	F
INCHES	33	78	38½	54½	43	24
METRIC	838	1981	978	1391	1092	610



12. For mobile home applications, the plate inbetween the grill and the grill frame must be removed.
13. The hot air outlet louvers must be installed with the louvers pointing downwards in order to prevent overheating adjacent ceilings.
14. If installing the single outlet system in the extended position, insulation must be added.



## HOT AIR DUCTING

The BIS comes with a duct kit consisting of one of the following:

### 1) Double Hot Air Outlet

- 2 - 8" I.D. double wall telescopic lengths
- 2 - 8" I.D. double wall elbows 90°
- 2 Hot Air Outlet Assemblies (grill, grill frame, and plate)

OR

### 2) Single Hot Air Outlet

- 2 - 8" I.D. double wall telescopic lengths
- 1 hot air outlet box including extra insulation strip

The standard parts included are designed to enable the following installations:

Configuration	Grill height*
1) Double outlet	
elbow directly on the BIS	4'10"
elbow + telescopic length: minimum	6'1"
elbow + telescopic length: maximum	7'
2) Single Outlet	
box directly on BIS	4'5"
box + telescopic length: minimum	5'9"
box + telescopic length: maximum	6'8"

\*grill height to be measured to midpoint of grill from the base of the BIS.

Each system is designed to be installed either flush with the front of the BIS, or extended out slightly from the face of the fireplace (if installing with a brick or thick facing for example). To extend the double outlet system, it will be necessary to purchase two ZB26ZL2A's. To extend the single outlet, it is necessary to install the insulation strip provided with the system. A maximum of 3 1/2" of extension is provided by the single outlet system.

The following optional parts are available:

PART DESCRIPTION	PART NO. FOR EASY ORDERING
- 12" length	8KL1
- 24" length	8KL2
- 36" length	8KL3
- firestop	8KBF
- 90° elbow	ZB26ZE90
- 45° elbow	ZB26ZE45
- 2"-5" adjustable length	ZB26ZL2A
- 15"-26" telescopic length	ZB26ZLA

When installing the double outlet system, the hot air outlets can be installed in the same room as the fireplace, or one or both of the outlets can be installed in adjacent or upper rooms. Installing the ducts at different elevations will tend to exhaust more heat out of the higher outlet.

The duct system must be installed bearing in mind the following restrictions:

1. Maintain at least a 2" clearance between the ducts and any combustible material; the required hole size is 13" x 13" for the duct itself.

**Exception #1:** At the grills the framing can be 10 3/4" x 10 3/4" to provide the clearance as required by the integral spacers on the double outlet duct system.

**Exception #2:** At the single outlet the framing must be 8 1/4" x 32 1/4", or as required by the integral spacers. At no time should any combustible facing material such as paneling cover over any part of the grill face.

2. The minimum duct system is the elbows (with grills), or the single outlet directly on the BIS. Installing the ducts at a lower elevation will cause the fireplace to overheat.

3. The maximum duct length is 10'.

4. The maximum number of elbows in a run of duct is three (i.e. three/side) for the double outlet system, and two elbows per side for the single outlet.

5. Maintain at least 6 1/2" clearance from the outlet grill framing to a combustible ceiling, side wall, or mantle.

6. When traversing a combustible wall or floor, a firestop must be installed at the wall or floor penetration. The required hole size is 13" x 13".

7. Do not connect the outlets to a central heating system. Malfunctions of the heating system's fan will cause the fireplace to overheat. Furnace duct is only single wall, and not double wall as is required for the BIS's hot air exhaust.

8. Use only Security double wall components and grills, as described in this manual. Other grills or registers, for example, may be too restrictive and may overheat the fireplace or ceiling.

9. Do not use insulated flexible ducts as they will overheat.

10. Do not use T's or any other components that are specifically listed here.

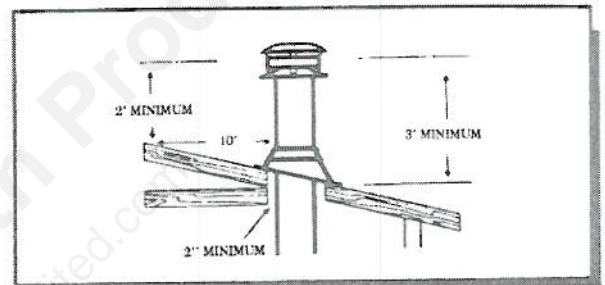
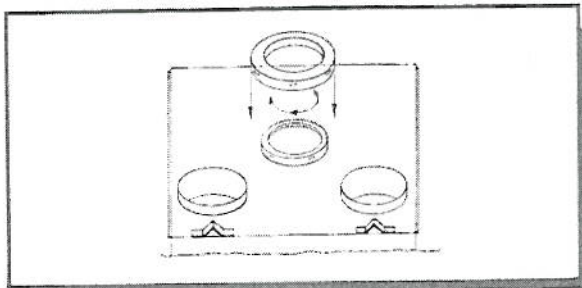
11. All ducts must extend upwards or horizontal. Never try to route the ducting downwards over any amount of length.

## CHIMNEY INSTALLATION NOTES

1. If installing elbows, refer to the section of offset chimney.
2. The BIS is listed for installation with either Security ASHT or Security S-2100 7" chimney. (S-2100 parts use an X in front of the part number to differentiate them from ASHT parts.)

If installing S-2100 chimney, an S-2100 adapter, part #7B26ZCA is required, available through the dealer. Install the adapter by placing it on top of the coupling of the BIS and turning it clockwise to lock it into place.

