

### Models:

### RUTHERFORD-50

Wood Burning Fireplace



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.

### NOTICE



#### DO NOT DISCARD THIS MANUAL

- Important operating and maintenance instructions included.
- Read, understand and follow these instructions for safe installation and operation.
- Leave this manual with party responsible for use and operation.



### ⚠ WARNING



If the information in these instructions is not followed exactly, a fire may result causing property damage, personal injury, or death.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Do not overfire. Overfiring will void your warranty.
- Comply with all minimum clearances to combustibles as specified. Failure to comply may cause house fire.

### ⚠ WARNING



#### HOT SURFACES!

Screen/mesh, glass doors and other surfaces are hot during operation AND cool down.

#### Hot screen/mesh and glass doors will cause burns.

- Do not touch screen/mesh or glass doors until cooled
- NEVER allow children to touch screen/mesh or glass doors
- Keep children away
- CAREFULLY SUPERVISE children in same room as fireplace.
- Alert children and adults to hazards of high temperatures.

#### High temperatures may ignite clothing or other flammable materials.

- Keep clothing, furniture, draperies and other flammable materials away.

### ⚠ WARNING



#### Fire Risk

- For use with solid wood fuel or decorative gas appliance only.
- Do not install unvented gas logs.



Installation and service of this fireplace should be performed by qualified personnel. Hearth & Home Technologies suggests NFI certified or factory-trained professionals, or technicians supervised by an NFI certified professional.



**Read this manual before installing or operating this fireplace.  
Please retain this owner's manual for future reference.**

**Congratulations!**

Congratulations on selecting a Heat & Glo wood burning fireplace. The Heat & Glo fireplace you have selected is designed to provide the utmost in safety, reliability and efficiency.

As the owner of a new fireplace, you'll want to read and carefully follow all of the instructions contained in this owner's manual. Pay special attention to all cautions and warnings.

This owner's manual should be retained for future reference. We suggest you keep it with your other important documents and product manuals.




The information contained in this owner's manual unless noted otherwise, applies to all models and gas control systems.

Your new Heat & Glo wood burning fireplace will give you years of durable use and trouble-free enjoyment. Welcome to the Heat & Glo family of fireplace products!

<b>Homeowner Reference Information</b>	<i>We recommend that you record the following pertinent information about your fireplace:</i>
Model Name: _____	Date purchased/installed: _____
Serial Number: _____	Location on fireplace: _____
Dealership purchased from: _____	Dealer phone: _____
Notes: _____	
_____	
_____	


**Listing Label Information/Location**

The model information regarding your specific fireplace can be found on the rating plate located on the smoke shield of the fireplace.

<b>Serial Number</b>	<b>Grate</b>	<b>Fireplace Model</b>
	<b>FIREPLACE NO.</b> <input style="width: 100px; height: 20px;" type="text"/>	<b>MODEL NO.</b> <input style="width: 100px; height: 20px;" type="text"/>
<small>WARNING: RISK OF FIRE DAMAGE. REPLACE GRATE WITH HEARTH &amp; HOME TECHNOLOGIES INC.</small>		
<b>MODEL I/O.</b> <b>MFG. DATE</b> <input style="width: 100px; height: 20px;" type="text"/> <input style="width: 100px; height: 20px;" type="text"/>		
<small>FIRECHAMBER INTENDED FOR USE WITH HEARTH &amp; HOME TECHNOLOGIES INC. LISTED FIREPLACE PARTS. SEE INSTALLATION AND OPERATING INSTRUCTIONS FOR THIS MODEL. ONLY HEARTH &amp; HOME TECHNOLOGIES INC. GLASS DOOR KITS CAN BE INSTALLED ON THIS UNIT.</small>		
<b>FIREPLACE ALSO FOR USE IN MANUFACTURED HOMES</b> YES <input type="checkbox"/> NO <input type="checkbox"/>	<b>CLEARANCE TO CHIMNEY COMBUSTIBLES:</b> 2 IN. MIN.	<b>FIREBOX</b> <input style="width: 50px; height: 20px;" type="text"/> <b>IN. MIN.</b>
 <b>FAN KIT MODEL NO.</b> <input style="width: 80px; height: 20px;" type="text"/> & <input style="width: 80px; height: 20px;" type="text"/>	<b>RATED AT</b> 115 VOLTS, 50/60 Hz.,	<input style="width: 50px; height: 20px;" type="text"/> <b>AMP.</b> 
<b>DO NOT OVERFIRE. USE ONLY: SOLID WOOD FUEL OR LISTED DECORATIVE GAS APPLIANCE. DO NOT USE A FIREPLACE INSERT OR OTHER PRODUCTS NOT SPECIFIED FOR USE WITH THIS PRODUCT. IF DOORS ARE USED OPERATE FIREPLACE WITH DOORS FULLY OPEN OR CLOSED ONLY. WHEN BURNING A DECORATIVE GAS APPLIANCE IN THE FIREPLACE, ADJUST DAMPER TO THE FULLY OPEN POSITION.</b>	<b>WARNING! THIS FIREPLACE HAS NOT BEEN TESTED WITH AN UNVENTED GAS LOG SET. TO REDUCE THE RISK OF FIRE OR INJURY, DO NOT INSTALL AN UNVENTED GAS LOG SET INTO FIREPLACE.</b> <b>WARNING! THIS APPLIANCE IS NOT FOR USE AS COOKING EQUIPMENT.</b> <b>IF INSTALLATION OR OPERATING INSTRUCTIONS ARE MISSING CONTACT: HEARTH &amp; HOME TECHNOLOGIES INC., 1915 W. SAUNDERS ST., MT. PLEASANT, IA 52641.</b>	

**Note:** An arrow (➔) found in the text signifies change in content.

## Safety Alert Key:

-  **DANGER!** Indicates a hazardous situation which, if not avoided will result in death or serious injury.
- WARNING!** Indicates a hazardous situation which, if not avoided could result in death or serious injury.
- CAUTION!** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- NOTICE:** Indicates practices which may cause damage to the fireplace or to property.

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## Warranty

### Hearth & Home Technologies Inc. LIMITED LIFETIME WARRANTY

Hearth & Home Technologies Inc., on behalf of its hearth brands ("HHT"), extends the following warranty for HHT gas, wood, pellet, coal and electric hearth appliances that are purchased from an HHT authorized dealer.

#### **WARRANTY COVERAGE:**

HHT warrants to the original owner of the HHT appliance at the site of installation, and to any transferee taking ownership of the appliance at the site of installation within two years following the date of original purchase, that the HHT appliance will be free from defects in materials and workmanship at the time of manufacture. After installation, if covered components manufactured by HHT are found to be defective in materials or workmanship during the applicable warranty period, HHT will, at its option, repair or replace the covered components. HHT, at its own discretion, may fully discharge all of its obligations under such warranties by replacing the product itself or refunding the verified purchase price of the product itself. The maximum amount recoverable under this warranty is limited to the purchase price of the product. This warranty is subject to conditions, exclusions and limitations as described below.

#### **WARRANTY PERIOD:**

Warranty coverage begins on the date of original purchase. In the case of new home construction, warranty coverage begins on the date of first occupancy of the dwelling or six months after the sale of the product by an independent, authorized HHT dealer/ distributor, whichever occurs earlier. The warranty shall commence no later than 24 months following the date of product shipment from HHT, regardless of the installation or occupancy date. The warranty period for parts and labor for covered components is produced in the following table.

The term "Limited Lifetime" in the table below is defined as: 20 years from the beginning date of warranty coverage for gas appliances, and 10 years from the beginning date of warranty coverage for wood, pellet, and coal appliances. These time periods reflect the minimum expected useful lives of the designated components under normal operating conditions.

Warranty Period		HHT Manufactured Appliances and Venting							Components Covered
Parts	Labor	Gas	Wood	Pellet	EPA Wood	Coal	Electric	Venting	
1 Year		X	X	X	X	X	X	X	All parts and material except as covered by Conditions, Exclusions, and Limitations listed
2 years				X	X	X			Igniters, electronic components, and glass
		X	X	X	X	X			Factory-installed blowers
			X						Molded refractory panels
3 years				X					Firepots and burnpots
5 years	1 year			X	X				Castings and baffles
7 years	3 years		X	X	X				Manifold tubes, HHT chimney and termination
10 years	1 year	X							Burners, logs and refractory
Limited Lifetime	3 years	X	X	X	X	X			Firebox and heat exchanger
90 Days		X	X	X	X	X	X	X	All replacement parts beyond warranty period

See conditions, exclusions, and limitations on next page.

## **WARRANTY CONDITIONS:**

- This warranty only covers HHT appliances that are purchased through an HHT authorized dealer or distributor. A list of HHT authorized dealers is available on the HHT branded websites.
- This warranty is only valid while the HHT appliance remains at the site of original installation.
- Contact your installing dealer for warranty service. If the installing dealer is unable to provide necessary parts, contact the nearest HHT authorized dealer or supplier. Additional service fees may apply if you are seeking warranty service from a dealer other than the dealer from whom you originally purchased the product.
- Check with your dealer in advance for any costs to you when arranging a warranty call. Travel and shipping charges for parts are not covered by this warranty.

## **WARRANTY EXCLUSIONS:**

This warranty does not cover the following:

- Changes in surface finishes as a result of normal use. As a heating appliance, some changes in color of interior and exterior surface finishes may occur. This is not a flaw and is not covered under warranty.
- Damage to printed, plated, or enameled surfaces caused by fingerprints, accidents, misuse, scratches, melted items, or other external sources and residues left on the plated surfaces from the use of abrasive cleaners or polishes.
- Repair or replacement of parts that are subject to normal wear and tear during the warranty period. These parts include: paint, wood, pellet and coal gaskets, firebricks, grates, flame guides, light bulbs, batteries and the discoloration of glass.
- Minor expansion, contraction, or movement of certain parts causing noise. These conditions are normal and complaints related to this noise are not covered by this warranty.
- Damages resulting from: (1) failure to install, operate, or maintain the appliance in accordance with the installation instructions, operating instructions, and listing agent identification label furnished with the appliance; (2) failure to install the appliance in accordance with local building codes; (3) shipping or improper handling; (4) improper operation, abuse, misuse, continued operation with damaged, corroded or failed components, accident, or improperly/incorrectly performed repairs; (5) environmental conditions, inadequate ventilation, negative pressure, or drafting caused by tightly sealed constructions, insufficient make-up air supply, or handling devices such as exhaust fans or forced air furnaces or other such causes; (6) use of fuels other than those specified in the operating instructions; (7) installation or use of components not supplied with the appliance or any other components not expressly authorized and approved by HHT; (8) modification of the appliance not expressly authorized and approved by HHT in writing; and/or (9) interruptions or fluctuations of electrical power supply to the appliance.
- Non-HHT venting components, hearth components or other accessories used in conjunction with the appliance.
- Any part of a pre-existing fireplace system in which an insert or a decorative gas appliance is installed.
- HHT's obligation under this warranty does not extend to the appliance's capability to heat the desired space. Information is provided to assist the consumer and the dealer in selecting the proper appliance for the application. Consideration must be given to appliance location and configuration, environmental conditions, insulation and air tightness of the structure.

## **This warranty is void if:**

- The appliance has been over-fired or operated in atmospheres contaminated by chlorine, fluorine, or other damaging chemicals. Over-firing can be identified by, but not limited to, warped plates or tubes, rust colored cast iron, bubbling, cracking and discoloration of steel or enamel finishes.
- The appliance is subjected to prolonged periods of dampness or condensation.
- There is any damage to the appliance or other components due to water or weather damage which is the result of, but not limited to, improper chimney or venting installation.

## **LIMITATIONS OF LIABILITY:**

- The owner's exclusive remedy and HHT's sole obligation under this warranty, under any other warranty, express or implied, or in contract, tort or otherwise, shall be limited to replacement, repair, or refund, as specified above. In no event will HHT be liable for any incidental or consequential damages caused by defects in the appliance. Some states do not allow exclusions or limitation of incidental or consequential damages, so these limitations may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state. EXCEPT TO THE EXTENT PROVIDED BY LAW, HHT MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY SPECIFIED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO DURATION OF THE EXPRESSED WARRANTY SPECIFIED ABOVE.

# 1 Listing and Code Approvals

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## A. Appliance Certification

This fireplace system has been tested and listed in accordance with UL 127 standards by Underwriters Laboratories Inc. for installation and operation in the United States.

This fireplace may be installed in sleeping rooms EXCEPT in manufactured homes. If installed with a gas log set, provisions for the National Fuel Gas Code must be met.

This fireplace has been tested and listed for use with the optional components specified in this manual. These optional components may be purchased separately and installed at a later date. The outside air kits must be installed at the time of fireplace installation.

Heat & Glo is a registered trademark of Hearth & Home Technologies Inc.

**WARNING! Risk of Fire!** *Hearth & Home Technologies disclaims any responsibility for, and the warranty and agency listing will be voided by the above actions.*

### DO NOT:

- *install or operate damaged fireplace*
- *modify fireplace*
- *install other than as instructed by Hearth & Home Technologies*
- *operate the fireplace without fully assembling all components*
- *overfire*
- *install an unvented gas log set*
- *install any component not approved by Hearth & Home Technologies*
- *install parts or components not Listed or approved*

*Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.*

*For assistance or additional information, consult a qualified installer, service agency or your dealer.*

**NOTICE:** *This fireplace is tested and approved as a decorative fireplace. It should not be factored as a primary heat source in residential heating calculations.*

## B. Non-Combustible Materials

- Materials which will not ignite and burn, composed of any combination of the following:
  - Steel
  - Brick
  - Concrete
  - Glass
  - Iron
  - Tile
  - Slate
  - Plasters
- Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace at 750° C**

## C. Combustible Materials

- Materials made of or surfaced with any of the following materials:
  - Wood
  - Plant fibers
  - Compressed paper
  - Plastic
- Any material that can ignite and burn; flame proofed or not, plastered or un-plastered



# User Guide

## 2 Operating Instructions

### ⚠ WARNING



#### HOT SURFACES!

Screen/mesh, glass doors and other surfaces are hot during operation AND cool down.

#### Hot screen/mesh and glass doors will cause burns.

- **DO NOT** touch screen/mesh or glass doors until cooled
- **NEVER** allow children to touch screen/mesh or glass doors
- Keep children away
- **CAREFULLY SUPERVISE** children in same room as fireplace.
- Alert children and adults to hazards of high temperatures.

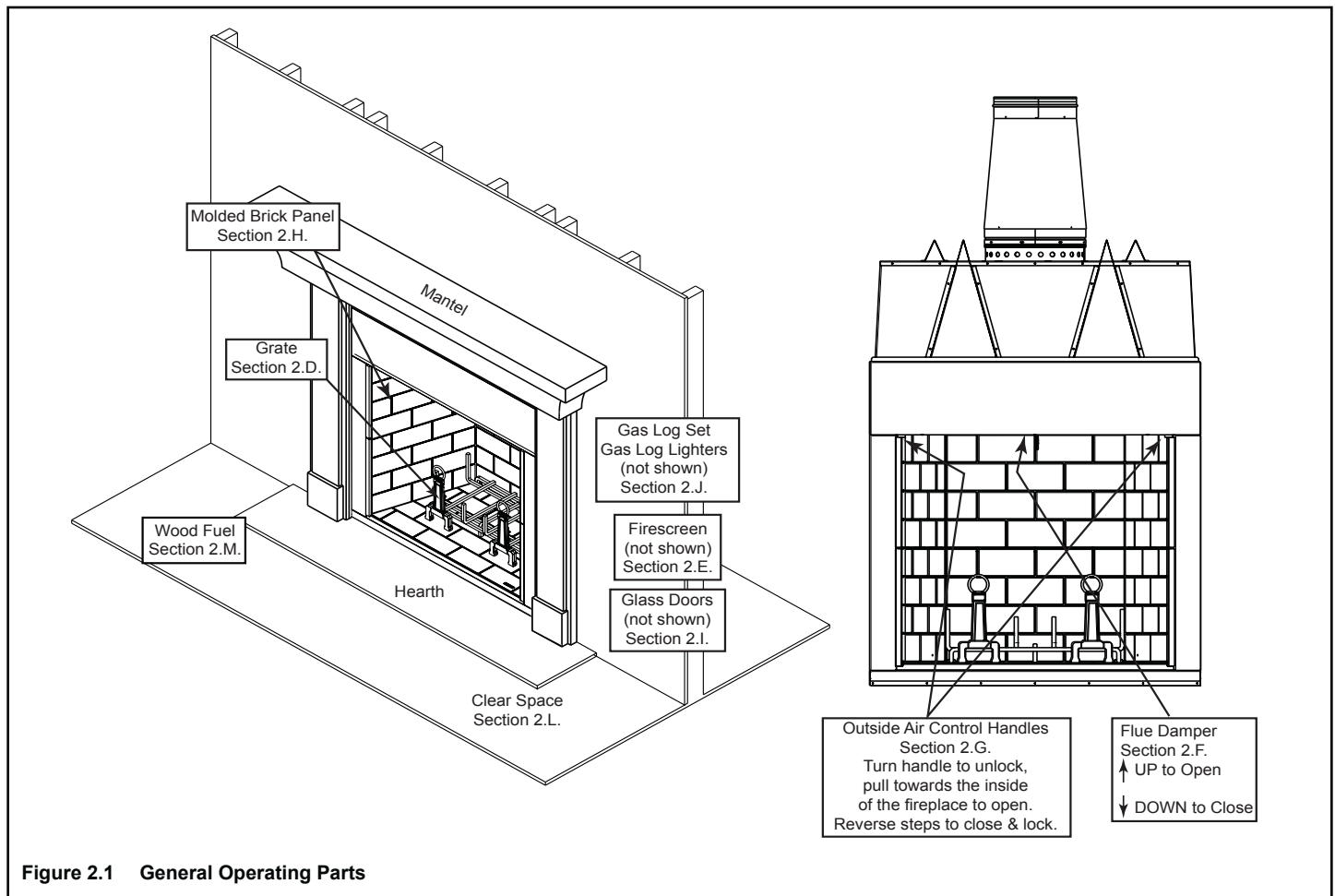
#### High temperatures may ignite clothing or other flammable materials.

- Keep clothing, furniture, draperies and other flammable materials away.

If you expect that children may come into contact with this fireplace, we recommend a barrier such as a decorative screen. See your dealer for suggestions.

**WARNING! DO NOT** operate fireplace before reading and understanding operating instructions. Failure to operate fireplace according to operating instructions could cause fire or injury.

### A. Your Fireplace



## B. Seasoned Wood

Properly seasoned wood is important for successful operation of your fireplace. Most woodburning fireplace problems are caused by burning wet, unseasoned wood.

Seasoned firewood is wood that is cut to size, split and air dried to a moisture content of around 20%.

Imagine a wooden bucket that weighs about eight pounds. Fill it with a gallon of water, put it in the fireplace and try to burn it. This sounds ridiculous but that is exactly what you are doing if you burn unseasoned wood.

A tree cut down a year ago and not split is likely to have almost as high a moisture content now as it did when it was cut.

Please refer to Section 2.M. for more detail.

## C. Starting a Fire

**NOTICE:** You must establish a good draft to prevent smoke spillage into the room.

**WARNING! Risk of Fire!** Keep combustible materials, gasoline and other flammable vapors and liquids clear of the fireplace.

### DO NOT:

- store flammable materials close to the fireplace
- use gasoline, lantern fuel, kerosene, charcoal lighter fluid or similar liquids to start or "freshen up" a fire in this fireplace.

Keep all flammable liquids well away from the fireplace while it is in use. Combustible materials may ignite.

- The first three or four fires should be of moderate size to allow the oils and binders to be burned from the fireplace and the molded brick panel, and paint to cure. You may notice an industrial odor the first few fires. This is considered normal.
- Use well-seasoned wood (see Section 2.M.).
- Open the flue damper to a fully open position.
- Place crumpled or twisted paper under the fireplace grate.
- Loosely arrange kindling or small pieces of wood to form a 'tent' on the fireplace grate.
- Pre-warm the flue to establish a draft to help reduce smoke spillage during start-up. Hold a rolled up piece of burning newspaper under the flue damper for a few moments.
- Light the crumpled paper to ignite the kindling.
- Add small pieces of wood until a hot bed of embers has been established.
- Add a minimum of three average size pieces of split firewood, placed to allow combustion air and flames between them.

**CAUTION!** Odors and vapors released during initial operation may be irritating to sensitive individuals. Open windows for air circulation.

## D. Grate

This fireplace is designed to be used with the grate supplied with this unit or one approved by HHT. The grate will deteriorate over time and will need occasional replacement.

**WARNING! Risk of Fire!** Use only the factory-supplied integral grate.

- Keeps logs in place.
- Allows proper air circulation around the fire.

## E. Firescreen

The firescreen is provided to control sparks. Keep it closed when the fireplace is in use.

**WARNING! Risk of Fire or Burns!**

- Screen will not prevent burning materials from falling out.
- Screen pulls or handles may be hot.

## F. Flue Damper

- Refer to Figure 2.1 for location of control.
- Must be in fully open position (handle up toward the top of the fireplace) during operation of the fireplace.
- Before lighting the fireplace, verify fully open position by looking up from the inside of the fireplace.

**WARNING! Risk of Fire and Asphyxiation!** Open damper prior to operating fireplace. A closed damper overfires the fireplace and will cause smoke and flames to spill into the room.

## G. Outside Air

- Refer to Figure 2.1 for location of controls.
- Outside air doors should be in the fully opened position during operation of the fireplace.
- Before lighting the fireplace, turn both handles & pull out to open. Reverse steps to close and lock.

## H. Molded Brick Panel

- The molded brick panel is shipped separately, but required to contain heat and provide an attractive interior.
- It will deteriorate over time and will need occasional replacement. Small hairline cracks and discoloration are normal and do not affect its safety.
- Cracks in the mortar may occur and do not affect the safety of the unit. If mortar falls out of the joints and metal is exposed, replace or patch the mortar.
- (See Molded Brick Panel Maintenance, Section 3.C.)

**WARNING! Risk of Fire! DO NOT** burn fireplace without molded brick panel. Use only molded brick panel supplied by Hearth & Home Technologies, Inc.

**NOTICE:** Do not substitute for HHT mortar. Other materials may stain the molded brick panels.

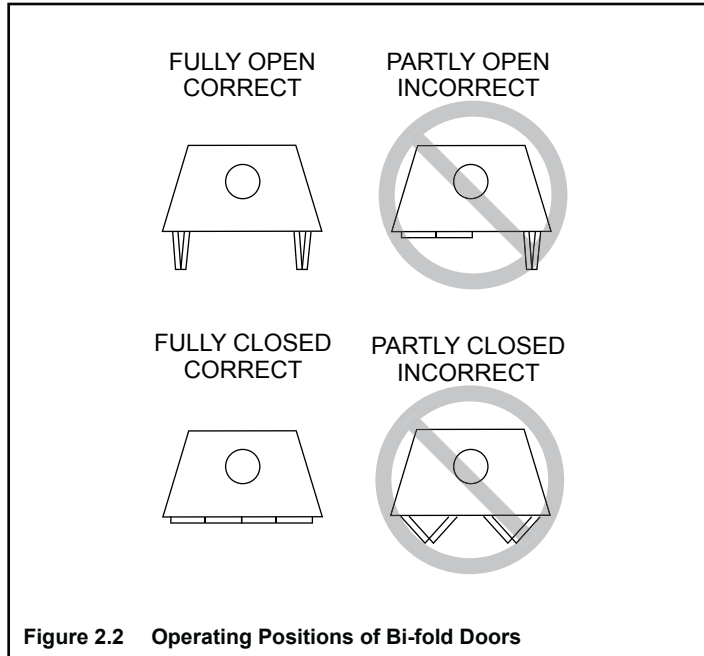


## I. Glass Doors

- Glass and screen doors are optional.
- Refer to Figure 2.2 for proper use.

