

Isokern® Standard Fireplace and Magnum Fireplace with Fire-Lite Application and DM Chimney System Installation, Operation, Maintenance and Owner's Manual

**Isokern Standard Models 36, 42 & 46
Magnum Models 28, 36, 42, & 48**

A PRODUCT OF EARTHCORE

Important: This manual contains assembly rules, installation steps, guidelines, use and maintenance instructions for the Isokern Standard and Magnum Series fireplaces, DM chimney system, and Fire-Lite Application with the FTF-13 Chimney System. This manual must become the property of and be reviewed by all current and future users of this product. It is the responsibility of the general contractor and the installer of this product to ensure that the instructions in this manual are followed exactly and that any allowed gas log appliance used in this product be installed in strict accordance with NFPA 58, NFPA 54/ANSI Z223.1 and the gas log manufacturer's explicit installation, sizing and operation instructions. It is the responsibility of the general contractor to provide adequate clearances from all firebox surfaces as specified in this manual.

INSTALLER: Leave this manual with the appliance
CONSUMER: Retain this manual for future reference

Be Sure to Read Entire Manual Before Beginning Construction.
Contents of this manual may change without prior notification.

**THESE FIREPLACES ARE DESIGNED for USE with
SOLID WOOD LOGS, PLUMBED PROPANE
(LP) or NATURAL GAS (NG), ONLY**

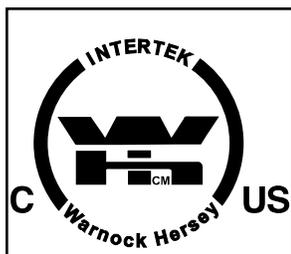
WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

SBCCI NO. 9626
ICC Report NO. ESR-2316

NYC-MEA 241-90-E
LA RR NO. 25483
Issued: February 2013
Revision: 006

INTERTEK TESTING SERVICES REPORT NO. 3159656MID-008

© 2007 Earthcore Industries, L.L.C.



THIS MANUAL CAN ONLY BE REPRODUCED IN ITS ENTIRETY

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

General Information	4
Intended Use Statement	5
Safety Instructions	6-7
Warnock-Hersey Listing Label	8
Assembled Firebox & Smoke Dome Dimensions -Isokern Standard Series	9
Component List & Dimensions	10
Assembled Firebox & Smoke Dome Dimensions -Magnum Series	11
Component List & Dimensions	12
Required Clearance to Combustibles	13
Rough Framing Dimensions & Corner Location Layout	14
Assembly Instructions	15-18
Access Modification	19
Firebrick Installation	20
Flush Wall Finish Detail	21
Required Clearances (When sheathing protrudes beyond front of firebox)	22
Required Clearance to Combustible Framing	23
Flush Wall Fire Brick Finish Detail	24
Interior Masonry Veneer Fireplace Finishes & Clearances.....	25
Masonry Veneer Construction Details	26
Non Combustible Finished Facing Requirements & Clearance to Combustible Trim	27
Concrete Support	28
DM Chimney System	29-39
General Information	29
Component List & Dimensions.....	30
Component Weights	31
Installation	32
Lateral Support	33
Offset Block	34-36
Brick Ledge Installation	37
Brick Ledge Load Capacity	38
Flashing & Crown Caps	39
Height Requirements	40
Structural Information	41
Common Chimney Terminations	42
Metal Flue	43
Specialty Applications	44-46
See-Thru Applications	45-46
Two Story Stacked Installations	46
Fire-Lite Application	47-52
Fire-Lite Application General Information	47
Fire-Lite Application - Required Clearance to Combustibles	48
Fire-Lite Application - Load Calculations	49
Fire-Lite Application - Hearth Conditions	50
FTF-13 or Equivalent Chimney System	51-52
FTF-13 Installation Components	53
FTF-13 Offset Elevation Chart	54
FTF-13 Vertical Elevation Chart	55
Summary	56-57
Registration Card	58

General Information

The Fireplaces referenced in this installation manual and DM chimney system are prefabricated, refractory modular fireplaces and a chimney system designed for field assembly. The systems consist of interlocking precast parts which are glued together with a masonry adhesive.