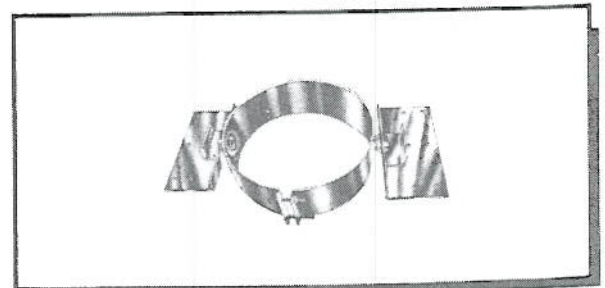
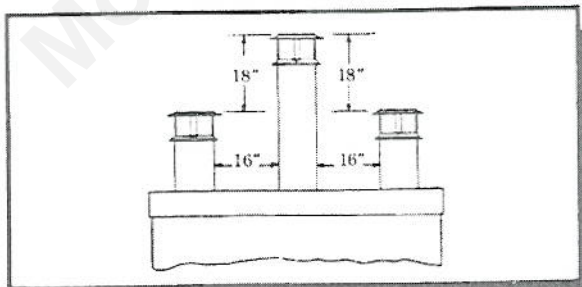
3. The BIS is not listed for use with masonry chimney or with chimney liner.
4. The minimum chimney height including the fireplace is 12'6" for vertical chimney.
5. The maximum height of chimney supported by the fireplace is 10' for ASHT. If additional height is required, use a roof support (ST). S-2100 chimney must be supported at the ceiling.
6. The chimney must extend at least 3' above its point of contact with the roof and at least 2' higher than any wall or roof within 10' of it.



7. Cut and frame square holes in all floors and the roof to provide 2" of clearance between the chimney and any combustible material. Do not fill this 2" air space with insulation or any material. Framing should be the same size as the joist size of the penetration. For example, if the joist size is 2" x 6", then use 2" x 6" framing.

CHIMNEY	FRAMING SIZE
ASHT	13 3/8" x 13 3/8"
S-2100	15" x 15"

8. If the chimney extends higher than 5' above the roof, it must be secured using a roof brace (BS).
9. A raincap must be installed on top of the chimney.
10. There are two types of ROOF FLASHING:  
Non-vented flashing: used in normal residential applications.  
Vented flashing: used for all mobile home installations.
11. The stainless steel casing on an exterior chimney may become stained and discoloured. Wash the chimney and roof flashing with solvent or vinegar, then paint it with rust proof paint.



12. MULTIPLE TERMINATIONS. Installations where more than one chimney is located in the same chase or within the same general area should have their terminations separated by at least 16" horizontally and 18" vertically. The separation is to prevent smoke migrating from one chimney to another.
13. ROOF SUPPORT (ST). The roof support has two possible uses. 1. It may be used on a floor, ceiling or roof above an offset to support the chimney above the offset. 2. It may be used on a floor, ceiling or roof as a supplementary support when the chimney height exceeds that permitted for the fireplace.

14. Portions of the chimney which may extend through accessible spaces shall be enclosed in all cases to avoid personal contact with the chimney and damage to the chimney.

For installations other than single or two-family dwellings, factory built chimneys which extend through any story above that on which the connected appliance is located are to be provided with enclosures having a fire resistance equal to or greater than that of the floor or roof assemblies through which they pass.

**WARNING**

1. DO NOT PLACE INSULATION OR ANY OTHER MATERIAL IN THE AIR SPACE AROUND THE CHIMNEY OR FIREPLACE. INSULATION PLACED ON OR AROUND THE FIREPLACE OR CHIMNEY MAY CAUSE ADJACENT WOOD TO OVERHEAT AND CATCH ON FIRE.

2. Do not build shelves or cupboards into the area above the fireplace as they may overheat.

3. Do not vent any other appliance to the fireplace or its chimney.

Maximum permissible length of chimney supported

TYPE OF SUPPORT	MAXIMUM PERMISSIBLE LENGTH OF CHIMNEY SUPPORTED	INTENDED USE
FIREPLACE	10' of ASHT	
ST	30' OF ASHT	- supplementary support at the roof or any floor level, or above or below an offset.
SO	24' OF ASHT	- above or below an offset at an adjacent wall.
XST	20' OF S-2100	- same as ST
XSO	12' OF S-2100	- same as SO

**OFFSET CHIMNEY INSTALLATION NOTES**

Elbows and an offset chimney can be used to pass the chimney through the roof while clearing an upstairs obstruction such as joists, closets, or cupboards, subject to the following restrictions:

1. The maximum number of elbows in an installation is four (i.e. two offsets or two pairs of elbows). One of each pair of elbows must be used to return to the vertical (i.e. two 45° elbows cannot be combined to form a 90° for example)

2. The minimum chimney height (including fireplace) when using elbows is;

OFFSET	NUMBER OF ELBOWS	MINIMUM HEIGHT
15°	2	14'
15°	4	15'
30°	2	17'
30°	4	21'
45° (Canada only)	2	19'
45° (Canada only)	4	24'

3. The maximum offset angle for ASHT chimney is 30° in the USA, and 45° for Canada. The maximum angle of S-2100 chimney is 30°.