**WARNING! Risk of Fire!** Install *ONLY* doors approved by Hearth & Home Technologies, Inc.

**WARNING! Risk of Fire and Smoke!** Fireplaces equipped with doors should be operated only with doors fully open or doors fully closed. If doors are left partly open, gas and flame may be drawn out of the fireplace opening.



## J. Vented Gas Log Sets & Gas Log Lighters

- Optional
- Vented gas logs or gas log lighters can be installed in this fireplace. Follow the instructions provided with the accessory for operation.

**WARNING! Risk of Fire or Asphyxiation!**

- **DO NOT** install unvented gas logs.
- Damper must be locked open.
- Gas flame may generate fumes.

## K. Optional Components

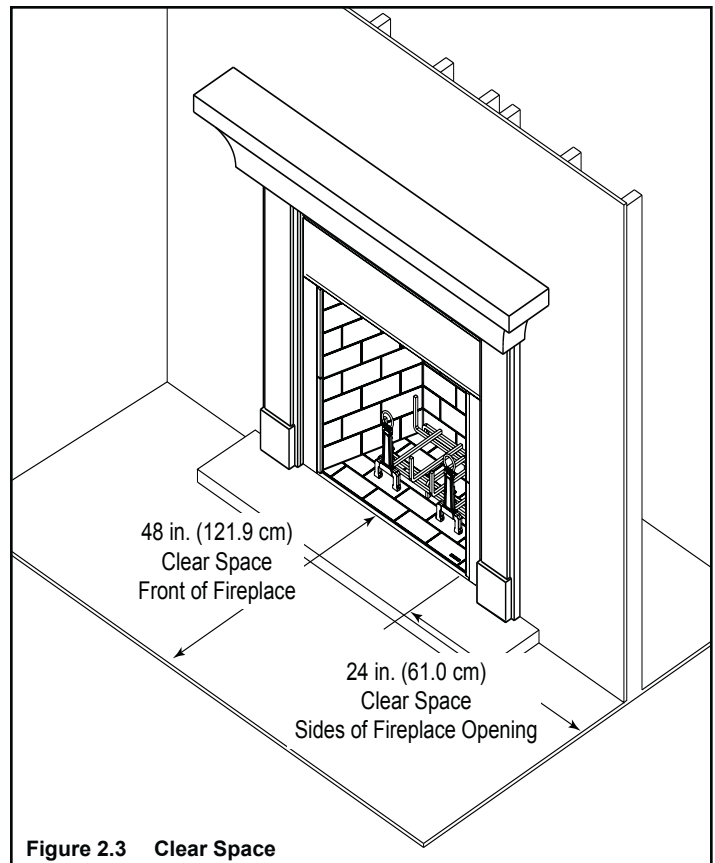
- Other options may be available
- Consult your dealer/distributor

**WARNING! Risk of Fire! DO NOT** install and or use any component not approved by Hearth & Home Technologies Inc.

## L. Clear Space

**WARNING! DO NOT** place combustible objects in front of the fireplace. High temperatures may ignite clothing, furniture or draperies.

- **DO NOT** place combustible objects within 4 ft (1.2 m) of the front of fireplace. See Figure 2.3.
- Mantel - avoid placing candles and other heat-sensitive objects on mantel or hearth. Heat may damage these objects.



## M. Wood Fuel

### Hardwood vs Softwood

Your fireplace performance depends on the quality of the firewood you use.

- Seasoned wood contains about 8,000 BTUs per pound .
- Hard woods are more dense than soft woods.
- Hard woods contain 60% more BTUs than soft woods.
- Hard woods require more time to season, burn slower and are harder to ignite.
- Soft woods require less time to dry, burn faster and are easier to ignite.
- Start the fire with soft wood to bring the fireplace up to operating temperature and to establish draft.
- Add hard wood for slow, even heat and longer burn time.

Soft woods	Hard woods
<ul style="list-style-type: none"><li>• Douglas Fir</li><li>• Pine</li><li>• Spruce</li><li>• Cedar</li><li>• Poplar</li><li>• Aspen</li><li>• Alder</li></ul>	<ul style="list-style-type: none"><li>• Oak</li><li>• Maple</li><li>• Apple</li><li>• Birch</li></ul>

### Moisture

#### **WARNING! Risk of Fire!**

- **DO NOT** burn wet or green wood.
- Wet, unseasoned wood can cause accumulation of creosote.

The majority of the problems fireplace owners experience are caused by trying to burn wet, unseasoned wood.

- Wet, unseasoned wood requires energy to evaporate the water instead of heating your home, and
- Evaporating moisture cools your chimney, accelerating formation of creosote.

### Seasoned Wood

- Cut logs to size
- Split to 6 in. (152 mm) or less
- Air dry to a moisture content of around 20%
  - Soft wood - about nine months
  - Hard wood - about eighteen months

**NOTICE:** Seasoning time may vary depending on drying conditions.

### Storing Wood

Steps to ensure properly seasoned wood:

- Stack wood to allow air to circulate freely around and through woodpile.
- Elevate wood pile off ground to allow air circulation underneath.
- Smaller pieces of wood dry faster. Any piece over 6 in. (152 mm) in diameter should be split.
- Wood (whole or split) should be stacked so both ends of each piece are exposed to air. More drying occurs through the cut ends than the sides.
- Store wood under cover to prevent water absorption from rain or snow. Avoid covering the sides and ends completely.

**WARNING! Fire Risk! DO NOT** store wood:

- in front of the fireplace.
- in space required for loading or ash removal.

### Processed Solid Fuel Firelogs

Manufactured firelogs may be used with this fireplace. Hearth & Home Technologies Inc. recommends the use of UL Classified processed fuel firelogs. Follow the manufacturer's lighting and safety instructions.

Using firelogs may require more frequent chimney inspection and cleaning.

Do not poke or stir the logs while they are burning. Use only firelogs that have been evaluated for the application in manufactured fireplaces and refer to firelog warnings and caution markings on packaging prior to use.

# 3 Maintenance and Service

## A. Disposal of Ashes

**Frequency:** When they reach bottom of grate

**By:** Homeowner

**WARNING! Risk of Fire!** Ashes could contain hot embers.

- Place ashes in a metal container with a tight-fitting lid.
- The closed container 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.

## B. Chimney Inspection/Cleaning

**Frequency:** At least twice a year during heating season or as recommended by a certified chimney sweep

**By:** Certified chimney sweep

**WARNING! Risk of Fire!** Ignited creosote is extremely HOT. Prevent creosote buildup.

Refer to Figure 3.1 to remove/reinstall termination caps.

### 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.

**WARNING! Risk of Fire!** A chimney fire can permanently damage your chimney system and nearby structures.

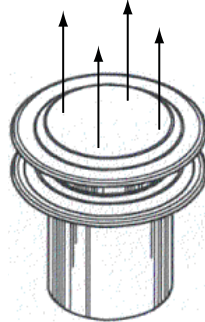
In the event of a chimney fire, Hearth & Home Technologies Inc. recommends

- replacement of the chimney, and
- inspection of the adjacent structure to the provisions of NFPA Level III inspection criteria

The chimney shall be inspected at least twice a year during the heating season to determine when a creosote buildup has occurred.

When creosote has accumulated it shall be removed to reduce the risk of a chimney fire.

Remove 4 screws & lift off top.



14DCA-VC  
Termination Cap

→ Figure 3.1 Chimney & Termination Cap Cleaning

## C. Check Firebox Molded Brick Panel

**Frequency:** After each ash removal

**By:** Homeowner

**WARNING! Risk of Fire!** *Inspect fireplace molded brick panel. Crumbling, deteriorated molded brick panel can allow overheating of surrounding materials.*

Expansion and contraction will cause minor cracking of the molded brick panel. This is normal. The panel will require periodic replacement depending on use. The panels should be replaced if

- Cracks exceed ¼ inch (6 mm),
- Metal is exposed behind a panel,
- Large pieces of panel fall out.

**NOTICE:** *Do not substitute for HHT mortar. Other materials may stain the molded brick panels.*

## D. Inspect Grate

**Frequency:** After each ash removal

**By:** Homeowner

Inspect grate for:

- Warping or sagging 1-1/2 in. (38 mm) or more
- Broken welds
- Burn-through of grate bars

For safe operation, replace only with the approved grate from Hearth & Homes Technologies Inc.

## E. Glass Cleaning

**Frequency:** As desired

**By:** Homeowner

**CAUTION! Handle glass assembly with care. Glass is breakable.**

- *Avoid striking, scratching or slamming glass*
- *Avoid abrasive cleaners*
- *Do not clean glass while it is hot*

Clean glass with a non-abrasive commercially available cleaner or ashes:

- Light deposits
  - Use household glass cleaner
- Heavy deposits
  - Use wood ash on damp cloth or,
  - Use commercial fireplace glass cleaner (consult with your dealer)

# 4 Troubleshooting Guide

Start Fire Problems	Possible Cause	Solution
Can't get fire started Excessive smoke or spillage Burns too slowly Smolders, sizzles	Not enough kindling/paper or no kindling/paper	Use dry kindling, more paper. Arrange kindling & wood for air movement.
	Damper closed/not fully open	Open damper.
	Not enough air for fire to ignite	Check for restricted cap/shroud.
		Check for flue blockage.
		Pre-warm flue before starting fire (refer to starting fire section).
		Check for adequate vent height (refer to chimney assembly section).
		Open window below the fireplace towards the wind.
	Wood condition is too wet, too large	Use dry, seasoned wood (refer to wood fuel section).
	Bed of coals not established before adding wood	Start with paper & kindling to establish bed of coals (refer to starting fire section).
	Flue blockage such as birds' nests or leaves in termination cap	Have chimney inspected for creosote and cleaned by a certified chimney sweep.
Down draft or negative pressure Competition with exhaust devices	Do not use exhaust fans during start-up (refer to negative pressure section).	
	Open window below the fireplace towards the wind.	
Fire burns too fast	Extremely dry or soft wood	Mix in hardwood.
		Mix in less seasoned wood after fire is established (refer to wood fuel section).
	No glass doors	Add glass doors to slow down air flow.
	Overdrafting	Check for correct vent height; too much vertical height creates overdrafting.
		Check location of vent termination (refer to chimney assembly section).

# Installer Guide

## 5 Getting Started

### A. Typical Fireplace System

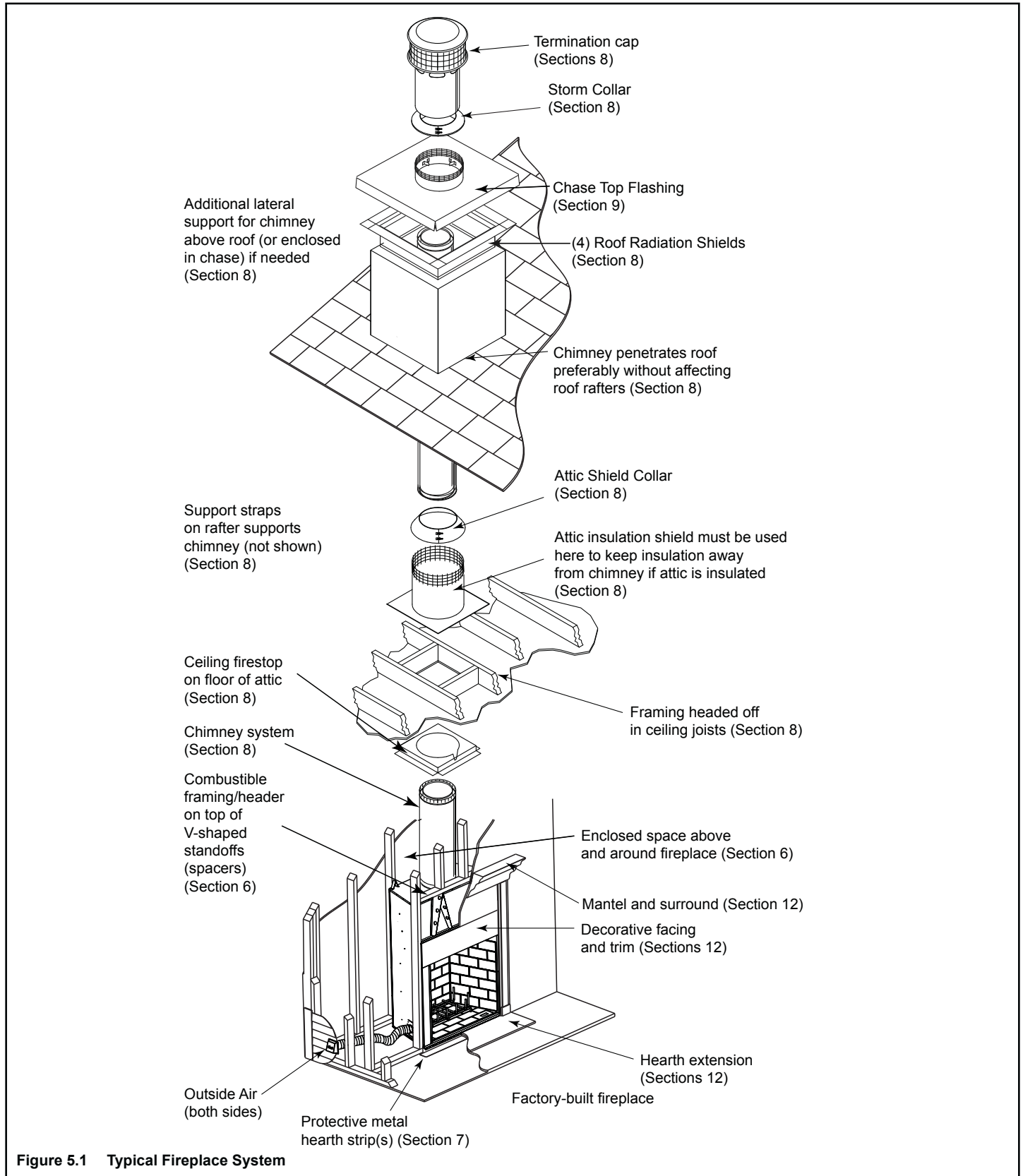


Figure 5.1 Typical Fireplace System



## B. Design and Installation Considerations

**NOTICE:** Check building codes prior to installation.

- Installation MUST comply with local, regional, state and national codes and regulations.
- Consult insurance carrier, local building inspector, fire officials or authorities having jurisdiction over restrictions, installation inspection and permits.

Before installing, determine the following:

- Where the fireplace is to be installed.
- The vent system configuration to be used.
- Gas supply piping.
- Framing and finishing details.
- Whether optional accessories are desired.

## C. Draft

Draft is the pressure difference needed to vent fireplaces successfully. When a fireplace is drafting successfully, all combustion by-products are exiting the home through the chimney.

Considerations for successful draft include:

- Preventing negative pressure
- Location of fireplace and chimney

**NOTICE:** *Hearth & Home Technologies assumes no responsibility for the improper performance of the fireplace system caused by:*

- *Inadequate draft due to environmental conditions*
- *Downdrafts*
- *Tight sealing construction of the structure*
- *Mechanical exhausting devices*
- *Improper positioning of the chimney in a not-recommended location on the roof.*

## D. Negative Pressure

**WARNING! Risk of Asphyxiation!** *Negative pressure can cause spillage of combustion fumes and soot. Fire must draft properly for safe operation.*

Negative pressure results from the imbalance of air available for the fireplace to operate properly. It can be strongest in lower levels of the house.

Causes include:

- Exhaust fans (kitchen, bath, etc.)
- Range hoods
- Combustion air requirements for furnaces, water heaters and other combustion appliances
- Clothes dryers
- Location of return-air vents to furnace or air conditioning
- Imbalances of the HVAC air handling system
- Upper level air leaks such as:
  - Recessed lighting
  - Attic hatch
  - Duct leaks

To minimize the effects of negative air pressure:

- Ensure adequate outdoor air for all combustion appliances and exhaust equipment
- Ensure furnace and air conditioning return vents are not located in the immediate vicinity of the fireplace
- Avoid installing the fireplace near doors, walkways or small isolated spaces
- Recessed lighting should be a “sealed can” design
- Attic hatches weather stripped or sealed
- Attic mounted duct work and air handler joints and seams taped or sealed
- Basement installations should be avoided

**NOTICE:** *The fireplace provides some outside air for combustion. Other methods may be necessary if more air is required.*

**NOTICE:** *Hearth & Home Technologies Inc. recommends the use of direct vent appliances in basements.*

## E. Locating your Fireplace & Chimney

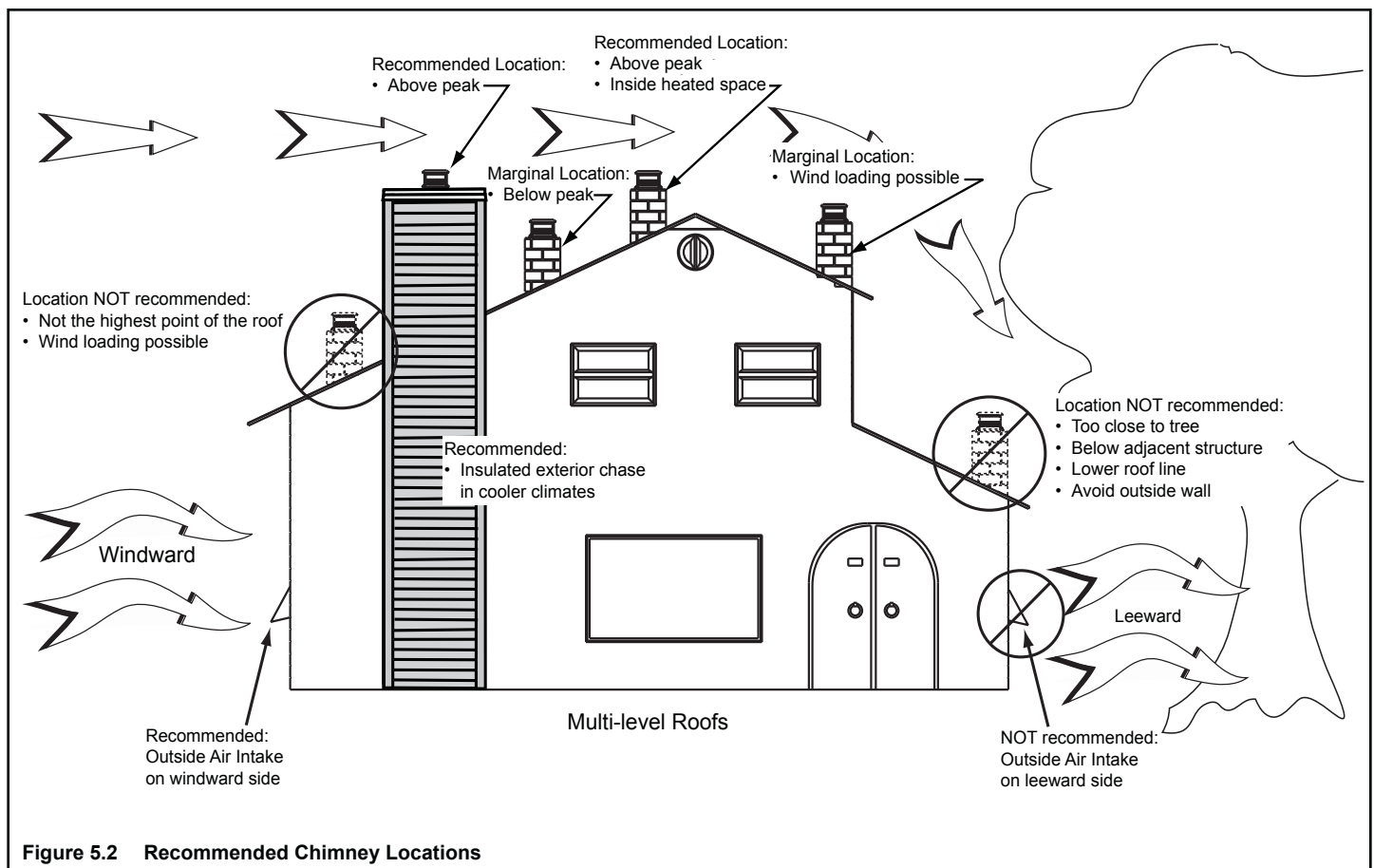
Location of the fireplace and chimney will affect performance.

- Install within the warm airspace enclosed by the building envelope. This helps to produce more draft, especially during lighting and die-down of the fire.
- Penetrate the highest part of the roof. This minimizes the effects of wind loading.
- Locate termination cap away from trees, adjacent structures, uneven roof lines and other obstructions.
- Minimize the use of chimney offsets.
- Consider the fireplace location relative to floor and ceiling and attic joists.
- Take into consideration the termination requirements in Section 8 and Section 9.