The parts of the Fireplaces and DM chimney system are precast using a proprietary mixture of volcanic pumice aggregate and cement. It includes all the parts necessary for assembly of a complete firebox, smoke dome and chimney system.

Each precast fireplace component is designed for a specific part of the fireplace such that only one means for assembly is possible.

The firebox and smoke dome are designed to be fitted with a traditional cast iron, poker-style throat damper, however alternate dampers are an option.

The fireplaces require a standard refractory fire brick liner be applied to the interior of the firebox. Fire brick must be a minimum thickness of one and one-eighth inches (1-1/8").

Isokern Fireplaces are available in nine sizes, seven of which are covered in this manual: Isokern Standard sizes: thirty-six (36), forty-two (42), and forty-six (46). Magnum sizes: twenty-eight (28), thirty-six (36), forty-two (42) and forty-eight (48). The Magnum is also available in two larger sizes; information located online @ www.earthcore.co and detailed in a separate installation manual.

All Isokern Standard units have a thirty-one and a half inch (31-1/2") rough opening height and the Magnum units have a thirty-eight inch (38") rough opening height before fire brick. The only parts which differ among the available sizes are width and depth related pieces. The DM chimney system is a dual module refractory chimney system. The basic chimney consists of an outer casing block and an inner liner. The chimney components are field assembled using Earthcore (EC) Mortar to glue the components together.

The DM chimney system also includes an offset chimney block component, used to create 30° offsets to the vertical run of the chimney. A brick ledge component is available, designed to support chimney top brick veneer finishes. Prefabricated masonry chimney termination caps are also available.

The various fireplaces and the DM chimney components will be described and illustrated in the following pages. Close attention should be paid to each component group's specifications and installation requirements as described in this manual.

Important: Due to heat and weight issues, the fireplaces and DM chimney system installations require that the system be built upon a non-combustible concrete slab with no wood underpinnings supported to footings with concrete or steel and designed to carry the total weight of the fireplace and chimney system.

The Fire-Lite application of the fireplaces is designed to be built upon a combustible floor system and will also require a design that will support the total weight of the Isokern fireplace and chimney system. The FTF-13 or equivalent chimney system only must be used with the Fire-Lite application. Please refer to pages 46-51 for installation instructions.

Recommended minimum overall height for the **Isokern fireplace and DM chimney system** for an indoor application is 18'-0" when the chimney is straight and 21'-0" when a chimney is offset. Maximum overall height is 82' - 0", however, heights above those listed below require additional structural support.

Maximum DM flue height without additional support needed:

Isokern Standard Series:

36	54'-0"
42	40'-0"
46	41'-0"

Magnum Series:

28	50'-0"
36	54'-0"
42	40'-0"
48	41'-0"

For heights above those listed above, consult a structural engineer for additional structural support for the DM chimney system. These heights do not reflect information regarding metal flue. Any UL 103 or Class A metal flue can be used on an Isokern fireplace. See metal flue manufacturers installation instructions for information relating to height requirements/restrictions.

For outdoor applications, there is no minimum height requirement for the DM chimney flue system. Any UL 103 or Class A metal flue can be used on an Isokern fireplace. See metal flue manufacturers installation instructions for information relating to height requirements/restrictions.

Intended Use Statement

Intended Product Use Statement:

The Fireplaces and DM chimney system are intended to burn solid wood fuel, propane or natural gas.

Note:

Installation of a gas pipe must comply with the Standard for Decorative Gas Appliances for Installation in Vented Fireplaces, ANSI Z21.60.

This fireplace is not designed to sit directly on a combustible floor system. The Fire-Lite application listed in the back section of this manual is designed to sit on a combustible floor. See pages 46-51 for specific installation requirements.

This fireplace is intended for use as a supplemental heat source only and is not intended for heavy use as a primary heating system.