4. An elbow can be installed directly on top of the fireplace if so desired.

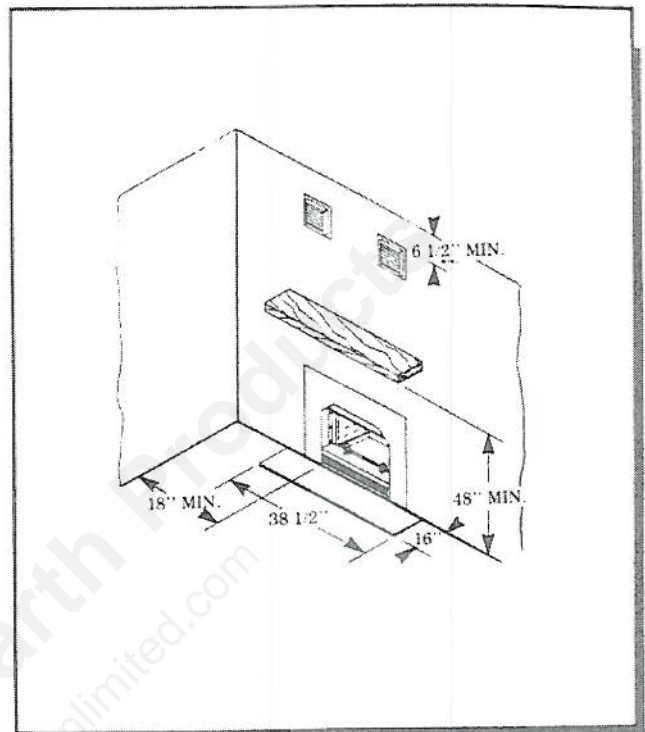
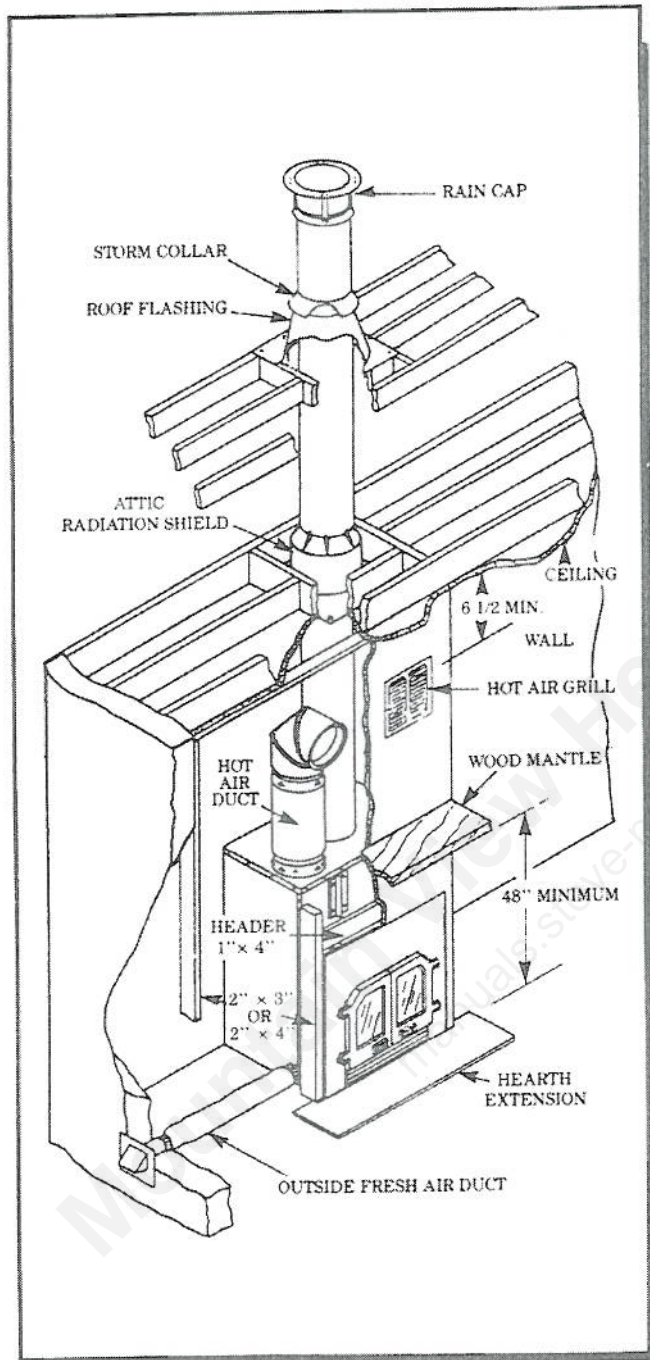
5. The chimney must be supported above and below each offset. Support above can be achieved by a roof support (ST) or by an offset support (SO) and below by either the BIS or by another roof support (ST) at a lower level.

6. The maximum length of unsupported offset chimney is 6'. Offset chimney longer than 6' must be resupported at 6' intervals using a Wall Band (BM) or an offset support (SO). Wire adjacent ceiling or wall, however, support should be provided from two directions.

7. If penetrating a combustible wall with an offset, a wall radiation shield (7RSM30 or 7RSM45) is required. Alternatively, if penetrating an insulated wall, a insulated firestop radiation shield (RSMI30, RSMI45) can be used. If penetrating to an exterior chimney (not recommended in cold climates), install a RSM from outside in addition to the RSM or RSMI on the inside. This will finish the installation and prevent leaves etc. from accumulating in the cavity.

**8. Offset Support (SO)**

This support can be used on a vertical wall, above an offset, to resupport the chimney. It is especially useful when traversing a wall and into a chase.



**DO NOT PLACE INSULATION OR ANY OTHER MATERIAL IN THE AIR SPACE AROUND THE CHIMNEY OR FIREPLACE. INSULATION PLACED ON OR AROUND THE FIREPLACE OR CHIMNEY MAY CAUSE ADJACENT WOOD TO OVERHEAT AND CATCH ON FIRE.**

## INSTALLATION INSTRUCTIONS: STEP BY STEP:

### BEGINNING THE FIREPLACE INSTALLATION

1. Obtain the necessary permits, approvals, and information on the specific requirements in your area. Read this manual completely before beginning to familiarize yourself with all the steps required to complete the installation.
2. Choose a location for the BIS, referring to the notes under "Fireplace: Location and Installation", and move the fireplace into place.
3. Suspend a plumb bob from the ceiling and mark the location of the flue center on the ceiling. Ensure that the installation will not require cutting floor, ceiling, or roof joists.
4. At this point it is advisable to measure out the intended locations for all the components and verify that the required clearances will be met, before proceeding with the actual installation.
5. Install the floor protector, referring to the section on Hearth Extension Requirements, making sure the gap between the fireplace and the hearth extension is sealed.
6. For mobile home applications, secure the unit to the floor of the mobile home using 2" nails installed through the perforations around the edge of the base at the sides and back of the unit.

### CHIMNEY INSTALLATION

7. Cut and frame a 13 3/8" x 13 3/8" (15" x 15" if using S2100 chimney) square hole at the ceiling. Framing material should be the same size as the floor through which the penetration is made.

#### 8. For ASHT Chimney:

From below install a firestop radiation shield (RS) in each floor through which the chimney passes. At the attic level, install an attic radiation shield (RSA) from below in place of the firestop radiation shield (RS).