**NOTICE:** Locating the fireplace in an area of considerable air movement can cause intermittent smoke spillage from fireplace. Do not locate fireplace near

- frequently open doors
- central heat outlets or returns

**DO NOT** install in a basement.



## F. Tools and Supplies Needed

Before beginning the installation be sure the following tools and building supplies are available:

Reciprocating saw	Framing material
Pliers	Non-combustible sealant
Hammer	Gloves
Phillips screwdriver	Framing square
Flat blade screwdriver	Electric drill and bits
Plumb line	Safety glasses
Level	Tape measure
1/2-3/4 in. length, #6 or #8 self-drilling screws	
Misc. screws and nails	

## G. Typical Fireplace Components

- Hearth Molded Brick Panel
  - Molded brick panel kit must be installed, but is sold separately
- Grate Assembly
- Outside Air Kits
  - Duct must be installed, but sold separately

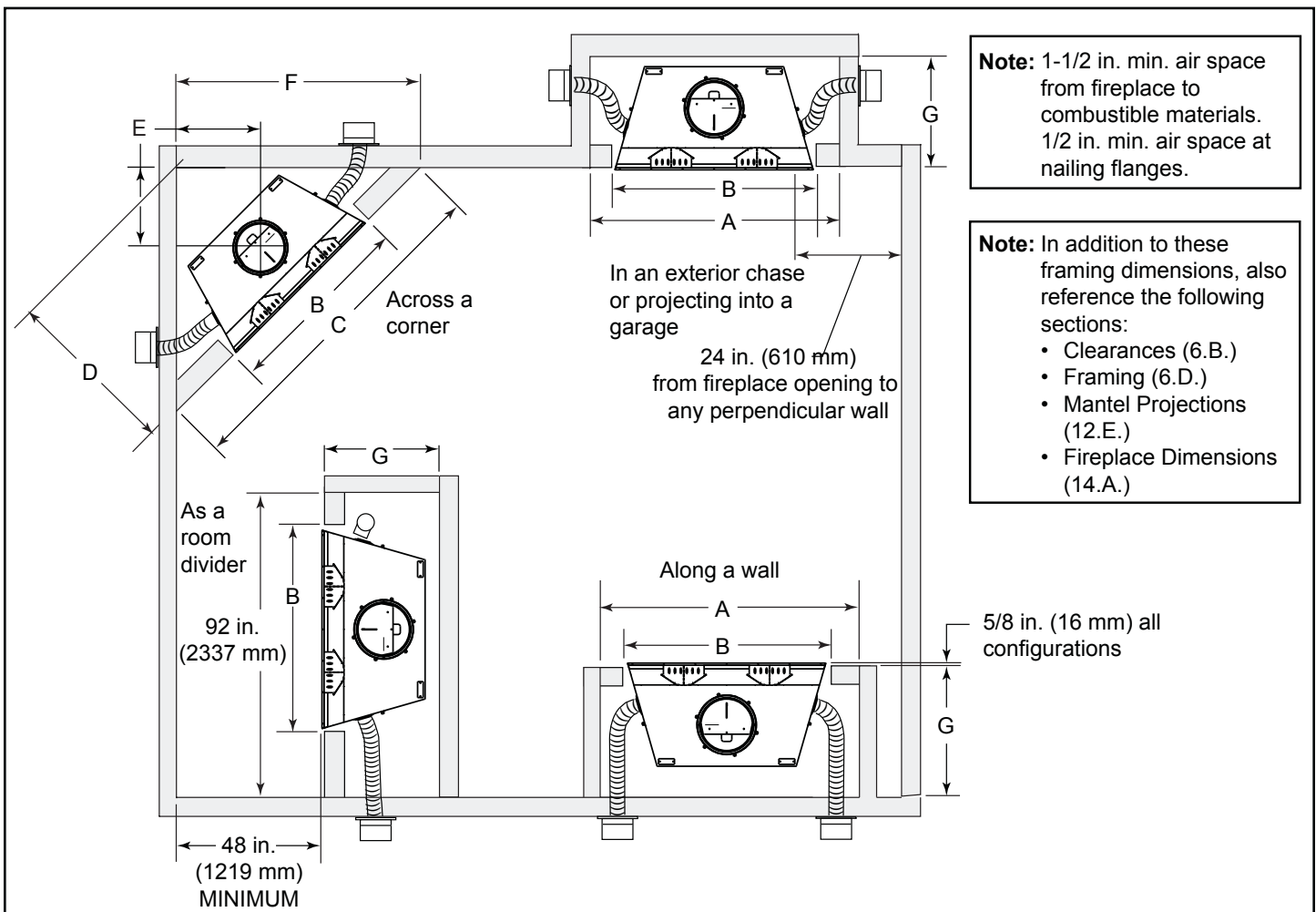
## H. Inspect Fireplace and Components

**WARNING! Risk of Fire and/or Explosion! Damaged parts could impair safe operation. DO NOT install damaged, incomplete or substitute components. Keep fireplace dry.**

- Remove fireplace from pallet.
- Remove fireplace and components from packaging and inspect for damage.
- Remove the hearth molded brick panel, screens and grate from inside the unit.
- Vent system components, doors, molded brick panels and mortar are shipped in separate packages.
- Report to your dealer any parts damaged in shipment.
- **Read all the instructions before starting the installation. Follow these instructions carefully during the installation to ensure maximum safety and benefit.**

# 6 Framing & Clearances

## A. Select Fireplace Location



Model #		A	B	C	D	E	F	G
RUTHERFORD-50	in.	85 7/8	61 7/8	103 1/4	51 5/8	25 1/4	73	29 3/8
	mm	2181	1572	2623	1311	641	1854	746

**NOTICE:** Both outside air kits **MUST** be installed.

Figure 6.1 Fireplace Locations

## B. Clearances

**WARNING! Risk of Fire!** You must comply with all minimum air space clearances to combustibles as specified in Figure 6.2. **DO NOT** pack required air spaces with insulation or other materials.

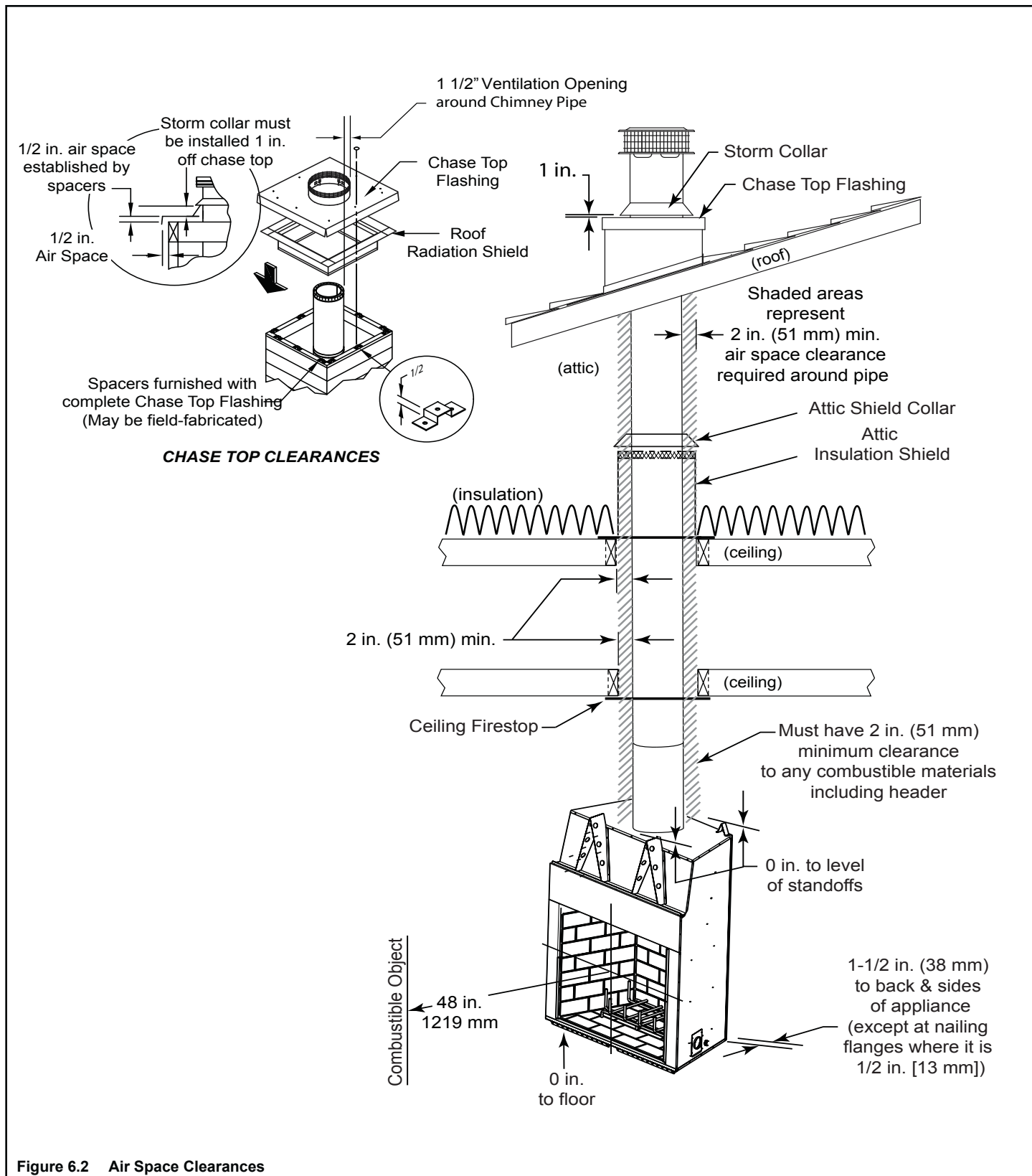
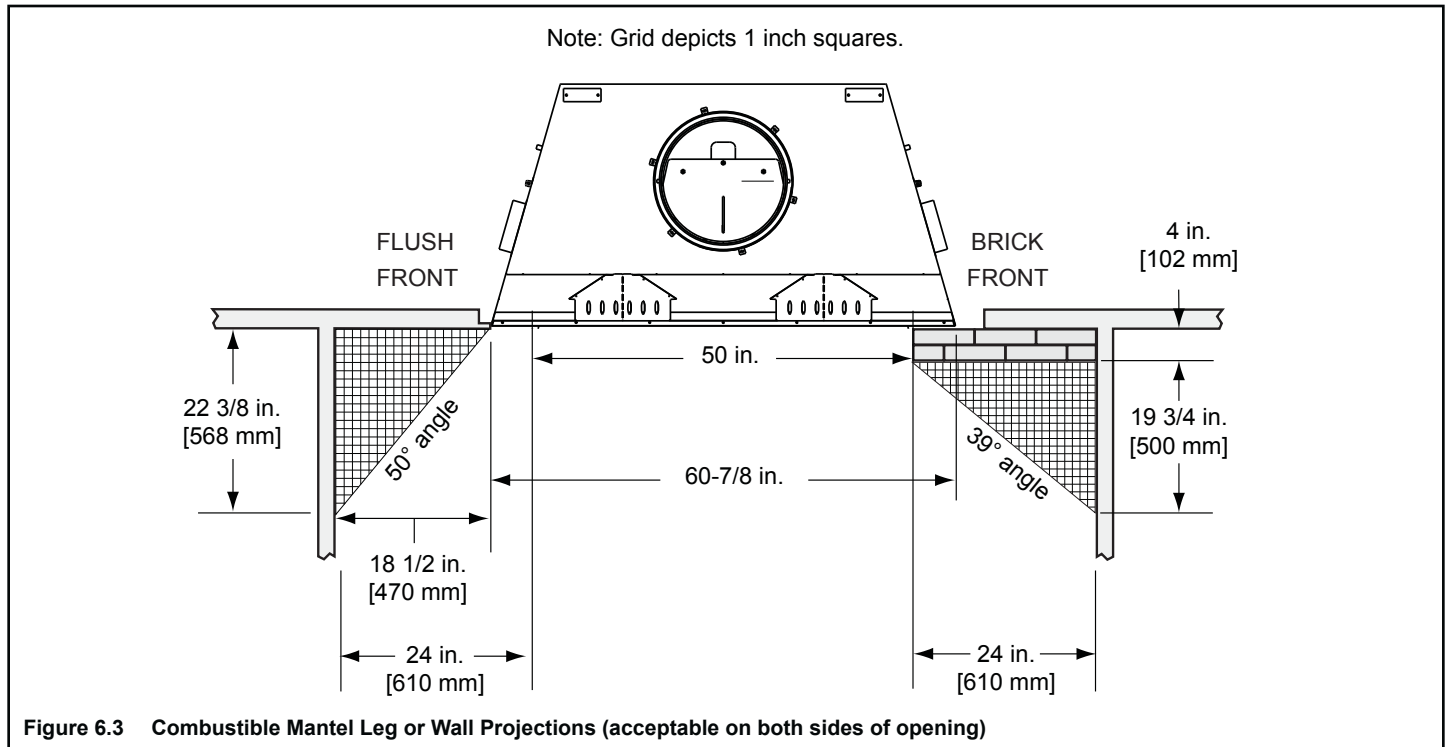


Figure 6.2 Air Space Clearances

### C. Sidewalls/Surrounds

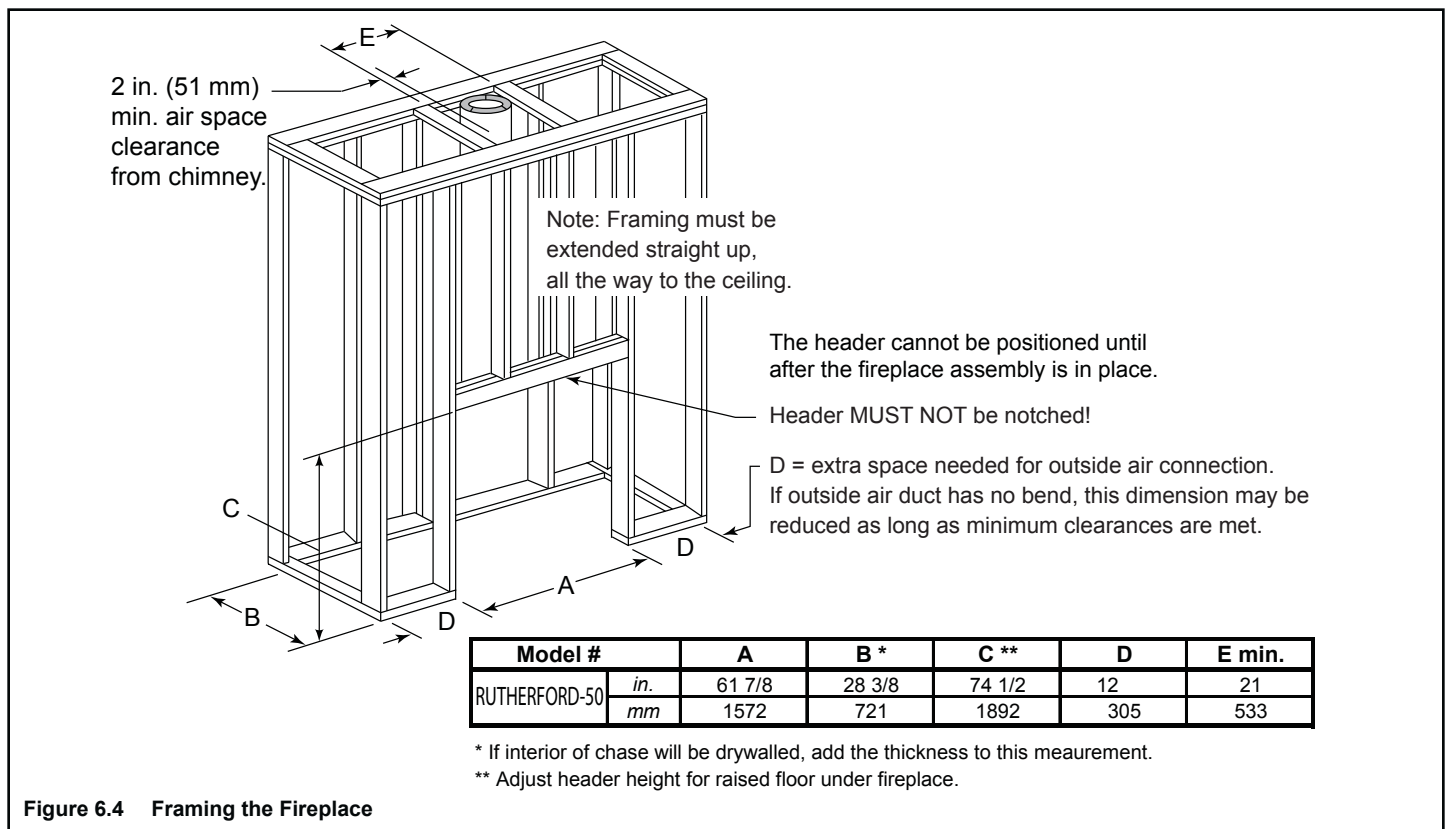
- Locate adjacent combustible sidewalls a minimum of 24 in. (610 mm) from fireplace opening.
- Combustible and non-combustible mantel legs, surrounds and stub walls may be constructed per Figure 6.3.



### D. Frame the Fireplace

Figure 6.4 shows typical framing using combustible materials (2x4 lumber shown).

- Observe all required air space clearances to combustible materials as shown in Figure 6.2.
- Framing across the top of fireplace must be above top standoffs.





# 7 Installation of Fireplace

**CAUTION! Risk of Cuts/Abrasions.** Wear protective gloves and safety glasses during installation. Sheet metal edges are sharp.

## A. Things to Consider

- Location(s) of outside air kit(s)
- Gas line piping

## B. Position the Fireplace

- Place the fireplace on a continuous flat surface.
- Follow framing instructions in Section 6.

**WARNING! Risk of Fire!** Prevent contact with sagging, loose insulation.

- **DO NOT** install against vapor barriers or exposed insulation.
- Secure insulation and vapor barriers.
- Provide minimum air space clearances at the sides and back of the fireplace assembly as outlined in Section 6.

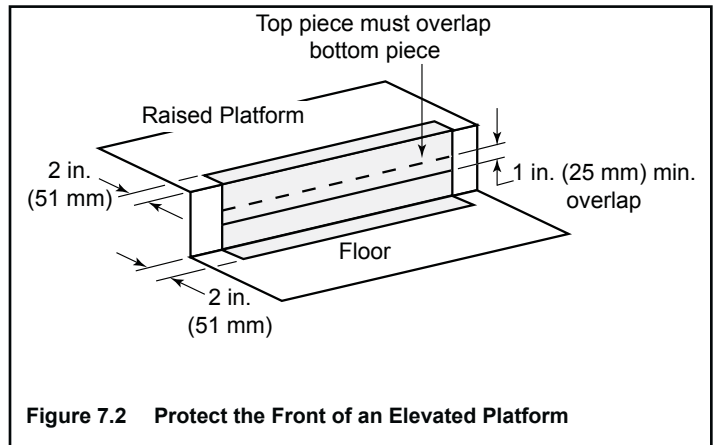
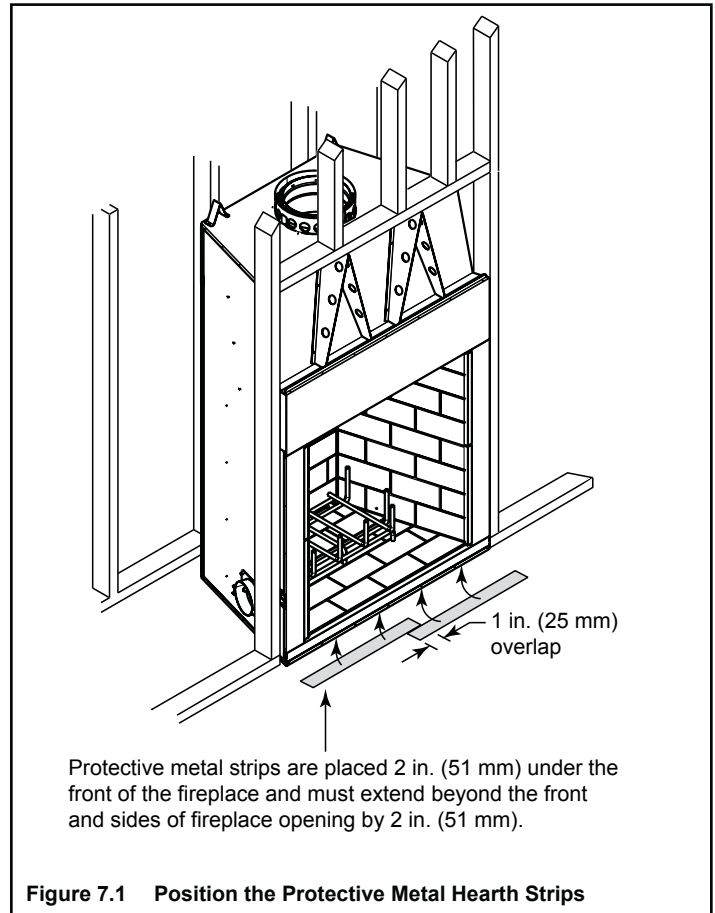
## C. Place Protective Metal Hearth Strips

**WARNING! Risk of Fire!** Metal hearth strips **MUST** be installed. **DO NOT** cover metal strips with non-combustible materials. Sparks or embers may ignite flooring.

- Refer to Figures 7.1 and 7.2.
- Locate the two metal hearth strips measuring approximately 26 in. x 4 in. (660 mm x 102 mm) included with this fireplace.
- Slide each metal strip 2 in. (51 mm) under front edge of fireplace.
- Overlap strips in the middle of fireplace opening by 1 in. (25 mm) minimum.
- Metal strips must extend beyond the front and sides of the fireplace opening by at least 2 in. (51 mm).
- Protect the front of a platform elevated above the hearth extension with metal strips (not included with fireplace) per Figure 7.2. See Section 12 for hearth extension instructions.

## D. Level Fireplace

- Level fireplace side-to-side and front-to-back.
- Shim with non-combustible material as necessary.
- Secure fireplace to framing with nailing flanges with a minimum of two fasteners per nailing flange.
- Check fireplace opening for square to ensure proper fit of glass doors. Measure diagonals of fireplace opening to make sure they are equal.



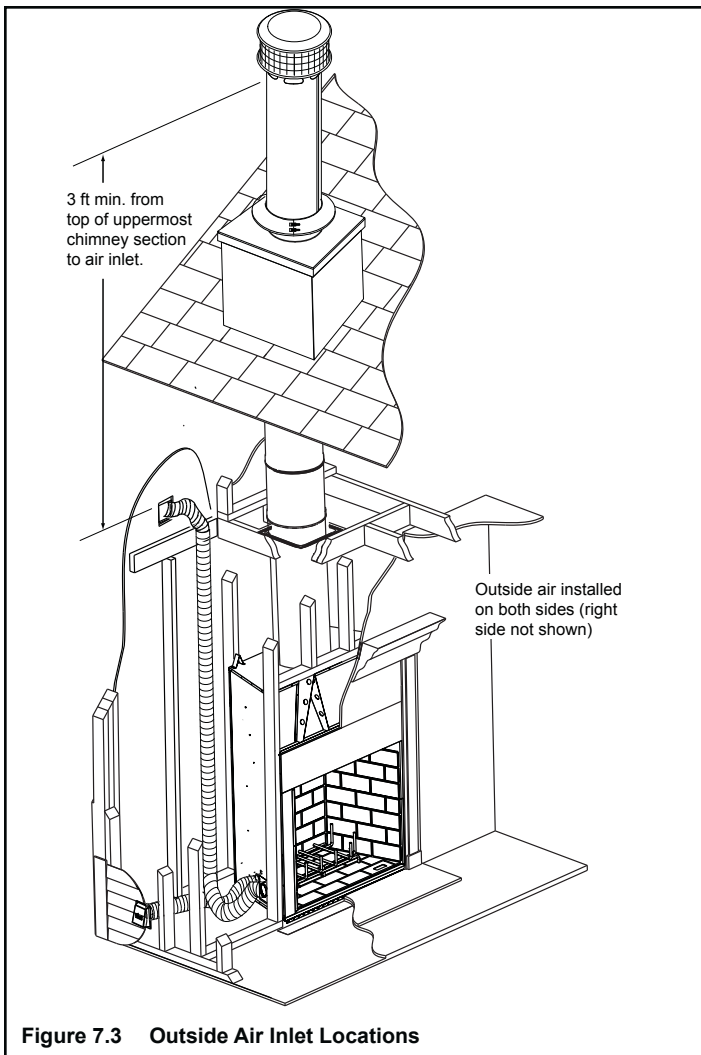


Figure 7.3 Outside Air Inlet Locations

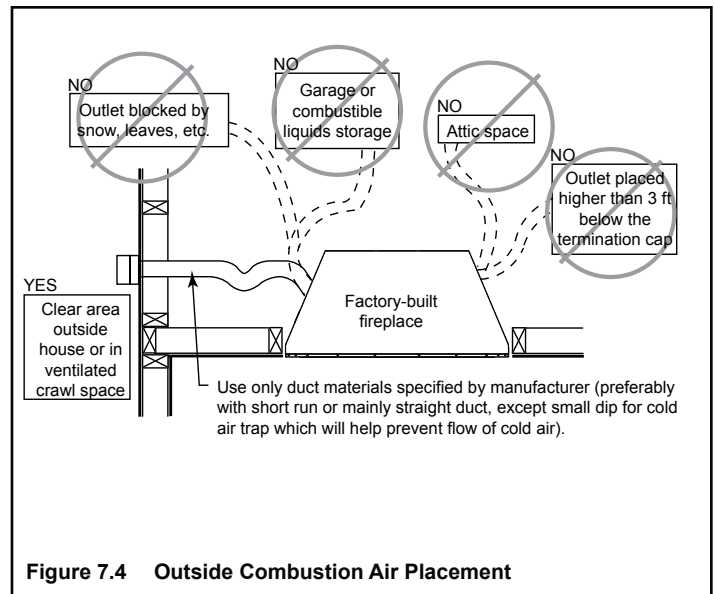


Figure 7.4 Outside Combustion Air Placement

## E. Install Outside Air Kit

- Keep duct runs short and straight to minimize restriction.
- The outside air kits must be installed on both sides of the fireplace.

**WARNING!** Outside air kits must be installed on both sides of the fireplace to prevent overheating and fire.

- Install as shown in Figures 7.3, 7.4 and 7.5.
- The air ducts may be run vertically.
- The outside air hoods must be at least 3 ft (.91 m) below the top of the uppermost chimney section.

**CAUTION! Risk of Fire or Asphyxiation!** Do not draw outside combustion air from wall, floor or ceiling cavity, or enclosed spaces such as an attic or garage.

- **DO NOT** place outside air hoods close to exhaust vents or chimneys. Fumes or odor could be drawn into the room through the fireplace.
- Locate outside air hoods to prevent blockage from leaves, snow/ice, or other debris. Blockages could cause the unit to overheat.

**NOTICE:** The fireplace provides some outside air for combustion. Other methods may be necessary if more air is required.

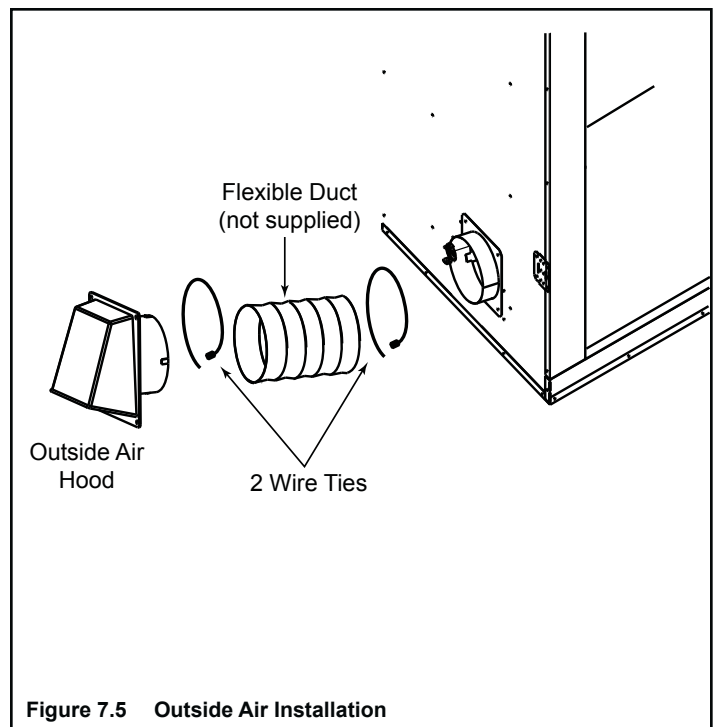


Figure 7.5 Outside Air Installation

# 8 Chimney Assembly

**NOTICE:** Chimney performance may vary.

- Trees, buildings, roof lines and wind conditions affect performance.
- Chimney height may need adjustment if smoking or overdraft occurs.

## A. Chimney Requirements

Measure vertical distances from the base of the fireplace.

	<b>Feet</b>	<b>Meters</b>
• Minimum overall straight height	18	5.49
• Minimum height with offset/return	18.5	5.64
• Maximum height	50	15.24
• Maximum chimney length between an offset and return	20	6.10
• Maximum distance between chimney stabilizers	25	7.62
• Maximum unsupported chimney length between the offset and return	6	1.83
• Maximum unsupported chimney height above the fireplace	25	7.62
• Maximum unsupported chimney above roof	6	1.83

**WARNING! Risk of Fire!** You must maintain 2 in. (51 mm) air space clearance to insulation and other combustible materials around the chimney system. Failure to do so may cause overheating and fire.

**Table 8.1** ←

<b>Height of Chimney Components</b>		<i>in.</i>	<i>mm</i>
<b>Stabilizer</b>			
	14DCA-ST		
<b>Firestop</b>			
	14DCA-FS		
<b>Elbows</b>			
	14DCA-E15 - 15° Elbow		
	14DCA-E30 - 30° Elbow		
<b>Miscellaneous</b>			
	14DCA-ES - Elbow Strap		
	14DCA-SS - Supplementary Support		
	14DCA-IS - Insulation Shield		
	14DCA-RRS - Roof Radiation Shield		
	14DCA-CTF - Chase Top Flashing		
	14DCA-CTC - Chase Top Collar		
	14DCA-VC - Chimney Cap		
	14DCA-SC - Storm Collar		
	14DCA-WS - Wall Strap		
<b>Chimney Sections*</b>			
	14DCA-12	10 1/2	267
	14DCA-18	16 1/2	419
	14DCA-36	34 1/2	876
	14DCA-48	46 1/2	1181

\* Dimensions reflect effective height.

Determine the chimney components needed to complete your particular installation:

- Measure the total vertical height of the fireplace installation from the base of the fireplace assembly to the approximate location of the bottom of the termination cap.
- Subtract the effective height of the fireplace assembly (see Figure 8.1) from the total vertical height to determine the overall height of the chimney installation.
- Create a schematic for your application similar to Figure 8.1 showing components required (referring to Table 8.1).
- Install a ceiling firestop whenever the chimney penetrates a floor/ceiling.

**NOTICE:** A maximum of one offset and return may be used.

**CAUTION! Risk of Fire and/or Asphyxiation! DO NOT connect this fireplace to a chimney flue servicing another appliance. Do NOT connect to any air distribution duct or system. These actions could cause overheating/fire in the chimney flue, or release of exhaust fumes into the living areas.**

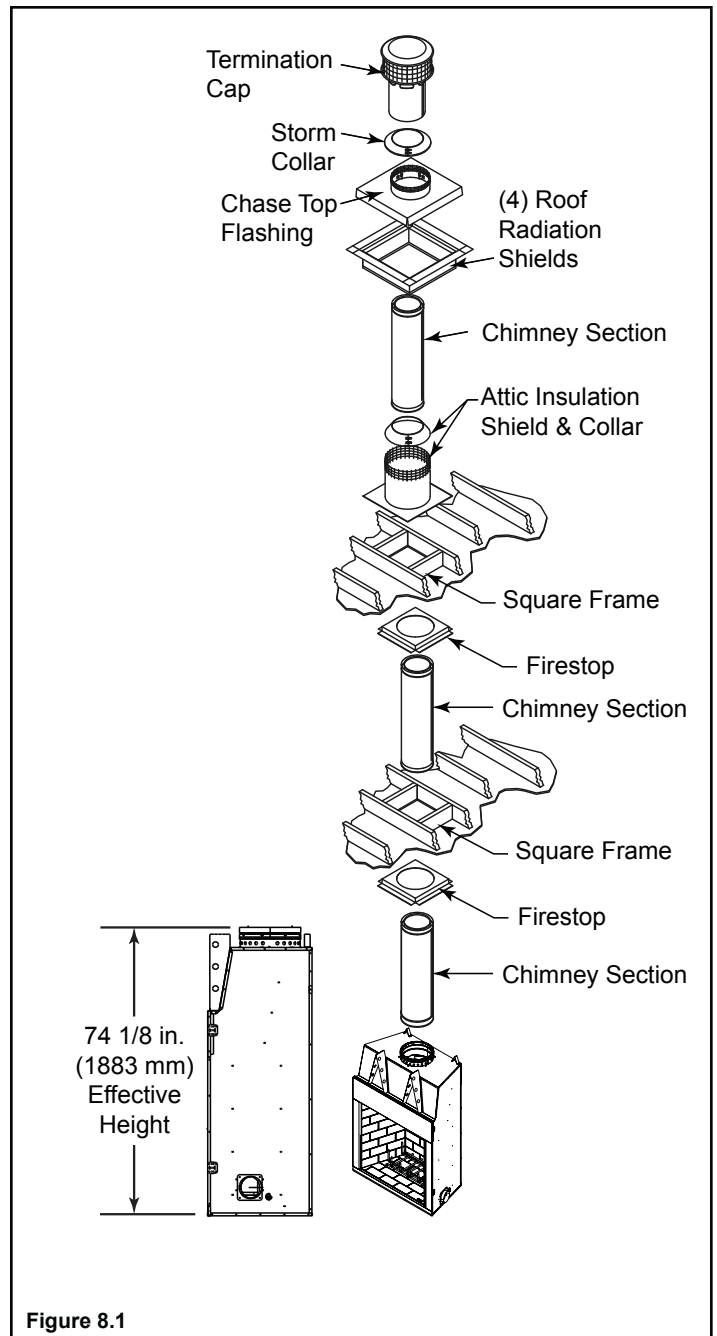


Figure 8.1

Figure 8.2

A MAJOR CAUSE OF VENT RELATED FIRES IS FAILURE TO MAINTAIN REQUIRED CLEARANCES (AIR SPACES) TO COMBUSTIBLE MATERIALS. IT IS OF THE UTMOST IMPORTANCE THAT DURACHIMNEY II BE INSTALLED ONLY IN ACCORDANCE WITH THESE INSTRUCTIONS.

## B. Clearances

Always allow at least a 2-inch clearance between DuraChimney II Pipe and any combustible materials.

- Never fill any required clearance space with insulation or any other materials.
- Combustible materials include lumber, plywood, sheetrock, plaster and lath, furniture, curtains, electrical wiring, and building insulation.

## C. Installation Notes

Proper planning for your DuraChimney II installation will result in greater safety, efficiency, and convenience, as well as saving time and money. You **must** use only authorized DuraChimney II parts to maintain a listed chimney system. Do **not** mix parts or try to match with other products or use improvised solutions.

- Do **not** install damaged or modified parts.
- Practice good workmanship. Sloppy work could jeopardize your chimney's safety.
- **Keep electrical wiring and building insulation away from all chimneys.**
- When deciding the location of your chimney, try to avoid modifications to roof beams and other structural components of the building.

If you have any questions, contact either your dealer or Simpson Dura-Vent directly.

## D. Frame Openings

- From the ceiling, drop a plumb bob to the center of the fireplace's flue outlet and mark this center point on the ceiling.
- Mark appropriate cutting lines around the center point. Cut a square hole in the ceiling. Frame a level, square, 21 in. x 21 in. (533 mm x 533 mm) opening centered over the hole that you have cut.
- Frame openings at each floor level above the fireplace (Figure 8.1). These openings are to hold the firestop and attic insulation shield.
- Locate each opening by dropping a plumb bob to the four corners of the opening below.
- Maintain the minimum 2-inch clearance/air space. Maintain the minimum clearances and dimensions as specified in Table 8.1.

## E. Cut Roof Opening

Determine and cut an opening in the roof directly above the opening below, and at least 4-inches larger than the chimney's outside diameter to provide at least a 2-inch clearance all around the chimney.

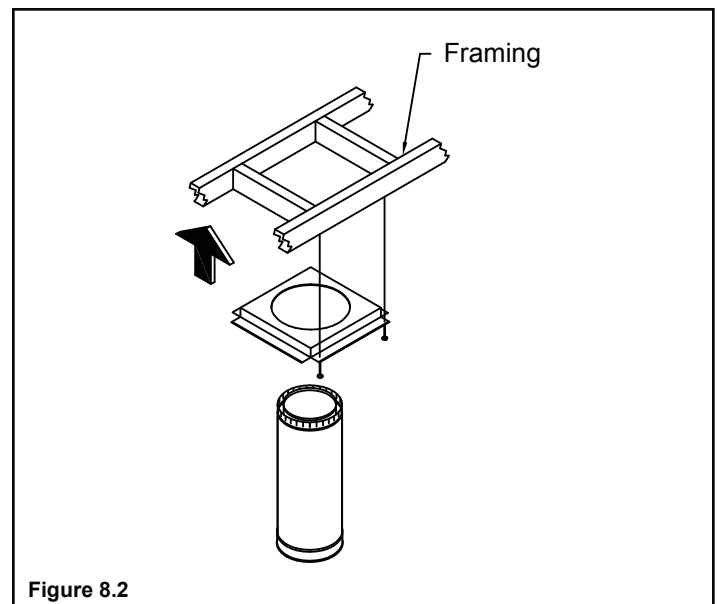
- The chimney **must** be centered within this opening and maintain the minimum 2-inch clearance to combustibles.

## F. Install Firestop

A firestop is required on each floor penetration in multi-story installation. Building Codes require a firestop at every floor/ceiling level, including where the chimney penetrates into the attic. Figure 8.1 shows a typical 2-story installation with an attic.

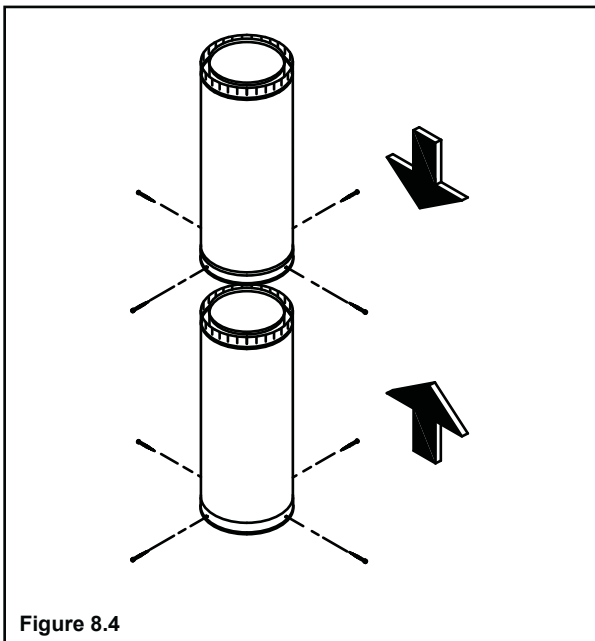
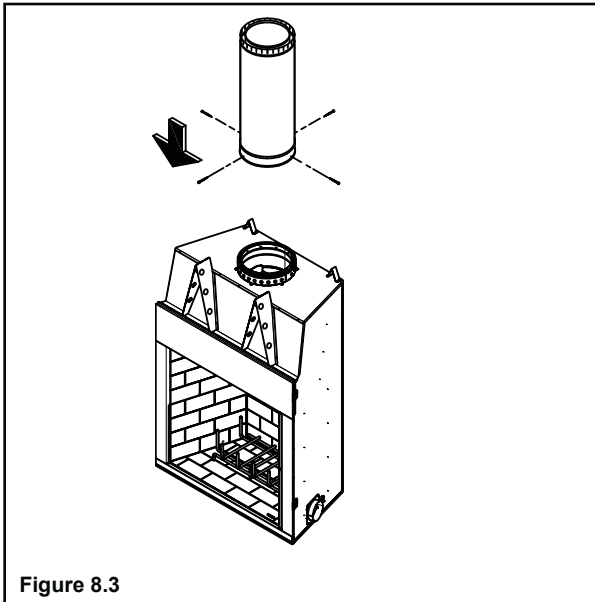
Note: a firestop is **not** installed where the chimney penetrates through the roof.

- The firestop is installed on the underside of the ceiling/floor framing (Figure 8.2).
- Use a minimum of one 8 penny nail or one 1-1/4" wood screw per corner.



## G. Assemble Chimney Sections

- Attach the first chimney section or offset onto the top of the fireplace (Figure 8.3). Sheet metal screws are required to connect chimney section to the fireplace starter collar. Continue to add additional sections of chimney as needed.
- Use a wall strap every eight feet of chimney height.
- For each additional chimney section use four of the sheet metal screws provided to make a secure connection between the chimney sections (Figure 8.4). Do not penetrate the inner liner of the chimney.



## H. Using Offsets/Returns

- Use an offset/return to bypass overhead obstructions.
- An offset and return can be used as a single entity or separated by chimney section(s).

**WARNING! Risk of Fire! DO NOT use offset/returns greater than 30'. Chimney draft will be restricted and could cause overheating and fire.**

- Measure the shift required to avoid the overhead obstruction (Offset, Figure 8.5).
- Find the appropriate offset dimension listed in Table 8.2.
- The rise (see Figure 8.5) coinciding with the offset dimension measurement in Table 8.2 represents the required vertical clearance needed to complete the offset/return.

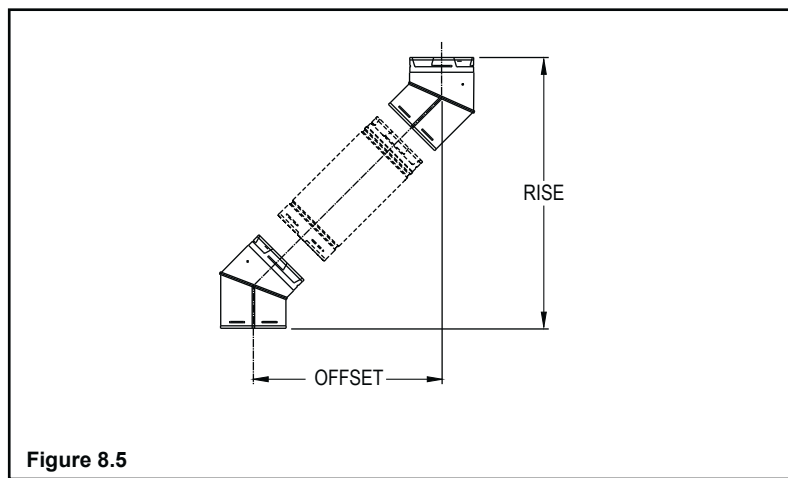


Table 8.2

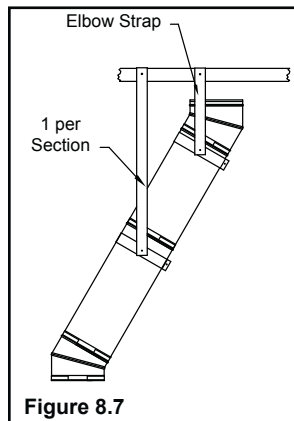
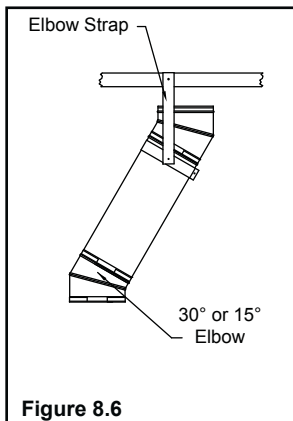
Elbow Angle from Vertical	Chimney Length Between Elbows	Offset Inches	Rise Inches	Offset Millimeters	Rise Millimeters
15°	0	2 5/8	21 5/8	67	549
15°	12 in./305 mm	5 1/2	32 1/4	140	819
15°	18 in./457 mm	7 1/8	38	181	965
15°	36 in./914 mm	11 3/4	55 3/8	298	1407
15°	48 in./1219 mm	14 7/8	67	378	1702
30°	0	6 1/4	24 1/2	159	622
30°	12 in./305 mm	11 3/4	34	298	864
30°	18 in./457 mm	14 3/4	39 1/4	375	997
30°	36 in./914 mm	23 3/4	54 7/8	603	1394
30°	48 in./1219 mm	29 3/4	65 1/4	756	1657



## I. Offset Elbow Installation

A 30° Elbow (measured from the vertical) is the largest that can be used in an offset. A 30° Elbow may not be combined with another Elbow to make a steeper offset (e.g. two 30° Elbows are not allowed to be put together to form a 60° elbow.). Avoid Elbows if possible. A totally vertical chimney is more efficient. When Elbows are necessary to avoid obstructions such as rafters, ridgepoles, or joists, you are only allowed to use 1 pair of Elbows in any one chimney system. Horizontal runs of chimney violate building code and are not allowed.

- **Attach elbows**  
Attach elbow to chimney section or other elbow by ating the male and female ends with each other and using four sheet metal screws provided. Attach one elbow to the chimney section below, and align it for the offset. Determine the required offset length and attach an appropriate length (or lengths) of chimney section(s) above the elbow. Attach the second elbow above the chimney section to complete the offset (Figure 8.6).
- **Secure offset**  
Use an elbow strap to secure the offset. Secure the elbow strap's band to chimney around the upper portion of the top elbow, then tighten the nut and bolt until the clamp is firm. Wrap the elbow strap end over an adjacent joist or rafter and secure it with at least two 8-penny nails or two #8, 1-1/2" screws. Add additional elbow straps for each section of chimney in the offset (Figure 8.7). Every chimney section in the offset must be supported. Do not add more chimney sections until the elbows and offset are supported. Be sure that the chimney remains vertical.

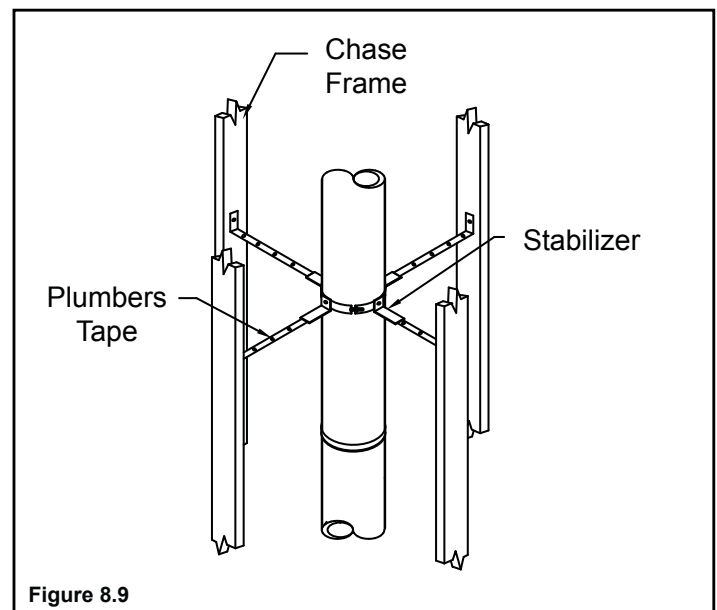
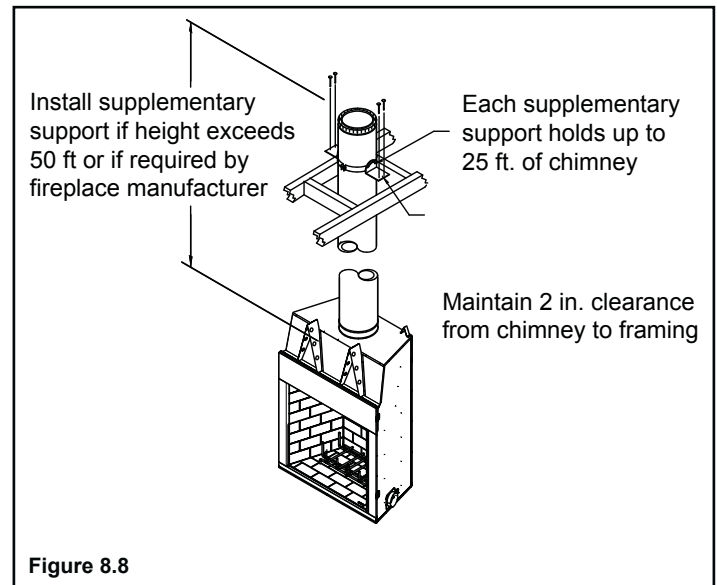


## J. Supplementary Support & Stabilizer

Install a supplementary support if total chimney height is greater than 50-feet, or if the fireplace manufacturer requires it. If additional support is needed, install one or more supplementary supports which can each support 25-feet of chimney (Fig. 8.8).