#### For insulated floors or ceilings (Canada only):

Alternatively, a insulated firestop radiation shield (RSI) can be installed from below. At the attic level, install a attic radiation shield (RSA) from above, in addition to the RSI from below.

#### For S-2100 chimney:

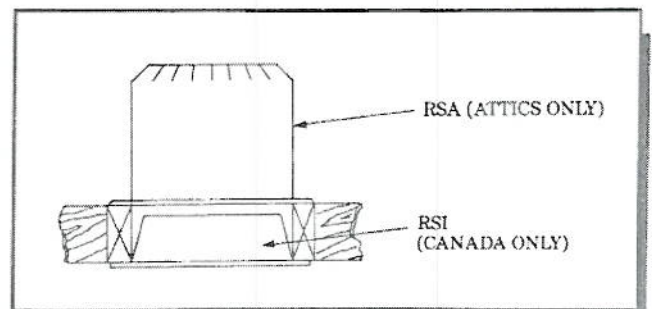
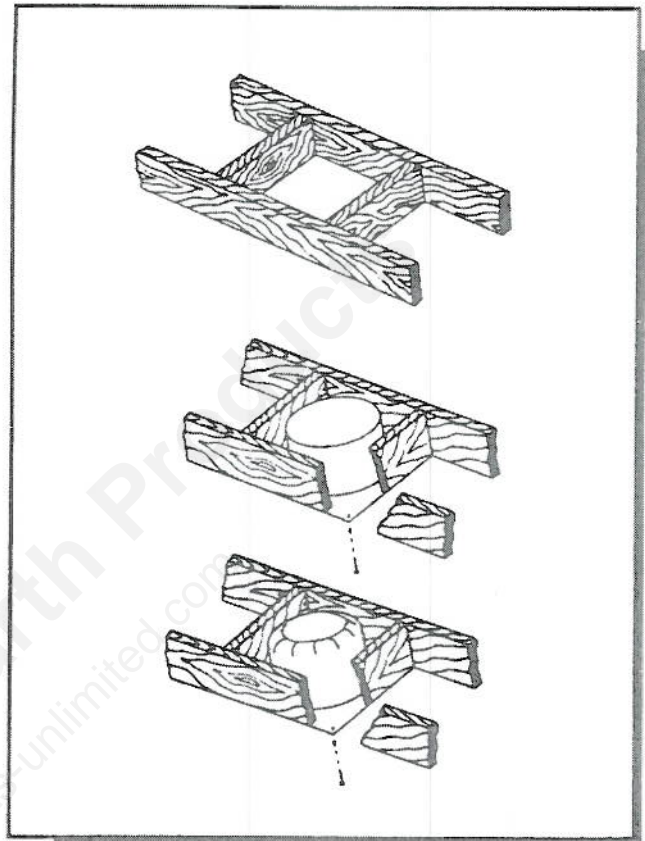
Install a Firestop Radiation Shield (XRSA) from below at each floor, ceiling, or attic level.

#### For Mobile Homes:

Install the appropriate radiation shield from below the ceiling, following the guidelines for mobile home applications.

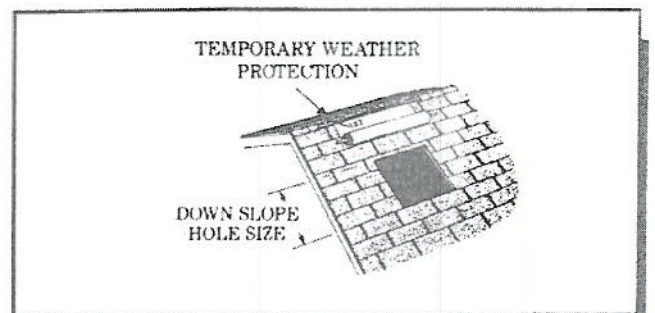
9. If offsets are to be used, refer to the instructions on Offset Installation.

10. Install the chimney lengths on the fireplace, turning the chimney clockwise to lock it in place, until the desired height is reached. Penetrations through successive ceilings should be carried out the same as the beginning one. If the maximum height of chimney which the fireplace can support has been exceeded, install a roof support (ST) as described below. At the roof level, cut and frame a hole, referring to the table for hole sizes.



### DOWN SLOPE HOLE SIZE

SLOPE	ASHT	S-2100
0	13 3/8"	15"
2/12	13 5/8"	15 3/8"
4/12	14 1/4"	16 1/8"
6/12	15"	16 7/8"
8/12	16 1/4"	18 1/4"
10/12	17 1/2"	19 5/8"
12/12	19"	21 3/8"



11. Roof supports are to be installed as follows:

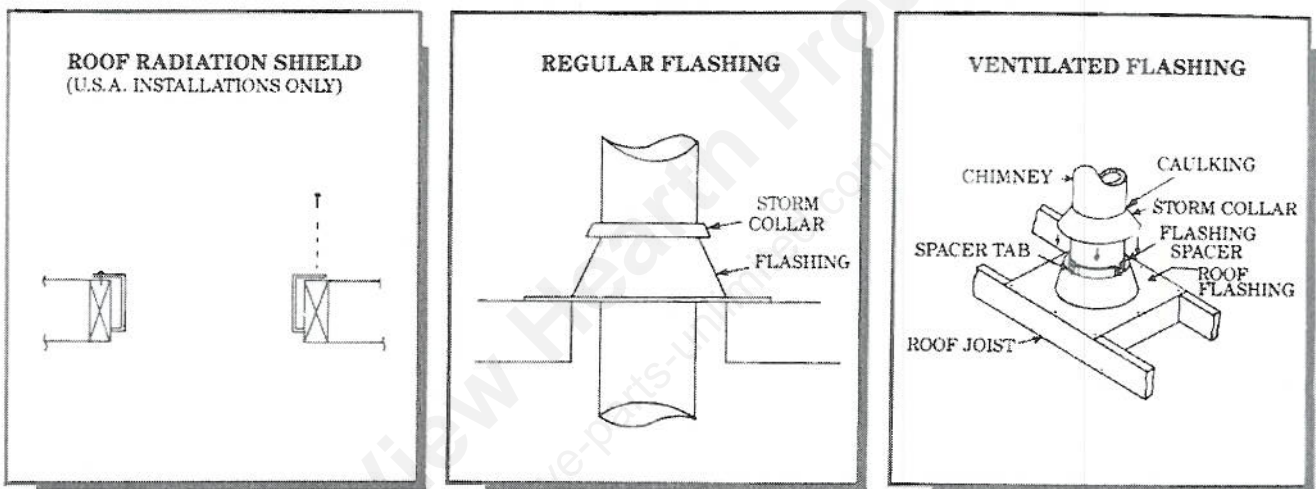
**Roof Support Installation at a floor:** If the roof support is installed at a floor, the firestop radiation shield (RS) may need to be trimmed. With the firestop radiation shield in place from below, slip the support down over the stainless steel chimney until its brackets rest on the floor. It may be necessary to cut slots in the upper portion of the radiation shield so that it will fit around the support's brackets. Cut only the minimum amount so that the roof support will fit.