- Clamp the supplementary support band around the pipe using the nut and bolt provided, and anchor the support to nearby building framing.
- Always maintain the 2" clearance to combustibles from the chimney pipe. A stabilizer is available and may be required by some fireplace manufacturers to keep the chimney vertical and help maintain clearances to combustibles within a chase.
- Clamp the stabilizer to the pipe using the nut and bolt provided, and secure legs to nearby framing using plumber's tape or guy-wires (Fig. 8.9).

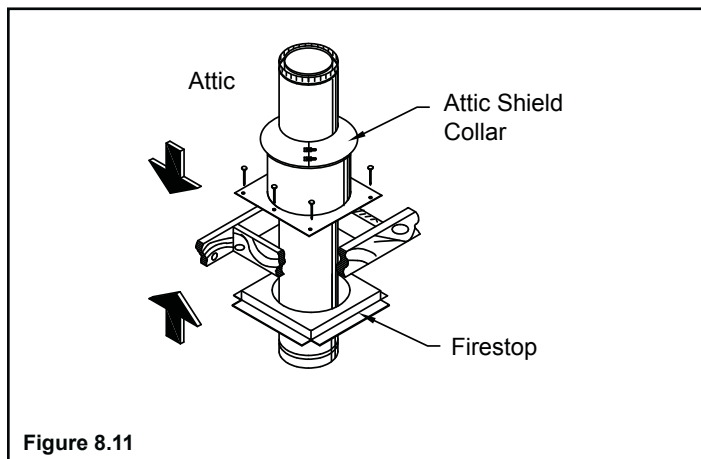
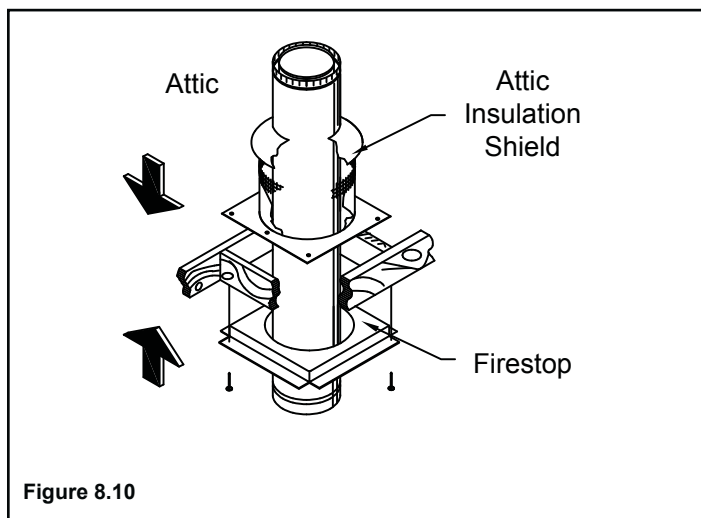
**Note:** The stabilizer does not support the weight of the chimney, it is only used to keep chimney centered within a chase.



## K. Install Attic Insulation Shield

The attic insulation shield must be installed where the chimney passes into an attic. Its purpose is to prevent debris and insulation from getting too close to the chimney. In attic areas where this shield cannot fit, or is not used you must enclose the attic portion of the chimney in a framed enclosure. If the chimney is fully enclosed through the attic, an attic insulation shield is not required. Install the attic insulation shield as follows:

- Remove any insulation from attic floor around the framed opening.
- Assemble chimney sections until at least 18 inches of chimney extends above the firestop.
- Slip the attic insulation shield over the chimney until the base sits squarely on the framed opening (Figure 8.10).
- Secure the attic insulation shield to the top of the framed opening using at least two 8-penny nails or two #8, 1-1/2 in. wood screws per side (Figure 8.11).
- Wrap the collar of the attic insulation shield around the chimney and fasten it loosely. Slide the collar down to meet the attic insulation shield. Tighten the bolts to secure the collar in place (Figure 8.11).



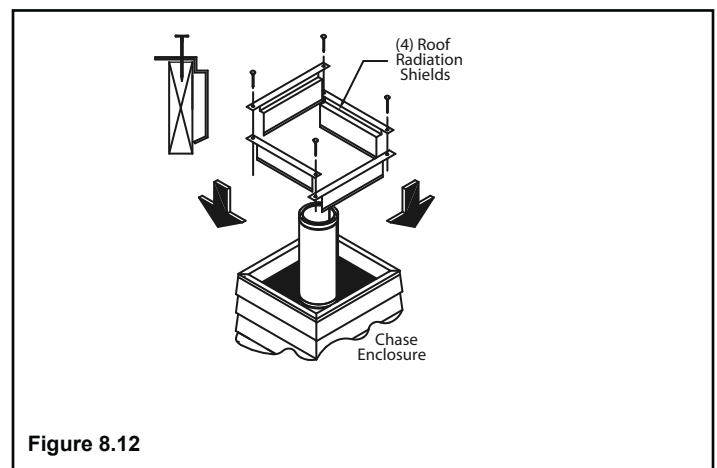
## L. Install Roof Radiation Shields

Roof radiation shields must be used to provide protection for roof or chase framing members.

**Note:** Roof radiation shields do not allow for a reduced clearance to combustibles.

Clearance to combustibles must be a minimum of 2" away from the chimney pipe.

- Install roof radiation shields at either the top of the chase or where the chimney penetrates the roof, whichever is the top of the installation.
- Roof radiation shields are built with a 1/2" air gap standoff from the joist face (Figure 8.12). The corners of the roof radiation shields overlap each other to ensure proper position.
- Secure the roof radiation shields to the top of the framing members using screws or nails in the corners.
- If framing members are further away from the chimney than 2 in., center the roof radiation shield to the chimney on the framing member and secure in place with screws or nails.



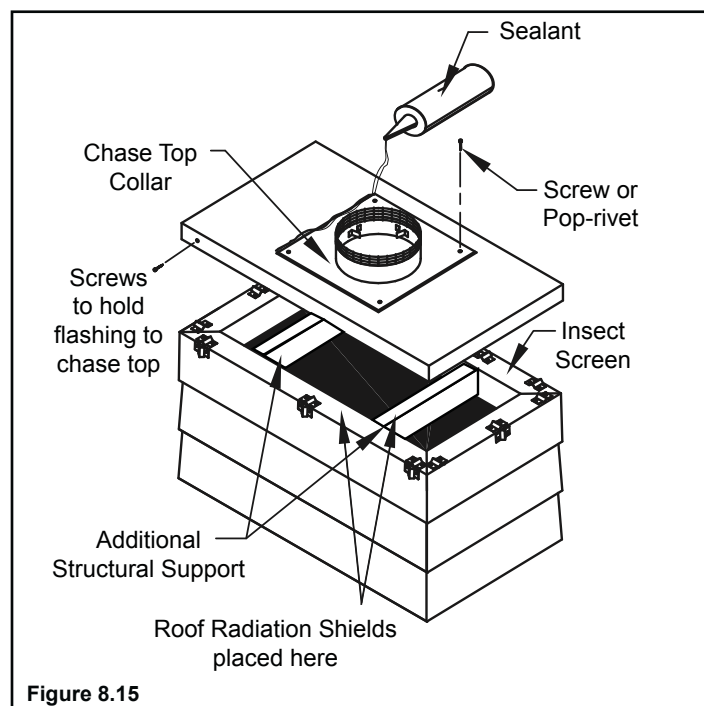
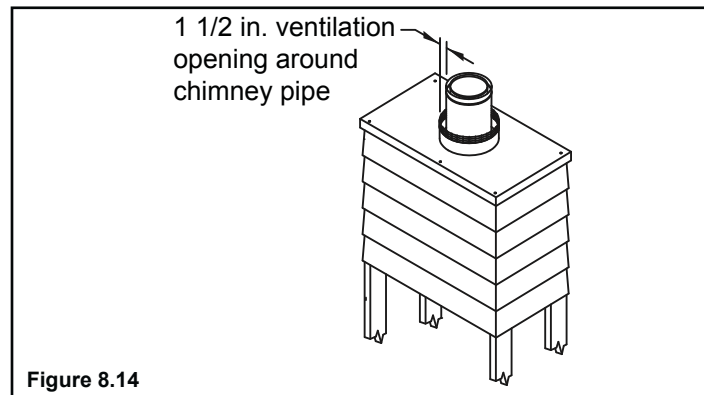
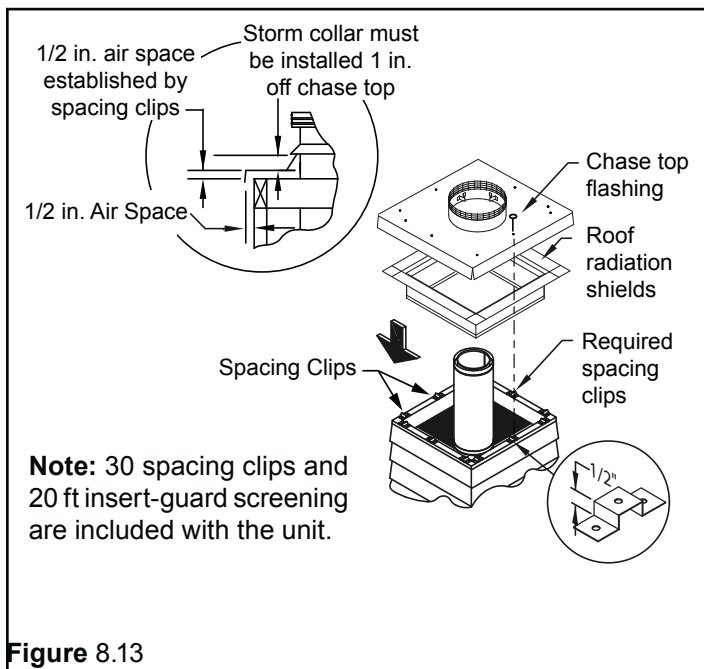
## M. Attach Flashing

For chase enclosures, use the Chase Top Flashing. The Chase Top Flashing allows for a 1-1/2 in. clearance maintained from the chimney (Figure 8.14) and provides required ventilation air.

- Chase Top Flashings (includes Chase Top Collars and Spacing Clips) are available from your HHT dealer.
- Additional non-combustible structural supports can be field-fabricated to help support the Chase Top Flashing if needed, provided the air ventilation requirements are maintained. See Figure 8.15.
- If the Chase Top Flashing (40 in. x 40 in.) does not ensure the minimum 1/2 in. spacing and perimeter ventilation requirements as shown in Figure 8.13., use a Chase Top Collar and field-construct the flashing as needed for the chase dimensions. Skip to **Field-Constructed Chase Top Flashing**.

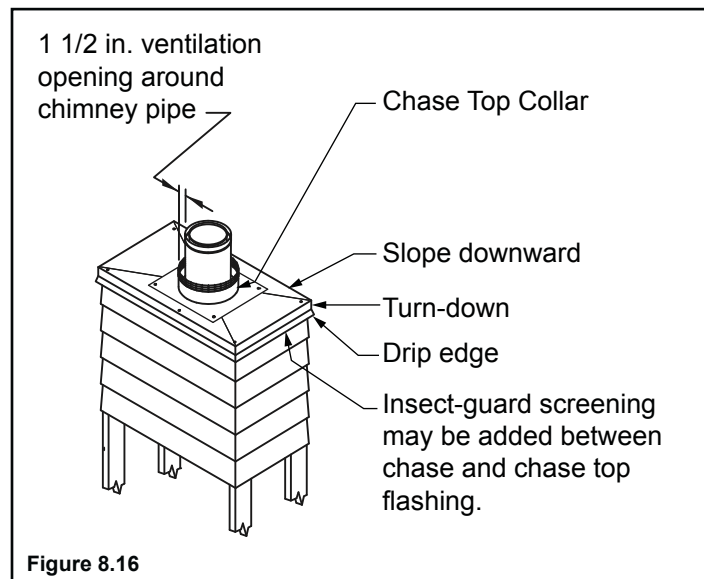
- Install the Chase Top Flashing at the top of the chase with a 1/2 in. minimum air clearance off the top of the chase construction (Figure 8.13).
- Spacing clips can be field-fabricated as needed out of 24 GA sheet metal or other suitable non-combustible material (refer to Figure 8.13)
- Insect-guard screening may be added between the chase and Chase Top Flashing.
- Secure the Chase Top Flashing to the chase with at least three screws or nails per side.
- When installed, the bottom of the chimney cap must be at least 6 in. above the Chase Top Flashing.

- Secure the chase top flashing to the chase with at least three screws or nails per side.
- When installed, the bottom of the chimney cap must be at least 6 in. above the flashing (Figure 8.16).



### Field-Constructed Chase Top Flashing

- Field-constructed flashing must be constructed of 24 GA minimum sheet metal or other suitable non-combustible materials.
- The flashing must be oversized to allow 1/2 in. air gap around all four sides.
- Include a minimum 1 in. turn down and a 1/2 in. drip edge (optional) to prevent water from seeping into the chase. Refer to Figure 8.16.
- Additional non-combustible structural supports can be field-fabricated to help support the Chase Top Flashing if needed, provided the air ventilation requirements are maintained. See Figure 8.15.
- Spacing clips can be field-fabricated as needed out of 24 GA sheet metal or other suitable non-combustible material (refer to Figure 8.13), or purchased from Hearth & Home Technologies Inc.
- Secure the Chase Top Collar section to the field-fabricated flashing with sheet metal screws or rivets (Figure 8.15).
- Seal Chase Top Collar section to flashing with non-hardening waterproof sealant to ensure a weather tight connection. See Figure 8.15.
- Insect-guard screening may be added between the chase and flashing.



## N. Finish Top

- Slide the storm collar down over the chimney to the top of the flashing. The storm collar must be installed 1 in. off the chase top flashing to provide proper ventilation (Figure 8.17).
- Tighten the bolts of the storm collar and seal the storm collar against the chimney with sealant. Be sure chimney and offsets are properly supported.
- Apply a non-hardening waterproof sealant around the chimney at the point where the storm collar will meet the chimney just above the flashing (Figure 8.17).
- Attach the chimney cap onto the top of the chimney by setting the female end of the cap onto the male end of the last chimney section. Secure the cap by using four sheet metal screws (provided, Figure 8.18.)
- Do not push down from the top portion of the cap as this may damage the cap. Push from the lower section of the cap if needed.
- The chimney cap top can be removed for chimney cleaning as described in the Chimney Inspection & Cleaning section (Section 3) of this manual.

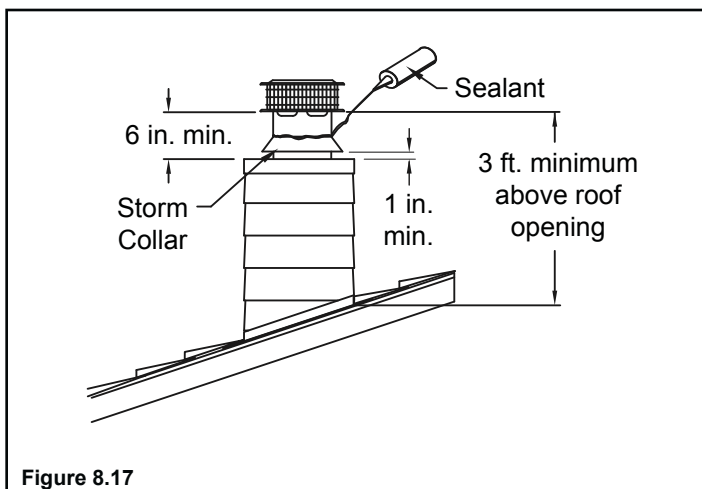


Figure 8.17

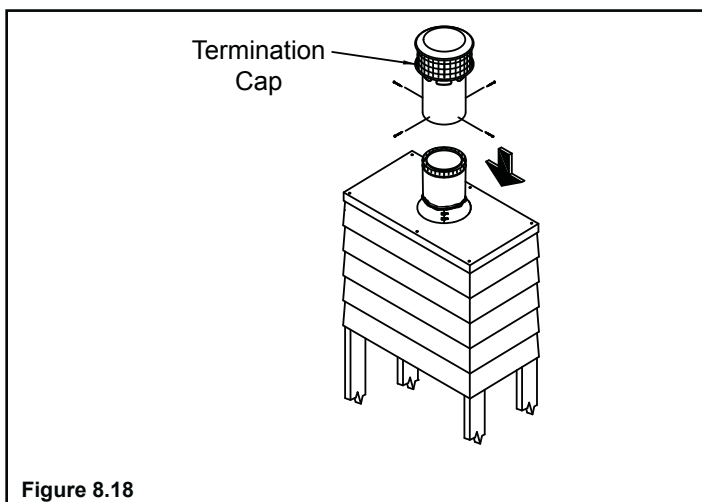


Figure 8.18

## O. Chimney Termination Requirements

- Install a cap approved and listed for this fireplace system.
- Locate cap where it will not become plugged by snow or other materials.
- Locate cap away from trees or other structures.
- The bottom of the termination cap must be at least 3 ft (.91 m) above the roof AND at least 2 ft (.61 m) above any portion of roof within 10 ft (3.05 m) as shown in Figure 8.19.
- See Figure 8.19 for distance required between caps.

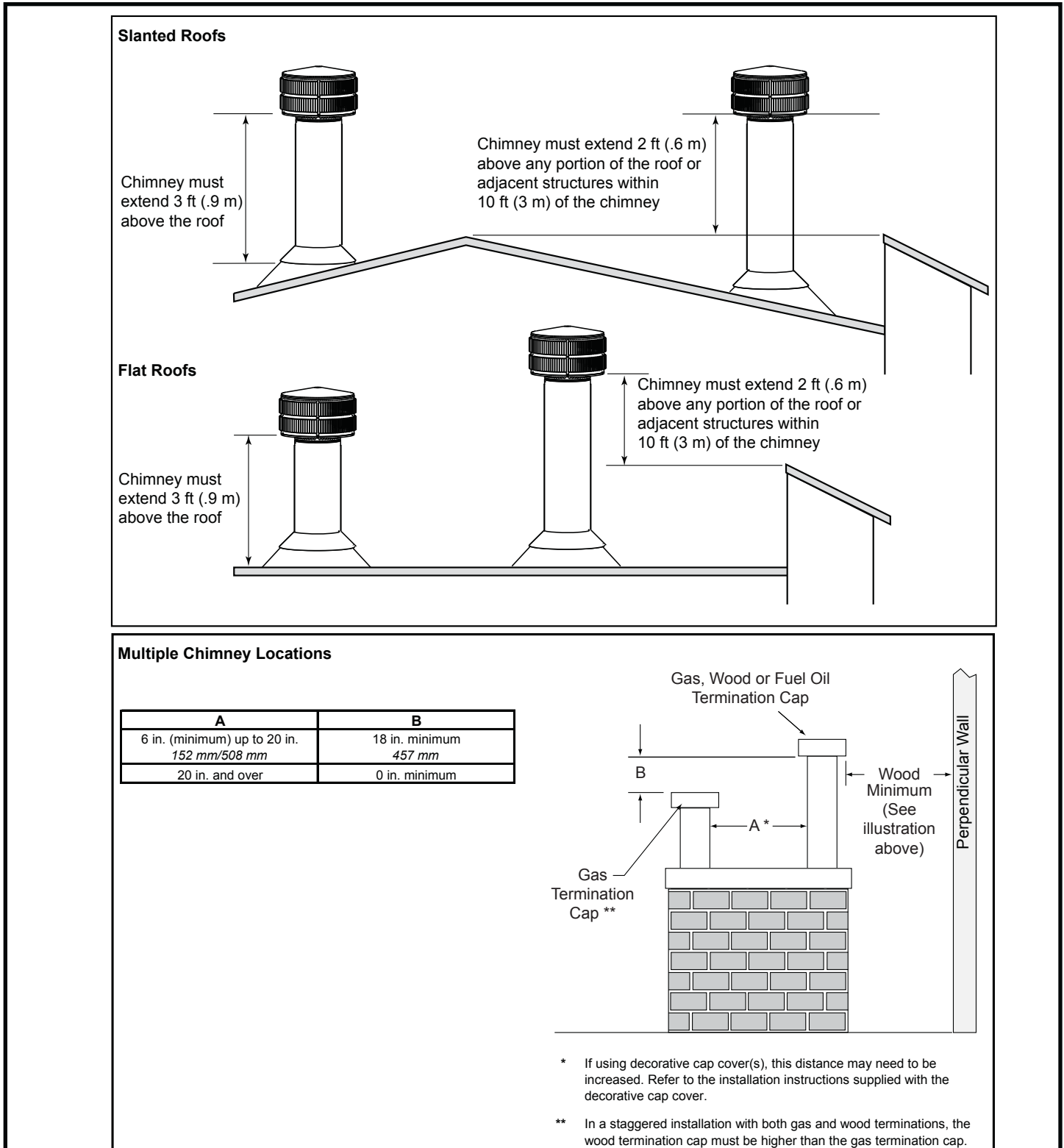


Figure 8.19 Multiple Chimney Locations

# 9 Chase Installations

## A. Construct the Chase

A chase is a vertical boxlike structure built to enclose the fireplace and/or its vent system. Vertical chimneys that run on the outside of a building must be installed inside a chase.

Construction of the chase may vary with the type of building. These instructions are not substitutes for the requirements of local building codes. Local building codes **MUST** be checked.

A chase should be constructed in the manner of all outside walls of the home to prevent cold air drafting problems. The chase should not break the outside building envelope in any manner. All outer walls need to be insulated.

Building codes require false ceiling and ceiling firestops at each floor of the chase or every 10 ft (3.05 m) of clear space to control spread of fire.

Walls, ceiling, base plate and cantilever floor at the first level of the chase should be insulated. See Figure 9.1. Vapor and air infiltration barriers should be installed in the chase as per regional codes for the rest of the home. Additionally, Hearth & Home Technologies recommends that the inside surfaces be sheet rocked and taped (or the use of an equivalent method) for maximum air tightness.