**Roof Support Installation at an attic:** It is not recommended to use the roof support at an attic where the attic radiation shield (RSA) will need to be trimmed, since trimming an RSA will reduce its effectiveness as a firestop.

**Roof Support Installation at a roof (U.S.A. only):** If the roof support is installed at the roof, install the support only after first installing the roof radiation shield that comes with the flashing as described below.

12. Install the roof support by slipping the roof support down over the chimney until its brackets rest on the roof or floor. Tighten the collar around the chimney, then secure it by screwing four 5/8" or shorter metal screws through the holes in the collar and into the chimney. Do not use longer screws or screw into the inner liner of the chimney. Center the chimney in the framed hole and then fasten the support to the roof or floor using twelve 2 1/2" nails or no. 8 1/4" wood screws.

13. (U.S.A. ONLY) Install the Roof Radiation Shield (RST) which is supplied with the Roof Flashing. The shield consists of four metal plates. Nail one plate to each side of the joist using four 3/4" screws or 1" nails.



14. Install the flashing as follows:

**Regular Flashing:** Put the roof flashing in place. For sloping roofs, place the flashing under the upper shingles and on top of the lower shingles. Nail the flashing to the roof using roofing nails. Seal the joint between the roof and the flashing using roofing pitch.

**Ventilated Flashing:** (mobile Homes only) Install the mobile home ventilated flashing similarly to the above, except before nailing the flashing to the roof, place the flashing spacer over the chimney and push down until the spacer's tabs fit over the flashing. This will position the flashing centrally over the chimney.

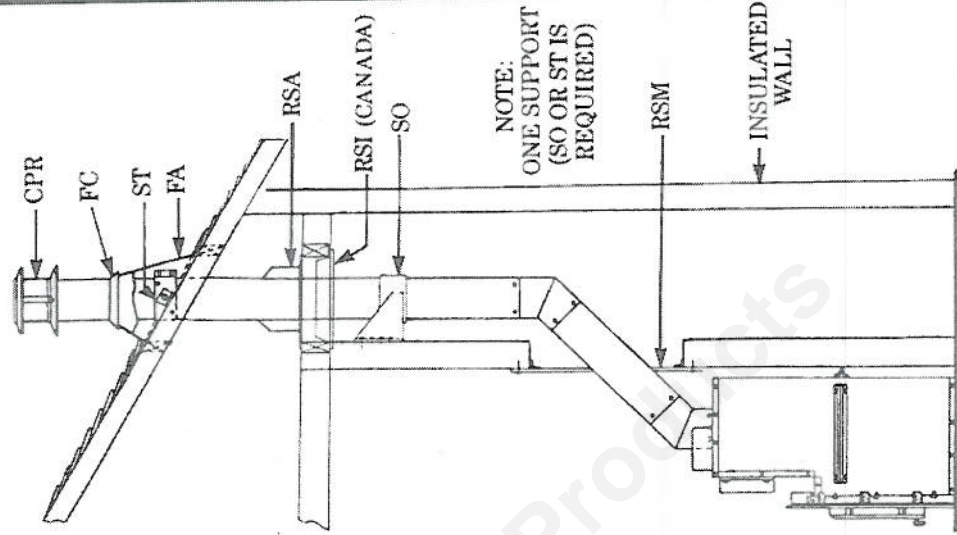
15. Place the storm collar over the chimney and push down until the collar contacts the flashing assembly. Tighten the bolt on the collar, and then seal the joint between the chimney and the collar with silicon caulking. Wash the roof flashing with a solvent or vinegar, and then paint it with a rust proof paint. Fit the raincap and turn it clockwise to lock it in place.

#### OFFSET CHIMNEY INSTALLATION

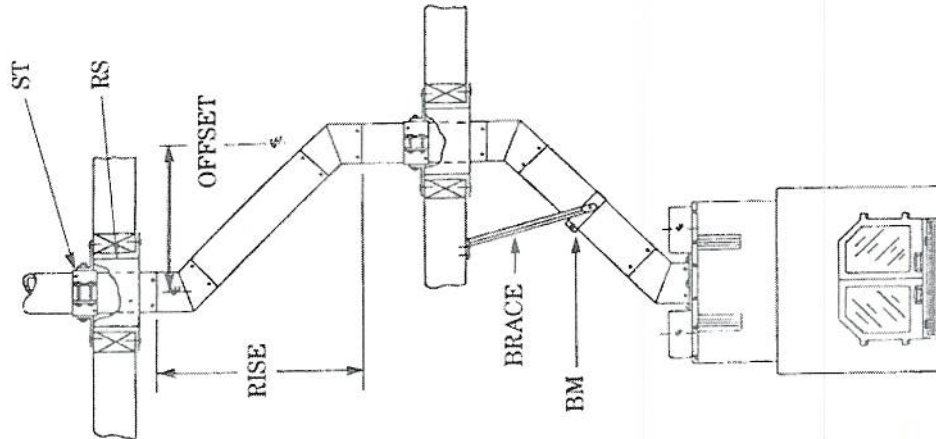
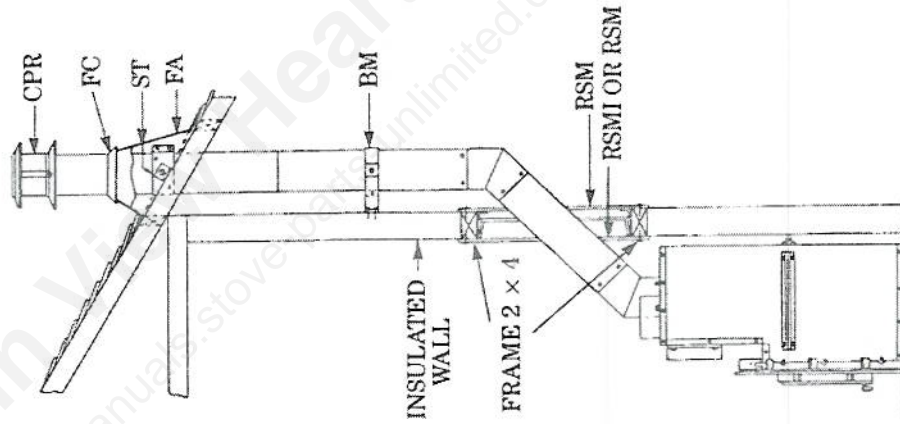
After arriving at the location requiring the elbow, proceed as follows:

1. Install the insulated elbow. Turn it in the required direction and fasten it with the 3 metal screws provided.
2. Install the necessary lengths to achieve the required offset. Turn the chimney lengths clockwise to lock them together then secure them using 3-1/2" screws. Resupport the chimney at the required intervals. If penetrating a wall, install a wall radiation shield.
3. Use another elbow to turn the chimney vertically. Again secure the elbow using 3-1/2" metal screws.
4. If the chimney is to pass through a ceiling, cut and frame a hole for the chimney in the ceiling, using a plumb bob to line up the center of the hole offsetted the correct amount as listed in the table. Next, return to where you left off in the regular installation instructions, and install the firestop radiation shield (RS) and roof support (ST), and complete the installation, as described in that section.
5. If the chimney is to pass by an adjacent combustible wall or into a chase, then a wall radiation shield (7RSM30, 7RSM45, 7RSM130, or 7RSM145) and an offset support (SO) must be installed as described following: Alternatively, the chimney can be resupported at the roof with a roof support.

**INSULATED CHASE**



**EXTERIOR INSTALLATION  
NOT RECOMMENDED FOR COLD CLIMATES**



**TYPE ASHT/S2100 7" CHIMNEY: OFFSET - RISE CHART**

ELBOW		ONE LENGTH BETWEEN ELBOWS				
		8"	12"	18"	24"	36"
15°	Offset	3"	4 1/4"	5 3/4"	7 1/4"	10 1/4"
	Rise	16 1/2"	20 1/4"	26 1/4"	32"	43 1/2"
30°	Offset	7 1/2"	9 1/2"	12 1/2"	15 1/2"	21 1/2"
	Rise	20 3/4"	24 1/4"	29 1/2"	34 3/4"	45"
45°	Offset	10 1/2"	13 1/4"	17 1/2"	21 3/4"	30 1/4"
	Rise	19"	21 1/4"	25 1/2"	29 3/4"	38 1/4"

ELBOW		TWO LENGTHS BETWEEN ELBOWS				
		8 & 36	12 & 36	18 & 36	24 & 36	36 & 36
15°	Offset	12 1/4"	13 1/4"	14 3/4"	16 1/4"	19 1/2"
	Rise	50 1/2"	54 1/4"	60"	65 3/4"	77 1/2"
30°	Offset	25"	27"	30"	33"	39"
	Rise	51 1/4"	54 3/4"	60"	65 1/4"	75 1/2"
45°	Offset	35 1/2"	38"	42 1/4"	46 1/2"	55"
	Rise	43 1/4"	46"	50 1/4"	54 1/2"	63"

**Installing the offset support (SO):**

1. Assemble the support
2. Slip the support down over the chimney to a convenient location. Be sure that the support attaches to a solid wall and not merely to gyprock or aluminum siding.
3. Tighten the collar around the chimney, then secure it by screwing four 3/4" metal screws through the holes in the collar and into the chimney. The screws, or the pilot holes, must not penetrate the inner liner.
4. Attach the support brackets to the wall using eight 3" nails or No. 8 1 1/4" screws.
5. Continue installing the chimney, returning to where you left off in the regular installation instructions.

**Locating the Wall Radiation Shield (7RSM30, 7RSM45, 7RSMI30, or 7RSMI45)**

1. To locate the wall radiation shield, first determine the location of the hole from the table, and then frame it using only 2 x 4" material. If penetrating a 2 x 6" or larger wall, use only 2 x 4" headers on the top and bottom. Do not use framing larger than 2 x 4" on the top or the bottom, as the shield is designed to maintain the proper clearance to 2 x 4" headers and facing material only.
2. The RSMI is intended for exiting through an insulated wall to an exterior chimney or uninsulated chase. This type of installation is not recommended for cold climates.
3. If exiting to an exterior chimney (not recommended for cold climates) install a RSM from the outside in addition to the firestop radiation shield on the interior wall.