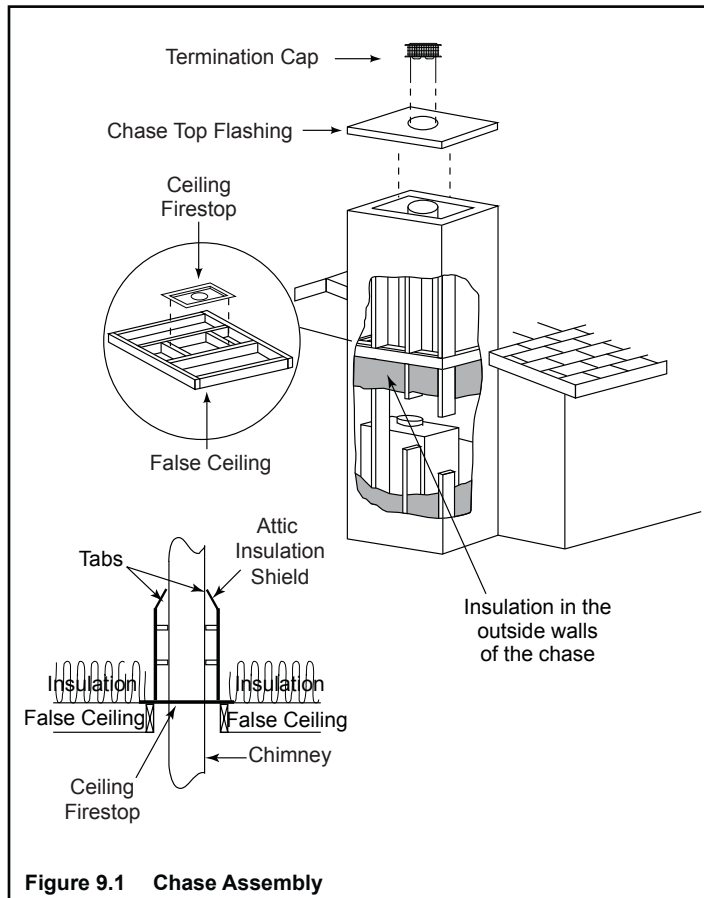


Figure 9.1 Chase Assembly

Gas line holes and other openings should be caulked with high temperature caulk or stuffed with unfaced fiberglass insulation. If the fireplace is being installed on a cement slab, we recommend that in cold climates, a sheet of plywood or other raised platform be placed underneath to prevent conducting cold up into the room.

Three examples of chase applications are shown in Figure 9.2.

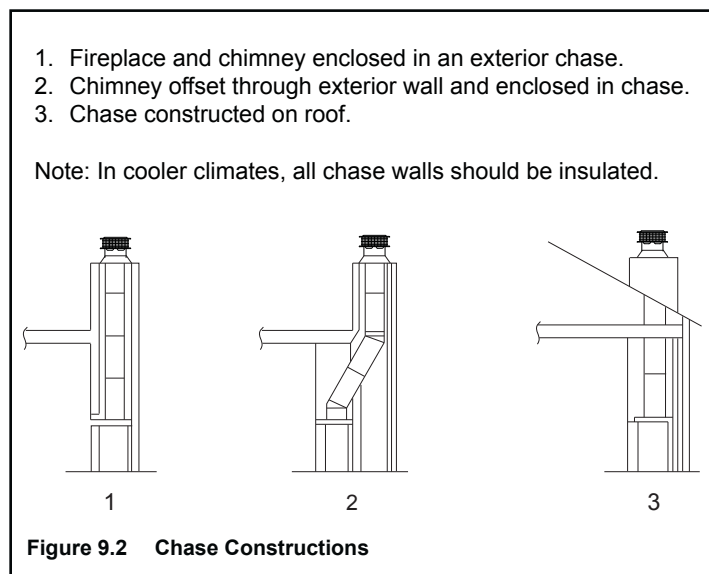


Figure 9.2 Chase Constructions

**WARNING! You must install false ceilings and ceiling firestops at each floor of the chase or every 10 ft (3.05 m) to control spread of fire.**

**WARNING! Risk of Fire! DO NOT seal area between fire stop opening and chimney pipe except where they enter the attic or leave the warm air envelope of the home (use 600° F sealant).**

**WARNING! Risk of Fire! You must maintain a minimum 2 in. (51 mm) air space clearance to insulation and other materials surrounding the chimney system.**

- Insulation and other materials must be firmly secured to prevent accidental contact with chimney system.
- Failure to prevent contact between insulation or other materials and chimney system may cause overheating and fire.

## B. Install Fireplace & Chimney

Install as per Sections 7 and 8.

## C. Install Chase Top Flashing

- You **MUST** use a chase top flashing in a chase installation. Chase top flashings are available from your Hearth & Home Technologies dealer or may be field constructed.
- Refer to Sections 8.M. and 8.N.



# 10 Shrouds

## A. Shroud Requirements

**WARNING! Risk of Fire!** Shrouds must be constructed as specified. Improper construction may overheat chase top.

- Chase top shrouds may be field constructed where permitted by regional building codes.

**NOTICE:** Some regional codes require an agency-Listed shroud. Consult your local building officials.

- Hearth & Home Technologies Inc. supplies UL listed shrouds. See your dealer for details.

Shrouds can either be field-fabricated or factory-fabricated, but they must meet the requirements as specified in these instructions. Shrouds must be constructed of a minimum 24 ga (.024 in.) stainless steel, aluminized steel, galvanized steel, or copper. Other materials may also be used, such as brick, mortar, stucco, stone, etc. provided they are completely non-combustible. Check with your local building code authorities for any additional shroud requirements. Shrouds must be able to be removed to allow chimney access to properly clean the chimney. DuraChimney II installations which include the use of a shroud must comply with the following requirements (Figure 10.1)

- DuraChimney II must maintain at least 2 in. (51 mm) clearance from combustible materials.
- The chase enclosure must be ventilated.
- The chase top flashing or field-fabricated chase pan must be used. Field-fabricated chase pans are acceptable if they meet these requirements:
  - Material must be 24 ga (.024 in) galvanized steel or equivalent.
  - Chase pan must have opening 3 in. (76 mm) larger than outside diameter of chimney pipe with at least a 1/2 in. (13 mm) upturned flange/collar.
  - Chase pan must overhang chase by 1/2 in. (13 mm) per side for proper air flow.
  - Chase pan must have a 1 in. (25 mm) down turned outside edge (weather protection).

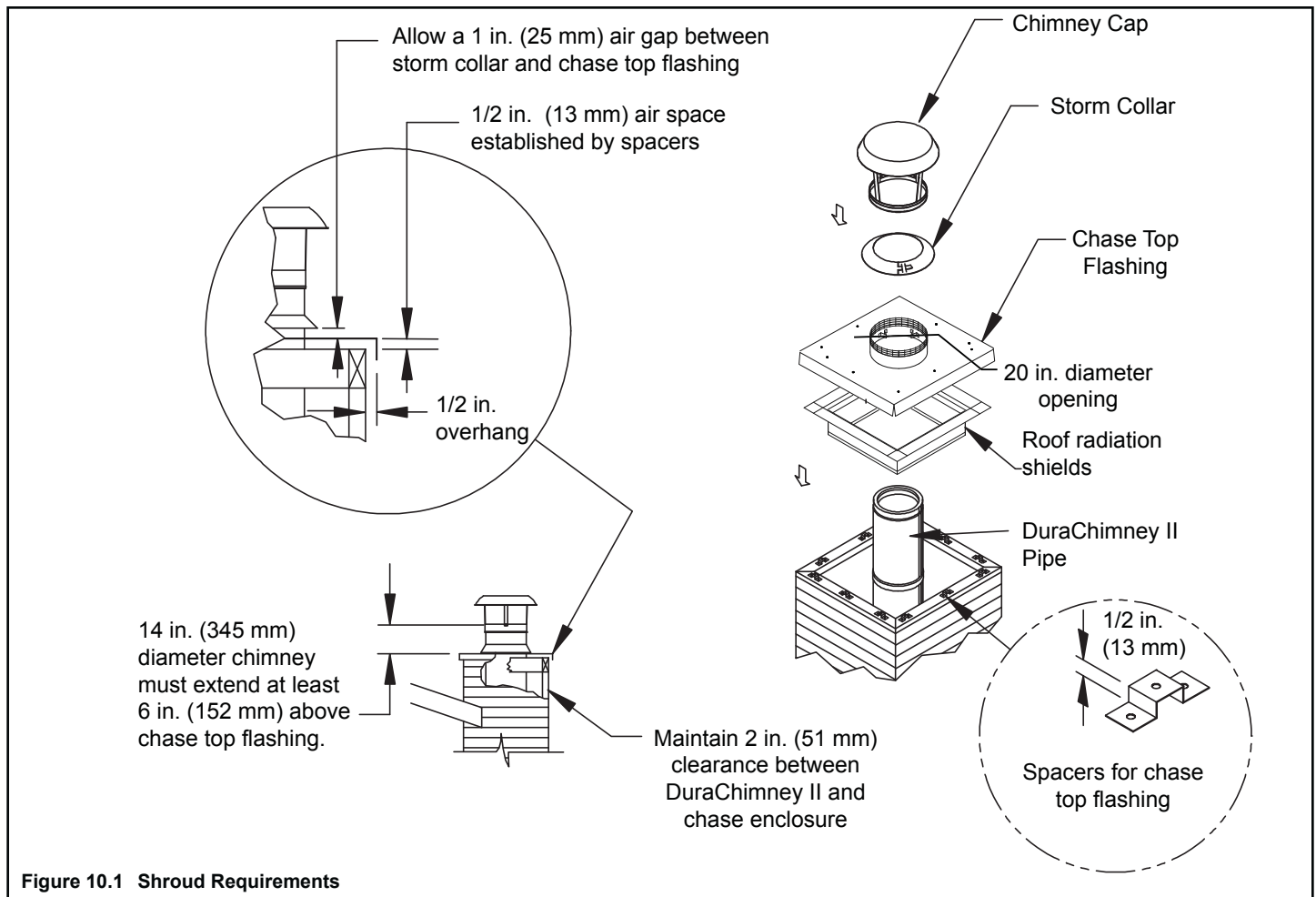


Figure 10.1 Shroud Requirements



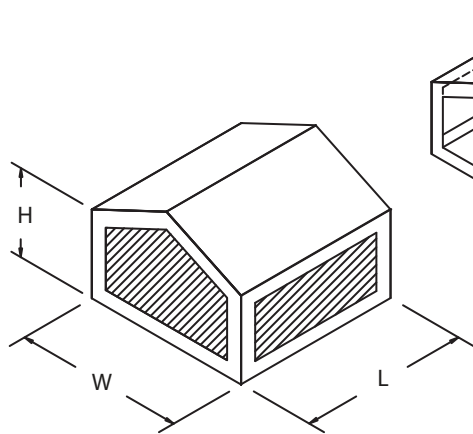
- Field-fabricated spacers (1/2 in./13 mm tall, 24 ga/.024 in. galvanized steel) must be used to support the chase top flashing or chase pan, in order to provide air flow.
- 14 in. (345 mm) DuraChimney II pipe must extend at least 6 in. (152 mm) above the chase pan/flashing.
- A DuraChimney II cap must be used inside the shroud.
- The shroud must not be in direct contact with any of the DuraChimney II components (other than the chase top flashing).
- All open areas of the shroud must be covered with 1/2 in. (13 mm) stainless or galvanized steel mesh screen to prevent debris from entering the shroud.
- Shrouds must follow the dimensional requirements specified in Tables 10.1, 10.2 or 10.3, depending on the style of shroud used. The three basic shroud styles are 1) House, 2) Arch or Mailbox, and 3) Pyramid. Most factory-fabricated shrouds will fall under one of these basic style categories.

## B. House Style Shroud

The house-style shroud is roughly square or rectangular with a closed top and exhaust openings on four sides (Figure 10.2). Table 10.1 lists the minimum shroud dimensions, the minimum open area per side, and the minimum total open area for the shroud.

**Table 10.1**

House Style Shroud Minimum Dimensions											
Chimney Diameter		Chimney Area		Min Height H		Min Length L		Min Width W		Min Open Area per side	Min Total Open Area
<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>sq in</i>	<i>sq in</i>
14	355.6	154	3911.6	24	609.6	32	812.8	32	812.8	260	1040



H: Minimum height of shroud  
 L: Minimum length of shroud  
 W: Minimum width of shroud

Shaded area represents screened open area. Actual shape of shroud may vary as long as minimum dimensions and minimum open area requirements are met.

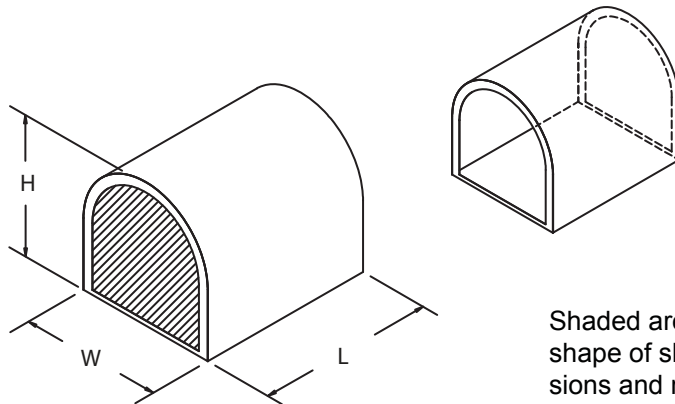
**Figure 10.2 House-Style Shroud Minimum Dimensions**

### C. Arch / Mailbox Style Shroud

The arch or mailbox style shroud generally has two solid sides and a solid top. The exhaust openings are on the two open ends of the arch (Figure 10.3). Table 10.2 lists the minimum shroud dimensions, the minimum open area per side, and the minimum total open area for the shroud.

**Table 10.2**

Arch / Mailbox Style Shroud Minimum Dimensions											
Chimney Diameter		Chimney Area		Min Height H		Min Length L		Min Width W		Min Open Area per side	Min Total Open Area
<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>sq in</i>	<i>sq in</i>
14	355.6	154	3911.6	24	609.6	32	812.8	32	812.8	520	1040



H: Minimum height of shroud  
L: Minimum length of shroud  
W: Minimum width of shroud

Shaded area represents screened open area. Actual shape of shroud may vary as long as minimum dimensions and minimum open area requirements are met.

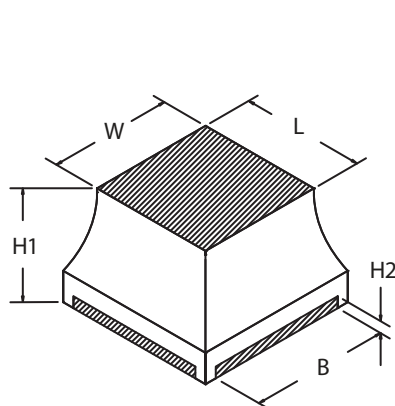
**Figure 10.3 Arch/Mailbox-Style Shroud Minimum Dimensions**

### D. Pyramid Style Shroud

The pyramid style shroud is roughly square or rectangular with an open top for exhaust as well as openings along the base of the four sides (Figure 10.4). Table 10.3 lists the minimum shroud dimensions, including the minimum height and length of the base opening.

**Table 10.3**

Pyramid Style Shroud Minimum Dimensions											
Chimney Diameter		Min Height H1		Min Length L		Min Width W		Min Base B		Min Height H2	
<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>	<i>in</i>	<i>mm</i>
14	355.6	24	609.6	32	812.8	32	812.8	22	558.8	2	50.8



L: Minimum length of shroud top opening  
W: Minimum width of shroud top opening  
H1: Minimum total height of shroud  
B: Minimum length of opening along base  
H2: Minimum height of opening along base

Shaded area represents screened open area. Actual shape of shroud may vary as long as minimum dimensions and minimum open area requirements are met.

**Figure 10.4 Pyramid-Style Shroud Minimum Dimensions**

# 11 Installation of Molded Brick Panel

## A. Install Hearth Molded Brick Panel

- Place hearth panel into the fireplace.

## B. Install Side Molded Brick Panel-Traditional

- If a gas line is to be installed, remove the knockouts in the inner firebox and in the outer shell on the side of your choice. Refer to dimension drawings for location of knockouts and Section 13.A. for gas provisions.
- Do NOT remove screen rods.
- Refer to Figure 11.1.
- Install lower side panel, tapered edge to the front. Align the front edge with the front of the column (or butted to the surround if installed).
- Install two T-brackets stem down into mortar line, do not tighten.
- Install upper side panel in the unit, tapered edge to the front. Position the bottom of panel behind the T-brackets. Install two T-brackets stem up into mortar lines, one on its side on the front edge, do not tighten.
- Install two Z-brackets in the mortar joints across the top. Tighten these and all previously installed brackets.
- Install second side panel following the steps above.

**Note:** Use T-brackets as templates and drill pilot holes into the inner shell with the drill bit provided. Side panels must be installed first.

## C. Install Back Molded Brick Panel-Traditional

- Refer to Figure 11.1.
- Set the grate brackets in place, 26.5 in. (673 mm) center to center.
- Install the lower back panel. Center from side to side.
- There will be a large gap in the back corners between the side panels and back panels. This gap is necessary for installation or removal of the panels. Although it will require a considerable amount of mortar to fill this void, the visible finished mortar joint should appear the same as the other joints (approximately 1/4 in. wide). Because of the volume of mortar, it will take longer for this joint to appear dry.
- Install three T-brackets stem down into mortar line to hold lower back in position. Do not tighten.
- Install upper back panel. Position bottom of panel behind the previously installed T-brackets. Install two T-brackets stem side up into mortar line, do not tighten
- Install two Z-brackets in the mortar joints across the top. Tighten these and all previously installed brackets.

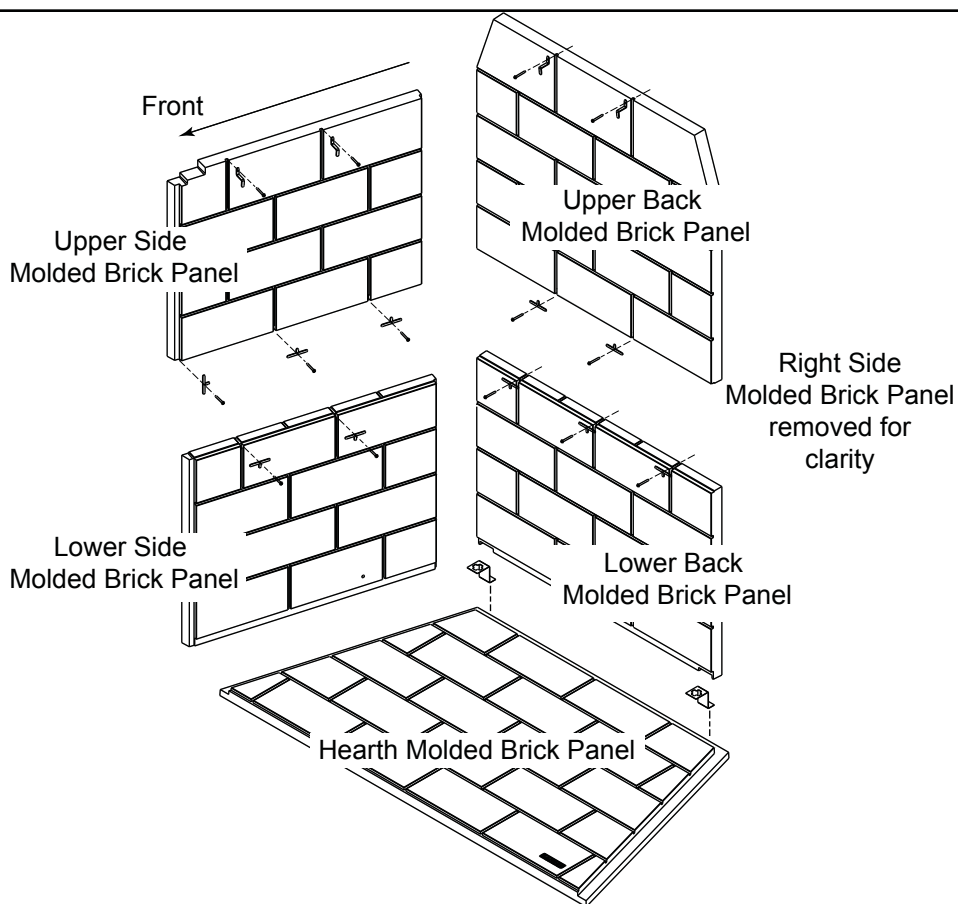


Figure 11.1 Traditional Refractory

## D. Installing Side Molded Brick Panel-Herringbone

- If a gas line is to be installed, remove the knockouts in the inner firebox and in the outer shell on the side of your choice. Refer to dimension drawings for location of knockouts and Section 13.A. for gas provisions.
- Do NOT remove screen rods.
- Refer to Figure 11.2.
- Install lower side panel, tapered edge to the front. Align the front edge with the front of the column (or butted to the surround if installed).
- Install two T-brackets stem down into mortar line, do not tighten.
- Install upper side panel in the unit, tapered edge to the front. Position the bottom of panel behind the T-brackets. Install two T-brackets stem up into mortar lines, one Y-bracket on the front edge as shown. Do not tighten.
- Install two Z-brackets in the mortar joints across the top. Tighten these and all previously installed brackets.
- Install second side panel following the steps above.