OFFSET	HOLE SIZE	BIS LOCATION	HEIGHT OF HOLE CENTER
45°	23 1/4" x 13 3/8"	FLUSH ON BACKWALL	65"
45°	23 1/4" x 13 3/8"	FLUSH ON SIDEWALL	72"

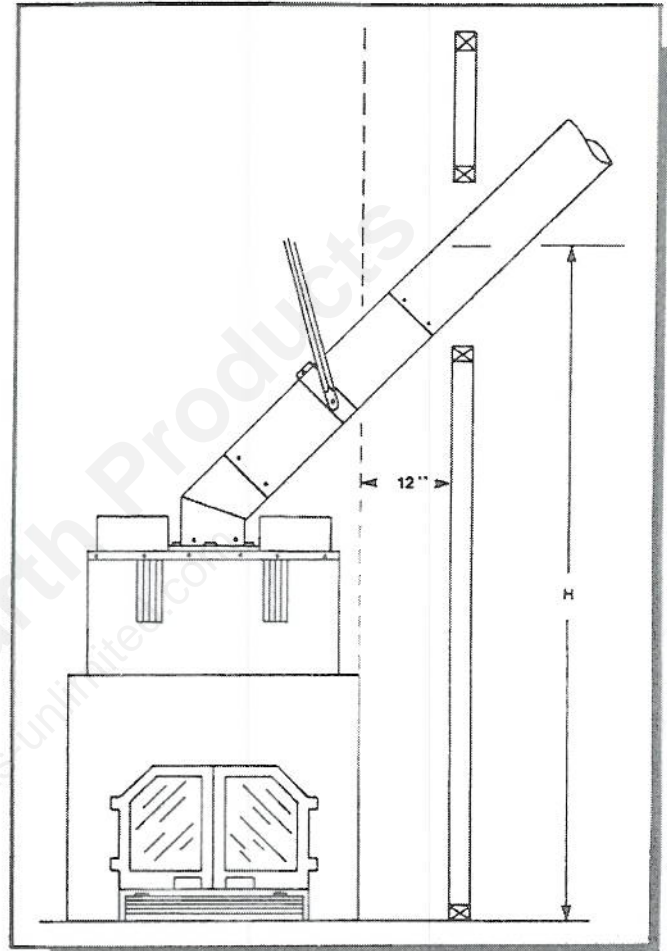
Note: If the BIS is located a distance away from the wall, add the distance which the BIS is separated from the wall to the height of the hole center.

30°	33 1/4" x 13 3/8"	FLUSH ON BACKWALL	73"
30°	33 1/4" x 13 3/8"	FLUSH ON SIDEWALL	85"

Note: If the BIS is located a distance away from the wall, add an amount "X" to the height of the hole center, where X is the distance multiplied by 1.73

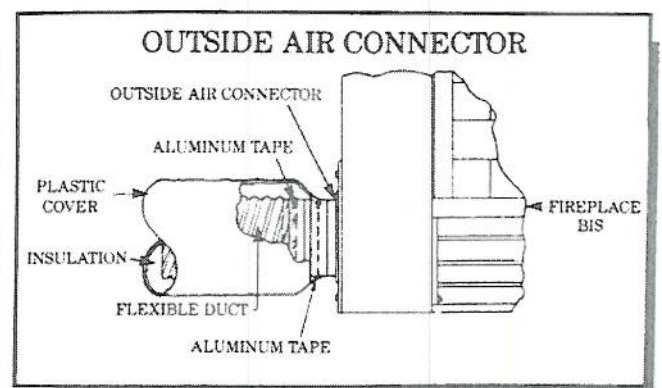
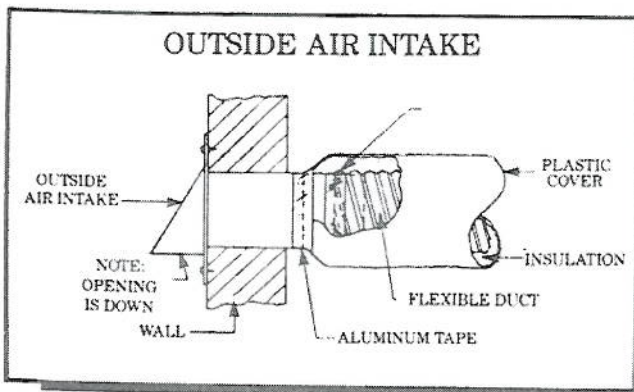
**Example:**

Offset	Calculate H
30°	$H = (85'') + (1.73)(12'')$ $= 105\ 3/4''$
45°	$H = (72'') + (12'')$ $= 83''$



**OUTSIDE AIR KIT INSTALLATION**

16. If an Outside Air Kit is to be installed, install it now, observing also the guidelines given in the section on Outside Air Requirements. Make a 4 1/4" hole in the outside wall of the house at the chosen location. From outside, place the outside air register in the hole (open side down) and fasten the register to the wall with screws as shown. Remove the cap on the duct to the fireplace. Expand the duct up to 10' by stretching it to length. It is necessary to expand the duct at the register end in order for it to fit over the register tube. Slip the duct into the insulated sleeve. Place the insulated flexible duct over the register tube and over the fireplace outside air connector. At each end carefully pull back the insulation and plastic cover exposing the flexible duct. Using the aluminum tape provided, wrap the tape around the joint between the flexible duct and the air inlets. Carefully push the insulation and plastic cover back over the duct. Using aluminum tape, fasten the plastic cover in place.



## COMPLETING THE FIREPLACE INSTALLATION

17. Frame the unit according to the guidelines given in the section on framing.
18. Install the hot air ducts, referring to the guidelines in the section on Hot Air Duct Installation.