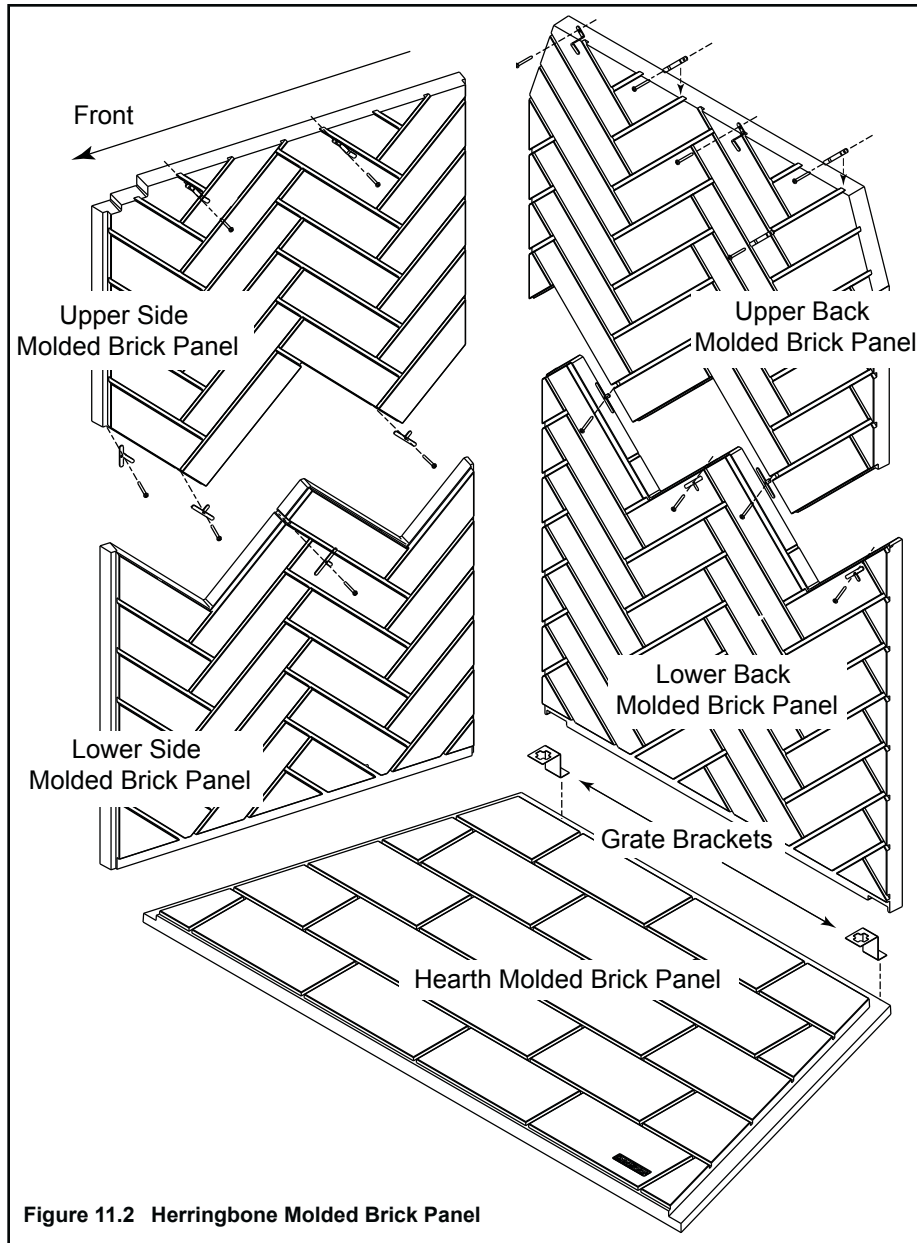


Figure 11.2 Herringbone Molded Brick Panel

**Note:** Use T-brackets as templates and drill pilot holes into the inner shell with the drill bit provided. Side panels must be installed first.

## E. Installing Back Molded Brick Panel-Herringbone

- Refer to Figure 11.2.
- Set the grate brackets in place, 26.5 in. (673 mm) center to center.
- Install the lower back panel. Center from side to side.
- There will be a large gap in the back corners between the side panels and back panels. This gap is necessary for installation or removal of the panels. Although it will require a considerable amount of mortar to fill this void, the visible finished mortar joint should appear the same as the other joints (approximately 1/4 in. wide). Because of the volume of mortar, it will take longer for this joint to appear dry.
- Install two T-brackets stem down into mortar line to hold lower back in position. Do not tighten.
- Install upper back panel. Position bottom of panel behind the previously installed T-brackets. Install three T-brackets stem side up into mortar line, do not tighten.
- Install two Z-brackets in the mortar joints across the top. Tighten these and all previously installed brackets.

## F. Install Mortar

**Note: We recommend mortar be applied after facing materials are installed.**

### Tools Required:

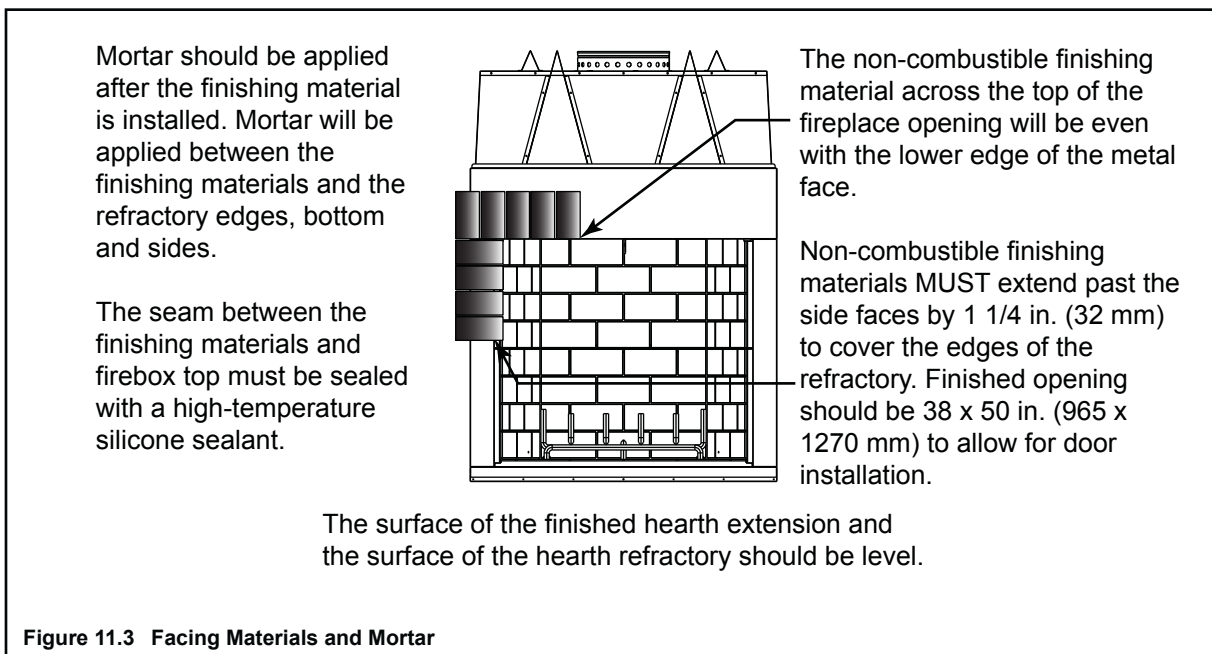
Mortar bag	Drill
Trowel	3/32 drill bit (provided)
Mixing bucket	Phillips screwdriver
Sponge or spray bottle	Joint striker
Drill with mixing attachment (optinal)	
Bucket of water	

**NOTICE:** Do not substitute for HHT mortar. Other materials may stain the molded brick panels.

The mortar material provided should be sufficient to complete the installation of the refractory without considerable waste.

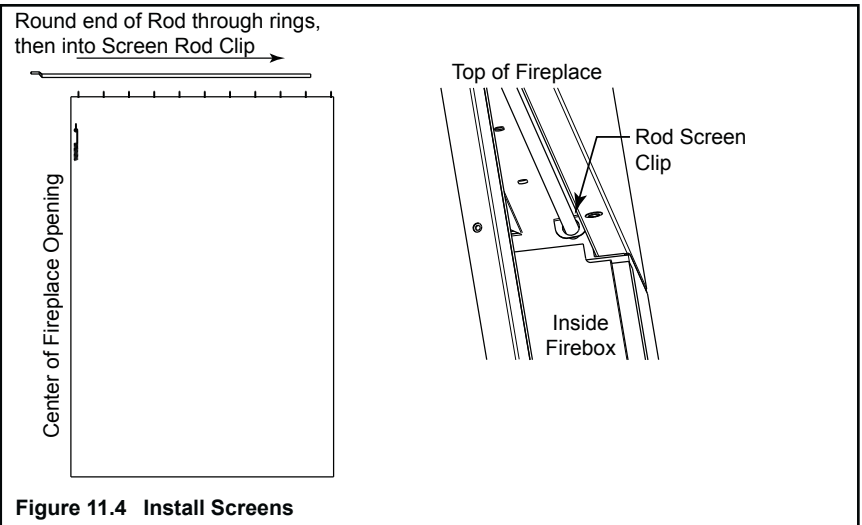
- Mix approximately 1/3 of the mortar material with 1/2 gallon of water in the mixing bucket. Stir the mixture with the mixing attachment and drill. The consistency should allow the material to be squeezed from the mortar bag but not too runny.

- Fill the mortar bag with the prepared mixture.
- Apply mortar by squeezing the material from the mortar bag into the joint lines. If filling a vertical line, start from the top and work down. Apply slowly. If the environment is extremely warm, it may be beneficial to wet the panel surface before applying mortar. Mixture should be flush or higher than the panel surface.
- Mix more material as necessary to finish the job and then let the unit set until firm, may take two hours or more. The time required to set up can vary due to wetness of mortar at time of application and temperature of environment.
- Thoroughly clean the bag, tools and mixing bucket.
- Use a joint striker and strike the material in the joints. The excess material should fall off somewhat dry.
- Sweep the loose material off the floor of the unit.
- Final cleanup with soap and water.
- **VERY IMPORTANT: Allow the mortar 72 hours to cure before operating the fireplace.**



## G. Install Screens

- Remove one screen rod by removing one screw (near the center of the top front). Pull rod out of the hole. Keep the screw.
- Lay one screen panel flat and slide the round end of the rod through the rings starting at the handle side of screen. Leave the last ring off the rod.
- Insert the rod through the hole in the bracket. Slip the last ring over the rod on the other side of the bracket.
- Fasten the flat end of the screen rod back in place using the screw removed earlier.
- Repeat for the other screen panel.



# 12 Finishing

## A. Non-Combustible Materials

- Materials which will not ignite and burn, composed of any combination of the following:
  - Steel
  - Iron
  - Brick
  - Tile
  - Concrete
  - Slate
  - Glass
  - Plasters
- Materials reported as passing **ASTM E 136, Standard Test Method for Behavior of Metals, in a Vertical Tube Furnace at 750° C**

## B. Combustible Materials

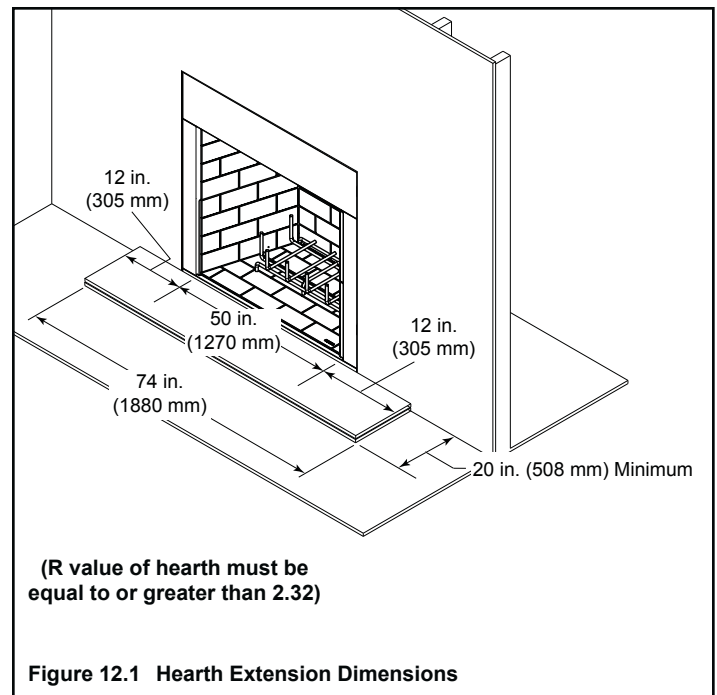
- Materials made of or surfaced with any of the following materials:
  - Wood
  - Compressed paper
  - Plant fibers
  - Plastic
- Any material that can ignite and burn; flame proofed or not, plastered or un-plastered

## C. Hearth Extension

**WARNING! Risk of fire!** High temperatures, sparks, embers or other burning material falling from the fireplace may ignite flooring or concealed combustible surfaces.

- Metal hearth strips **MUST** be installed (Section 7.C.).
- Hearth extensions **MUST** be installed exactly as specified.

- You **MUST** use a hearth extension with this fireplace.
- This fireplace has been tested and approved for use with a hearth extension insulated to a minimum R value of 2.32.
- The hearth extension material **MUST** be covered with tile, stone or other non-combustible material.
- Manufactured hearth materials will usually have a published **R value** (resistance to heat) or **k value** (conductivity of heat). Refer to the formula in Table 12.1 to convert a k value to an R value,
- Refer to Table 12.2 for hearth extension insulation alternatives.



**Table 12.1**

$$R = 1/k \times \text{inches of thickness}$$

**Table 12.2**

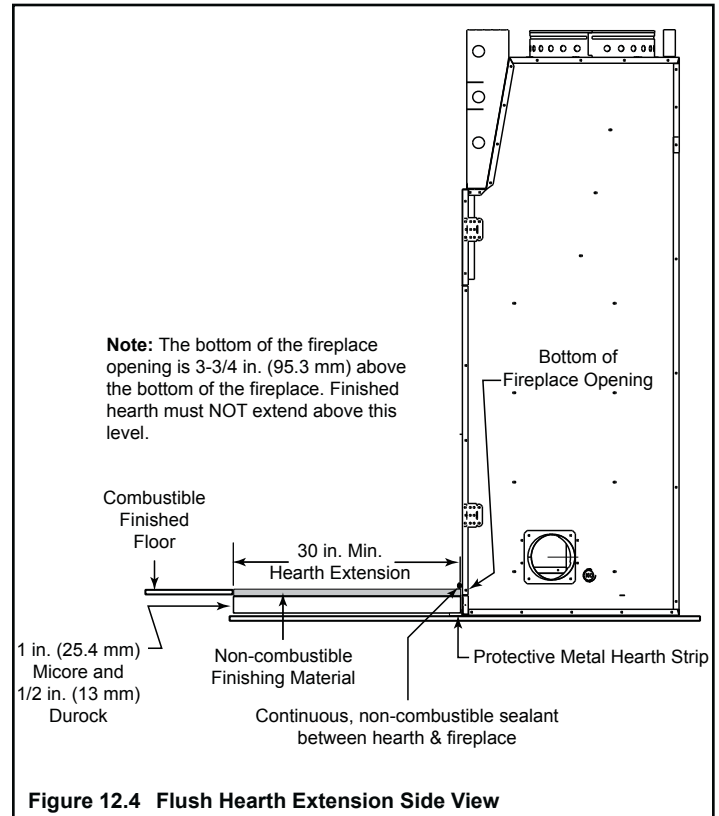
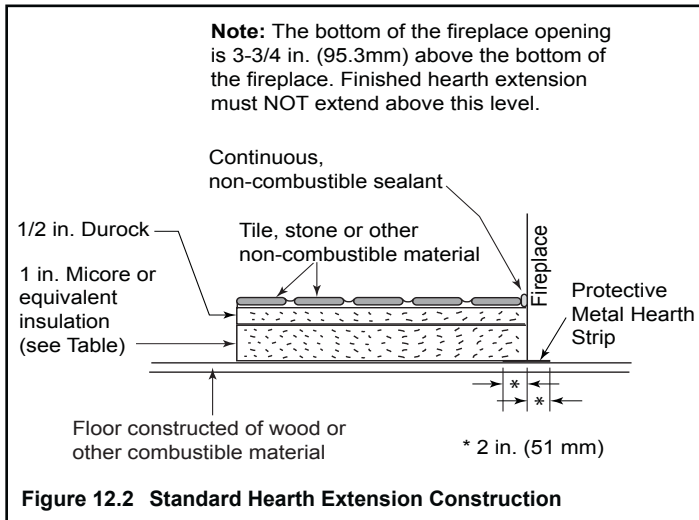
Hearth Extension Insulation Alternatives-Total minimum R Value must equal 2.32			
Material	k per inch thick	R per inch thick	Minimum thickness required
Hearth & Home HX3, HX4 (Micore 300™)	0.49	2.06	1 1/2 in. (38 mm)
USG Micore 160™	0.39	2.54	1 in. (25.4 mm)
USG Durock™ Cement Board	1.92	0.52	4 1/2 in. (114 mm)
Cement Mortar	5.0	0.20	11 5/8 in. (295 mm)
Common Brick	5.0	0.20	11 5/8 in. (295 mm)
Ceramic Tile	12.50	0.08	29 in. (737 mm)
Armstrong™ Privacy Guard Plus	0.46	2.18	1 1/2 in. (38 mm)
Marble	14.3 to 20.0	0.07 to 0.05	33 to 46 1/2 in. (838 to 1181 mm)



**IMPORTANT!** Hearth extension design must be determined before installation of fireplace.

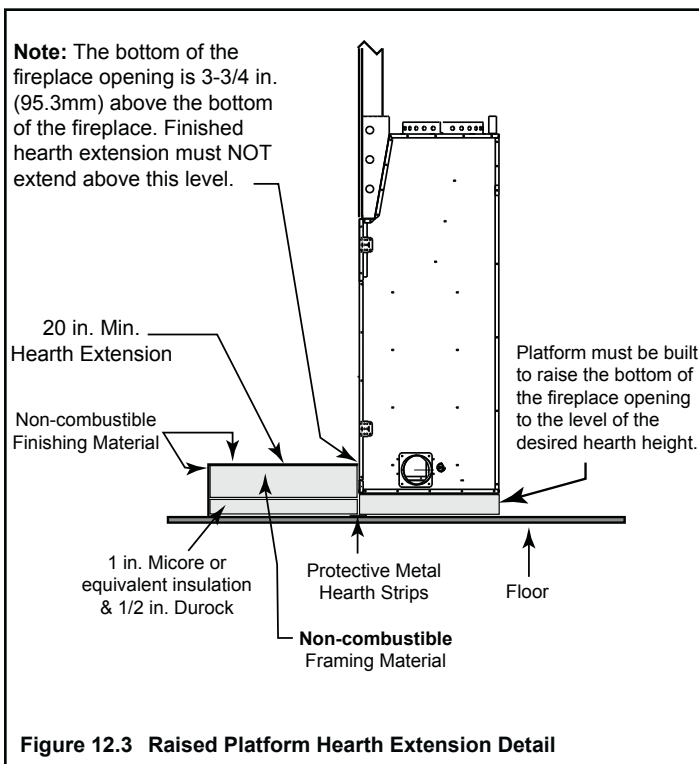
### Flush Hearth Extension Framing

- If the hearth extension and fireplace are recessed into a combustible floor, the hearth extension must extend a minimum of 30 inches in front of the unit.
- The fireplace should not be recessed more than 3 3/4 in. (95.3 mm) below the surface of the finished floor.
- Refer to Figure 12.4.



### Raised Hearth Extension Framing

The hearth framing must be constructed of non-combustible materials (Figure 12.2) and placed on 1/2 in. Durock and 1 in. Micore (or equivalent material) (Figure 12.4). When creating the platform, allow for the thickness of the **non-combustible** finishing materials (Figure 12.5).



## D. Finishing Material

Refer to Sections 12.A. and Sections 12.B. for combustible/non-combustible materials.

- Complete framing and apply facing material (drywall) over framing.
- A bead of 300° F minimum non-combustible sealant must be used to close off any gaps at the top and sides between the fireplace and facing to prevent cold air leaks.
- Large gaps can be bridged with fiberglass rope gasket.

**WARNING! Risk of Fire!** You must maintain clearances.

- **DO NOT** cover metal fireplace front with combustible materials.
- Install combustible materials only to specified clearances on top front and side edges.

**Note: We recommend mortar be applied after facing materials are installed.**

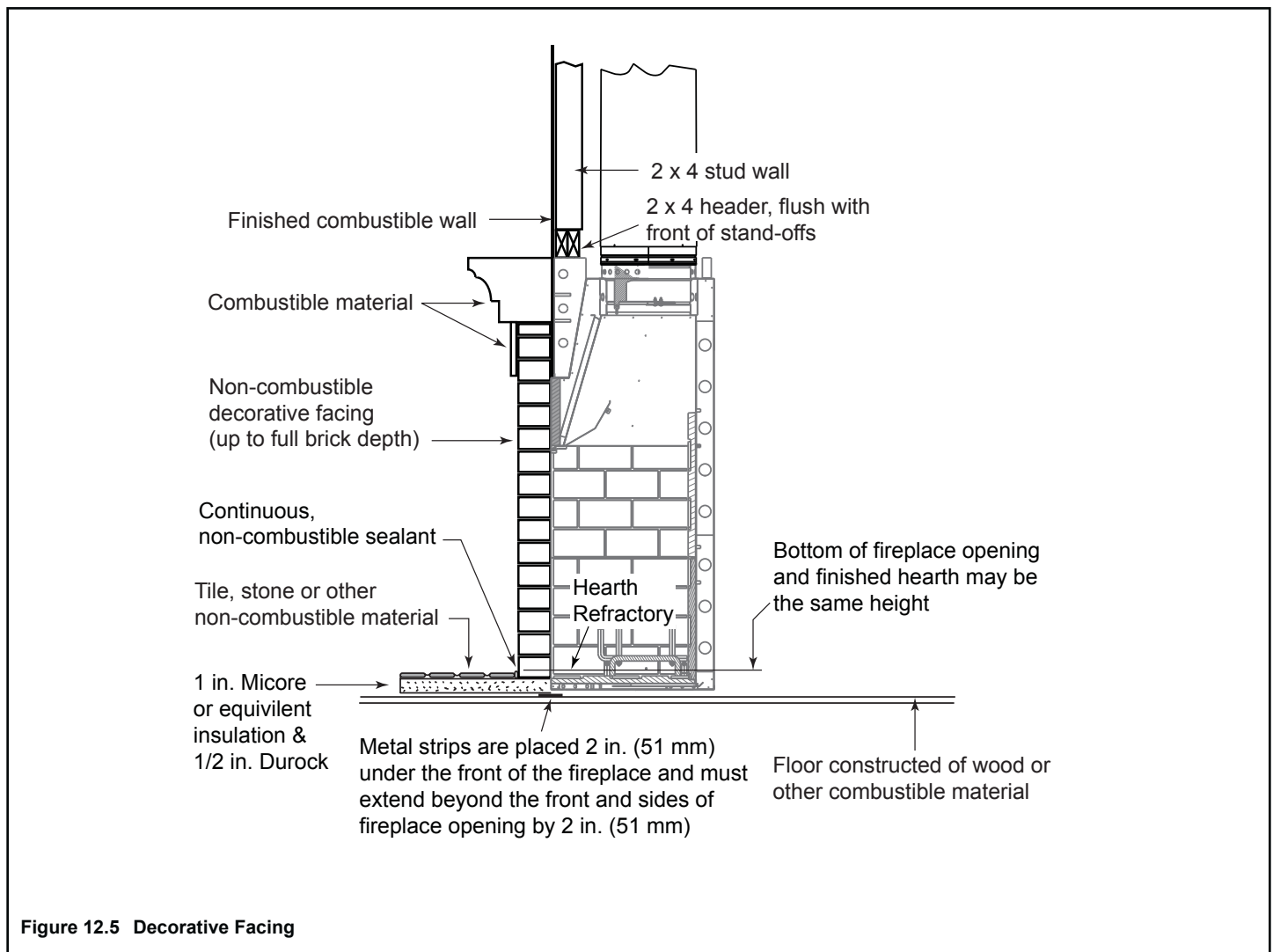
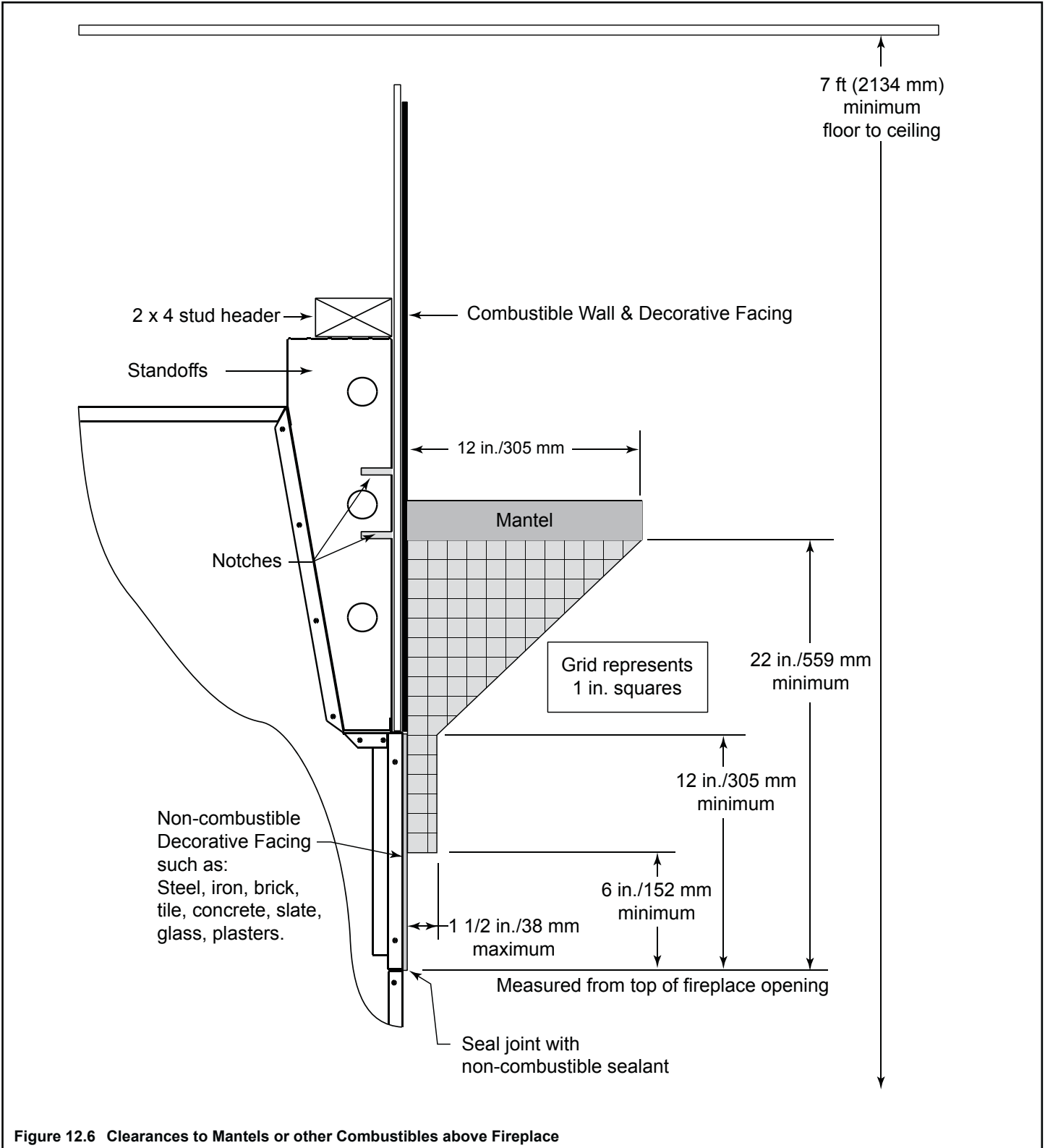


Figure 12.5 Decorative Facing

## E. Combustible Mantel

- Refer to the shaded area of Figure 12.6 for the location and dimensions of a combustible mantel.
- A combustible mantel may be positioned no lower than 22 in. (508 mm) above the top of the fireplace opening.
- A combustible mantel may have a maximum depth of 12 in. (305 mm).
- Combustible trim and materials cannot be placed within 6 in. (152mm) of the fireplace opening (top or sides).
- Combustible materials projecting more than 1 1/2 in. (38 mm) shall not be placed within 12 in. (305 mm) from the top of the fireplace opening.
- Combustible trim must not cover the metal surfaces of the fireplace.
- Mantel clearance is in accordance with **Section 7-3.3.3 of ANSI/NFPA211.**



## F. Mantel, Adding Extra Support

If extra support for the mantel is needed across the front of the fireplace:

- Obtain a piece of top/bottom track used in metal framing.
- Cut the track to 65 7/8 in. (1673 mm) long.
- Notch each end of the track 2 in. (51 mm). See Figure 12.7.
- Place the track into the notches (shown in Figure 12.8) on the front standoffs and secure to the framing on both sides of the fireplace (Figure 12.9).
- Use drywall screws to fasten the mantel to the metal framing.

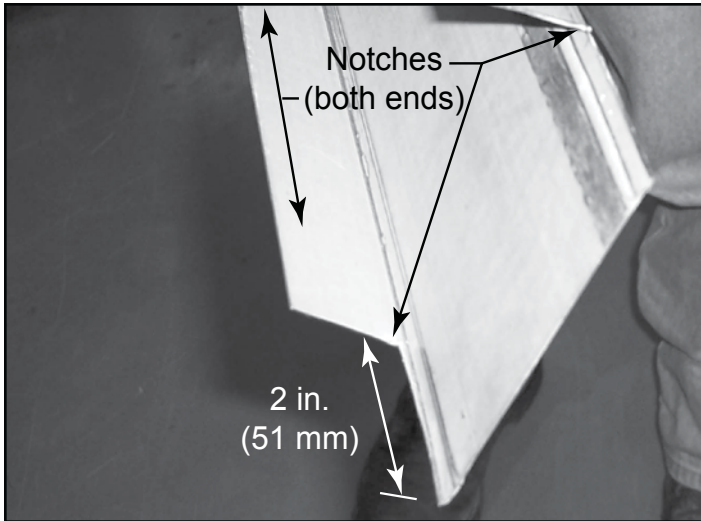


Figure 12.7 Notch the Metal Track

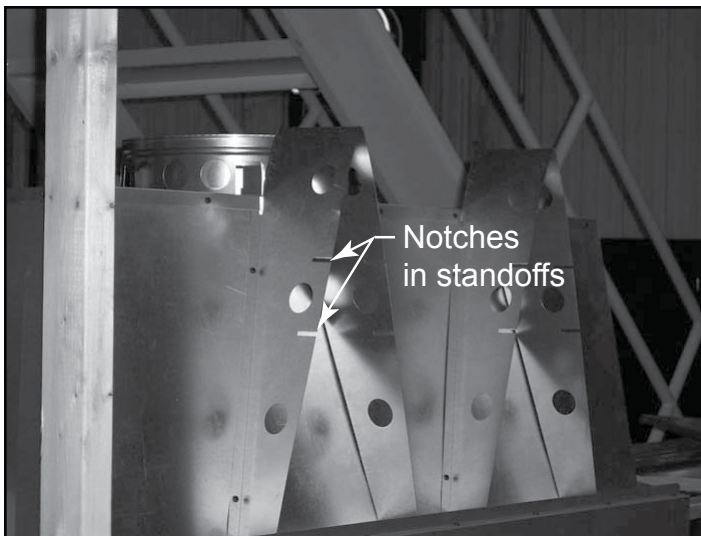


Figure 12.8 Notch in Standoffs

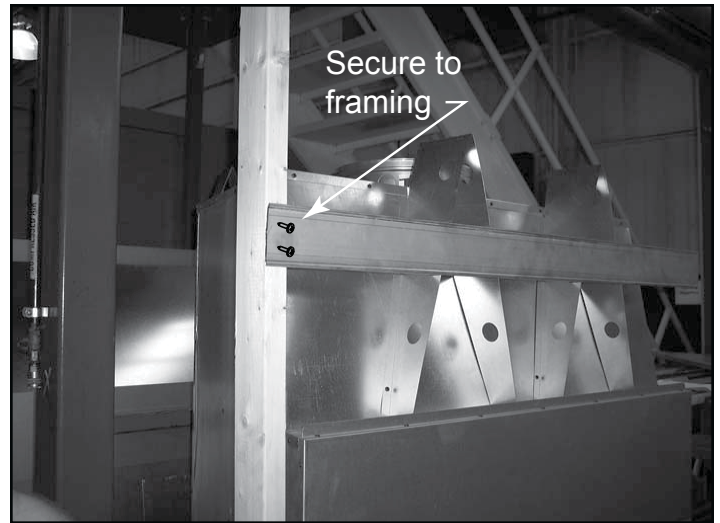


Figure 12.9 Secure to Framing

## G. Sidewalls/Surrounds

- Adjacent combustible sidewalls must be located a minimum of 24 in. (305 mm) from the fireplace opening.
- Combustible mantel legs, surrounds and stub walls may be constructed per Figure 12.10.

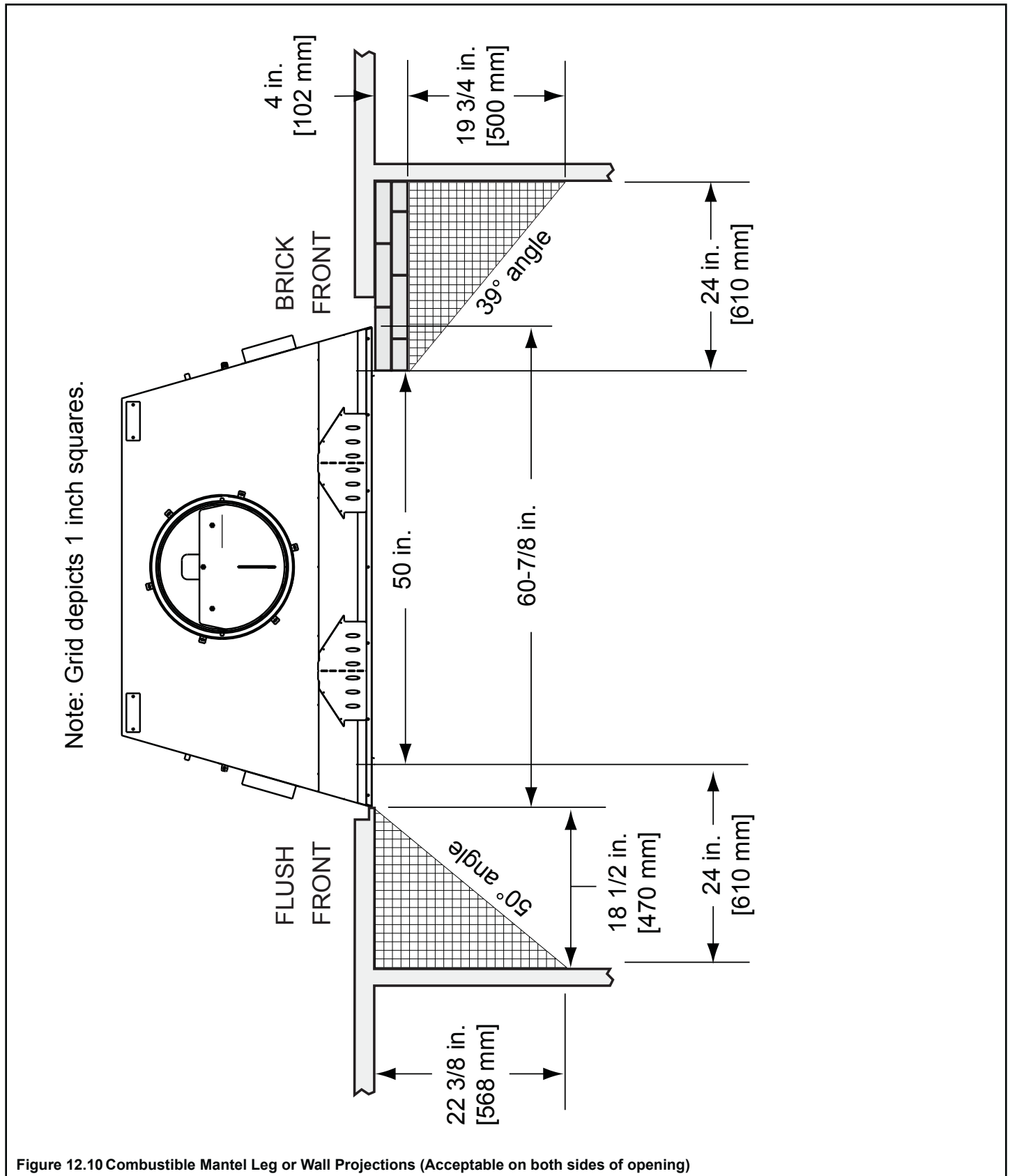


Figure 12.10 Combustible Mantel Leg or Wall Projections (Acceptable on both sides of opening)

# 13 Accessories

## A. Gas Log/Lighter Provision

**WARNING! Fire and/or Asphyxiation Risk! Use with solid wood fuel or decorative gas appliance only. Gas fire generates fumes.**

- **DO NOT** install unvented gas logs
- Damper must be locked fully open when gas logs are installed

A certified gas log lighter or decorative gas log set can be installed in this fireplace.

- Maximum input is 150,000 BTU/hr.
- Decorative gas appliance must be certified to **ANSI Z21.60** "Standard for Decorative Gas Appliances for Installation in Vented Fireplaces".
- Must be installed in accordance with the **National Fuel Gas Code, ANSI Z223.1**.
- A gas log set must incorporate a gas shutoff.
- Gas log set requires the damper to be locked fully open.
- Knockouts are provided on both sides of the fireplace for 1/2 in. (13 mm) iron pipe.
- A locating dimple is located on both sides of the fireplace in the molded brick panel for drilling a 1 in. (25 mm) diameter hole for installation of a gas line. After the panel is installed, drill the hole for the gas line.
- Seal panel around pipe with fireplace mortar or a non-combustible sealant.

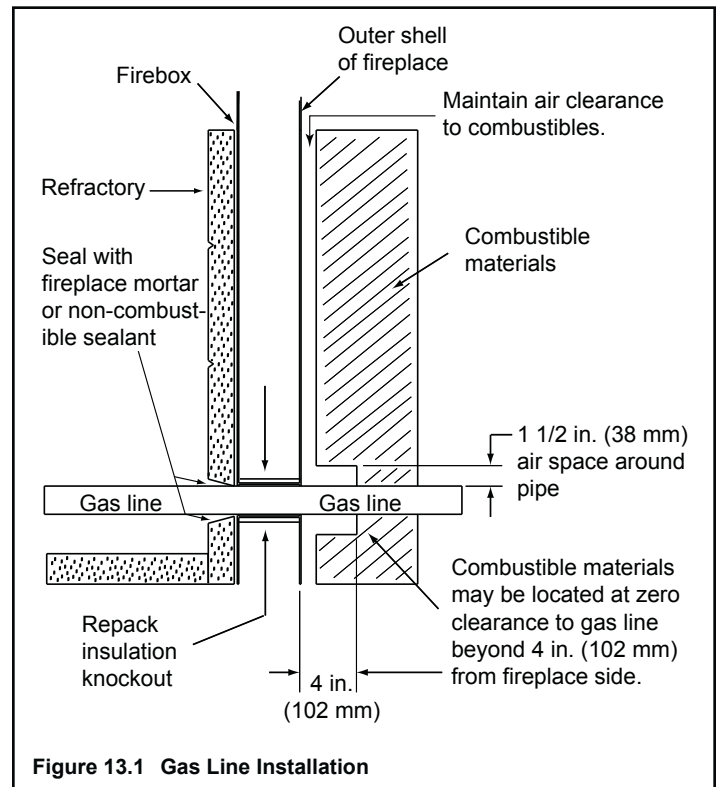


Figure 13.1 Gas Line Installation

## B. Wood Burning Inserts

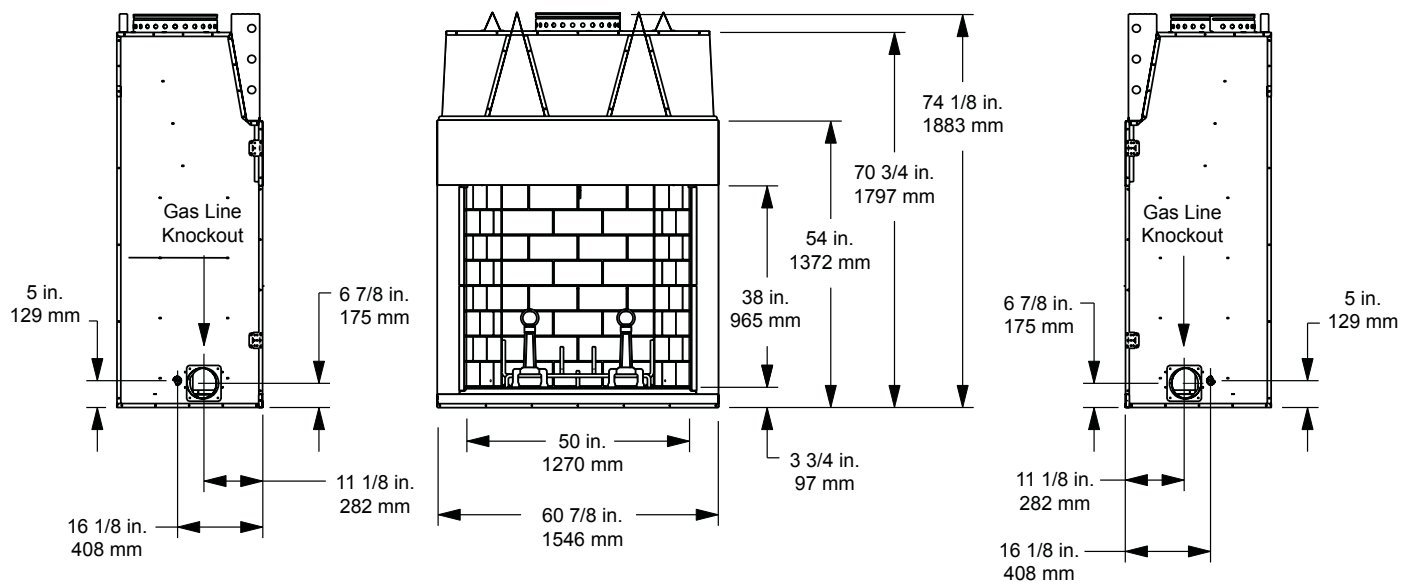
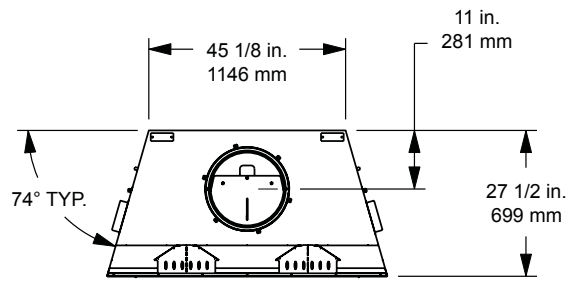
**WARNING! Risk of Fire! Improper installation of wood inserts may cause fireplace or chimney system to overheat.**

If a wood burning insert is being installed in this fireplace, Hearth & Home Technologies recommends full reline of the chimney.

- Cooling air openings at the top of the chimney must not be obstructed in any manner.
- Hearth & Home Technologies recommends securing the reline at the top of the flue and using the cap certified for use with this fireplace system.

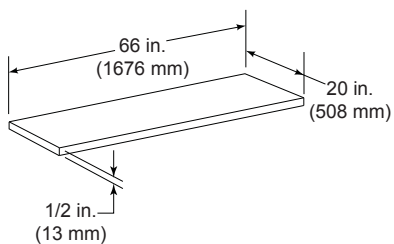
# 14 Reference Materials

## A. Fireplace Dimensions

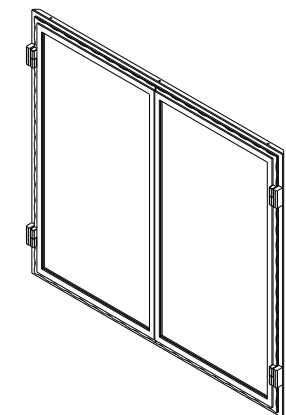
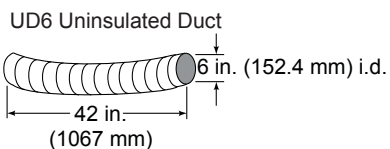
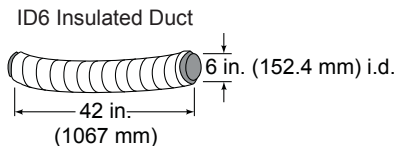




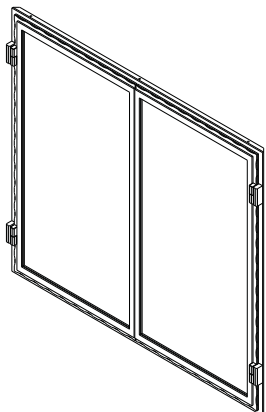
## B. Optional Components



**HX4 Hearth Extension**



**DFG4050 Series Glass Doors (optional)**



**DFS4050 Series Screen Doors (optional)**

## C. Chimney Components

Catalog #	Description
14DCA-12	Pipe 12 inch
14DCA-18	Pipe 18 inch
14DCA-36	Pipe 36 inch
14DCA-48	Pipe 48 inch
14 DCA-E15	15 degree Elbow
14DCA-E30	30 degree Elbow
14DCA-ES	Elbow Strap
14DCA-SS	Supplementary Support
14DCA-ST	Stabilizer
14DCA-FS	Firestop
14DCA-IS	Insulation Shield
14DCA-RRS	Roof Radiation Shield
14DCA-CTF	Chase Top Flashing
14DCA-VC	Chimney Cap
14DCA-SC	Storm Collar
14DCA-WS	Wall Strap
14DCA-CTC	Chase Top Collar
CT14-A	Adapter-may only be used with the following copper caps
	CT-King
	CT-BishopI



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**E. Contact Information**



**No one builds a better fire**

**Please contact your Heat & Glo dealer with any questions or concerns.**

For the number of your nearest Heat & Glo dealer, please visit [www.heatnglo.com](http://www.heatnglo.com).

**- NOTES -**

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<b>CAUTION</b>		
<b>DO NOT DISCARD THIS MANUAL</b>		
	<ul style="list-style-type: none"><li>• Important operating and maintenance instructions included.</li></ul>	<ul style="list-style-type: none"><li>• Read, understand and follow these instructions for safe installation and operation.</li><li>• Leave this manual with party responsible for use and operation.</li></ul>



This product may be covered by one or more of the following patents: (United States) 4593510, 4686807, 4766876, 4793322, 4811534, 5000162, 5016609, 5076254, 5113843, 5191877, 5218953, 5263471, 5328356, 5341794, 5347983, 5429495, 5452708, 5542407, 5601073, 5613487, 5647340, 5688568, 5762062, 5775408, 5890485, 5931661, 5941237, 5947112, 5996575, 6006743, 6019099, 6048195, 6053165, 6145502, 6170481, 6237588, 6296474, 6374822, 6413079, 6439226, 6484712, 6543698, 6550687, 6601579, 6672860, 6688302B2, 6715724B2, 6729551, 6736133, 6748940, 6748942, 6769426, 6774802, 6796302, 6840261, 6848441, 6863064, 6866205, 6869278, 6875012, 6880275, 6908039, 6919884, D320652, D445174, D462436; (Canada) 1297749, 2195264, 2225408, 2313972; (Australia) 780250, 780403, 1418504 or other U.S. and foreign patents pending.