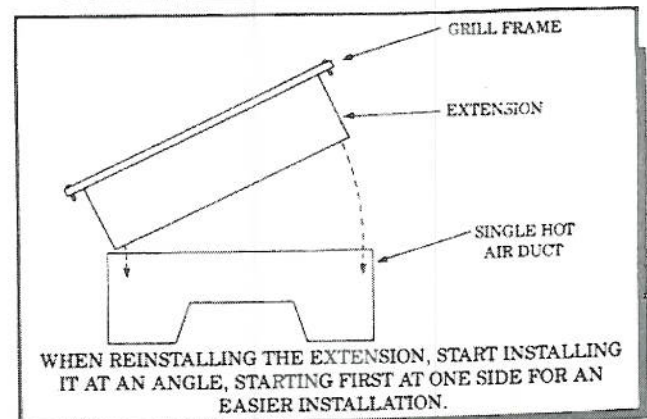
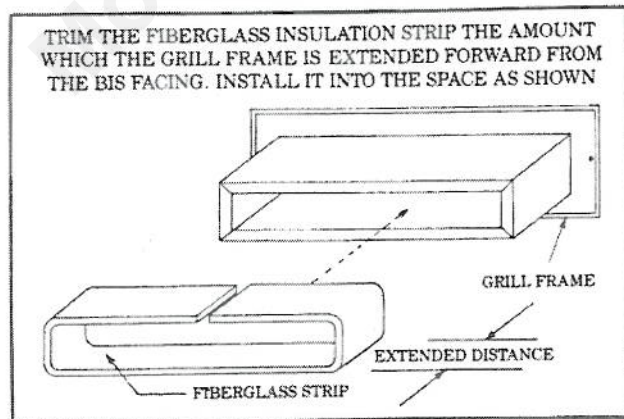
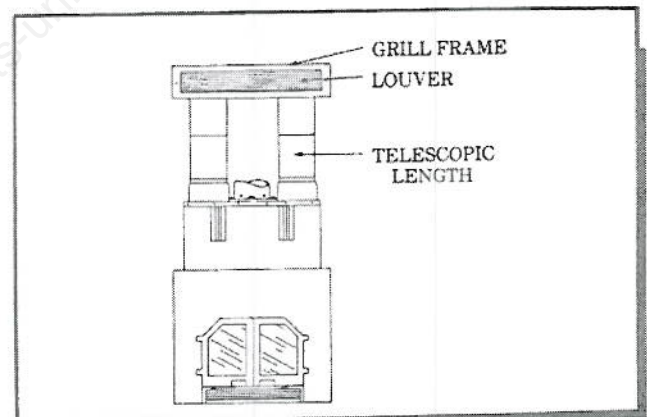
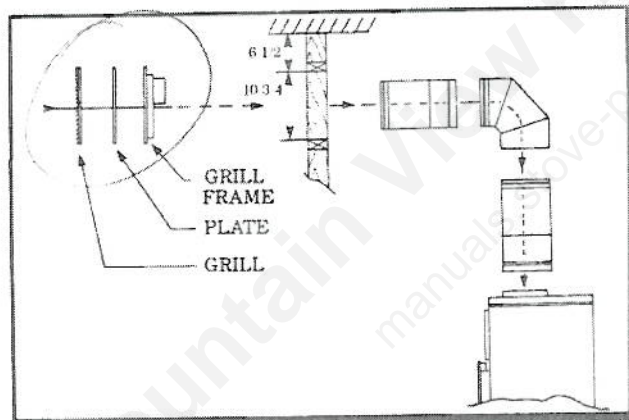
### Individual Hot Air Ducts:

Separate the hot air grill assembly into three parts; the grill, plate, and the grill frame by removing the two screws. Attach the grill frame to the 90° elbow. Put aside the grill and plate until the facing has been completed. Complete the framing for the hot air ducts as follows. Frame two 10 3/4" x 10 3/4" openings for the hot air ducts, locating the framing at least 6 1/2" away from an adjacent wall or ceiling. Once the framing is complete, remove the grill frames and complete the facing and mantle. To finish the installation, install the plates and grill using the two screws provided (for mobile home applications the plate must be left out). The louvers must point downwards, to direct the hot air towards the floor, and away from a ceiling. For residential applications where the plates are installed, silicone the joint between the plate and the duct.

**Single Hot Air Duct:** Install the hot air outlet box in its position on top of the ducts on the BIS. If extension is to be used, slide the grill frame forward to its final extension. Complete the framing for the BIS, installing headers at the top and bottom of the box so that the headers rest against the spacers of the box. The existing framing from the sides of the BIS will extend up to the sides of the box. Once framed, the grill frame can now be removed from the box by pulling it forward. If the outlet is to be installed extended into the room, it is necessary to add insulation to the grill. Remove the grill from the box. The piece of fiberglass included is suitable for full extension. If the box is to be fully extended, use all the insulation. Otherwise cut a strip of insulation the size of the amount extended into the room, and install it into the space between the two walls of the grill. Install the facing material onto the framing, and trim the facing at the headers which frame off the hot air outlet. Replace the grill frame with the louvers pointing downwards, and secure it on each side with the screws provided. If the louver is to be removed for painting, remove it by pulling out at the top, and then lifting it up and out.

19. Review the installation making sure all clearances have been met and that the fireplace has been properly installed. Remove any plastic protecting the brass doors and the wooden handles.

20. The installer should record his name and address in the installation instructions (as required by CSA B365), and the instruction manual should be left at the location with the user.



## APPENDIX

### SPECIFICATIONS:

Weight:	Shipping weight 325 lb
Height:	48"
Width:	33"
Depth:	24"
Chimney Weight:	ASHT: 8.3 lb/ft S-2100: 15 lb/ft

### CLEARANCES REQUIRED TO COMBUSTIBLES

These are the minimum recommended clearances for a safe installation.

Sidewall:	18" (450mm) except as noted below
Ceiling:	7' (2135mm) measured from the base of the appliance
Fireplace Enclosure:	Bottom: 0 Sides: 0 Back: 0 Top: keep area above the top clear to 7' (2135mm) height measured from the base of the unit except as noted in "FRAMING"
Chimney: above the ceiling:	2" (50mm)
below the ceiling:	follow top outline of fireplace
Mantle:	48" (1220mm) from the base of the BIS, and 6 1/2" (160mm) to hot air duct framing
Hot Air Duct:	2" (50mm) except at register frame
Hot Air Duct grill frame:	as determined by the integral spacers. Hole size is 10 3/4" x 10 3/4" (275 x 275mm)
Hot Air Grill:	6 1/2" (160mm) to an adjacent ceiling or mantle, measured from the duct framing (6" from the grill)
Outside Air Duct:	0"

#### NOTES:

1. A wall, perpendicular to and in front of the fireplace front must be at least 18" from the fireplace opening. A wall at 60 degrees to the front and starting at the fireplace's outer edge is permitted. Projections behind this wall (shaded area) are permitted.