Overfiring, abusive burning or mistreatment will void any claims (eg. burning construction debris or other highly flammable material; tossing, kicking or otherwise forcing logs into the firebox).

Isokern fireplaces and the DM chimney system are conventional indoor or outdoor fireplaces designed to appear like traditional masonry fireplaces. Fireplaces and DM chimney system units are intended for installation in residential homes and other buildings of conventional construction.

Note: The local authority having code jurisdiction, should be consulted before installation to determine the need to obtain a permit.

Important areas of concern with the installation of these fireplaces are: construction of proper load bearing foundation and concrete support slab; code required hearth extension substrates and supports; proper assembly of components; clearance to combustible materials; height of chimney; and, techniques employed in applying finishing materials to the fireplace opening and hearth extension.

Suitable standard residential, minimum four inch (4") thick, 2500 psi concrete foundations on properly compacted fill can support installations up to thirty feet (30') overall height (brick ledge installations not included)

Each of these important topics will be covered in detail throughout this manual. Installation personnel must give special attention to each topic as the installation progresses.

All work performed on, near and adjoining the fireplace and chimney installation must meet or exceed the specifications and requirements in this manual and the prevailing local building code.

Subsequent renovations, additions of cabinets and storage spaces in the enclosure surrounding the fireplace are also limited to the specifications in this manual and to the prevailing local building code.

Earthcore is not responsible for other construction work around the fireplace unit.

Important: The top plate of the firebox is not meant to be used as a structural support of any veneer. Please consult structural engineer for structural support of any veneer bearing weight on the Isokern top plate.

WARNING:

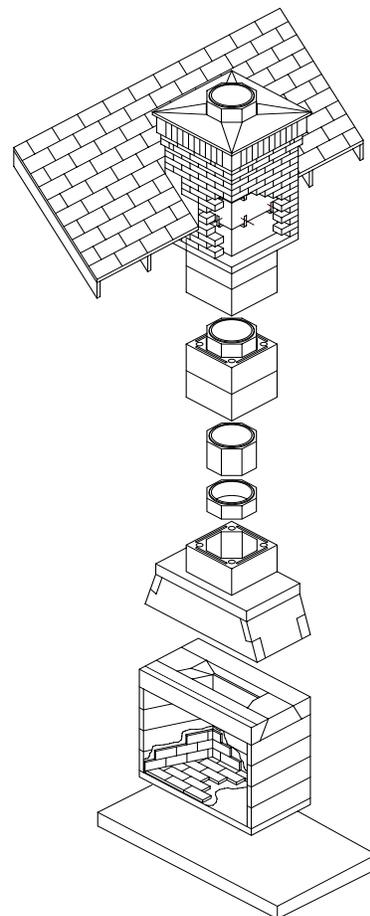
This fireplace has not been tested for use with doors. To reduce the risk of fire or injury, do not install doors. Operable doors are acceptable and if doors are required by the local authority having jurisdiction, doors must be kept in the fully open position when the fireplace is in operation.

Note: Do not scale drawings. Illustrations in this manual are not to scale and are intended to show "typical" installations.

Nominal dimensions are given for design and framing reference only, since actual installations may vary due to job specific design preferences. Always maintain the stated minimum clearances to combustible materials. Do not violate any specific installation requirements.

The fireplaces and DM chimney system are tested and listed by Warnock Hersey (Intertek Testing Service) - Report No. 3159656MID-008 and Report No. 315653MID-006 - to UL 127, and UL 103HT - 2006 respectively.

Fireplace systems are also designed for installation in accordance with the National Fire Protection Association Standard for chimneys, fireplaces, vents and Solid Fuel-Burning Appliances (NFPA 211).



Safety Instructions

1. Before starting the fireplace and DM chimney installation, read these installation instructions carefully to be sure you understand them completely. Failure to follow them could cause fireplace malfunction resulting in serious injury or property damage.

2. Always check local building codes governing fireplaces and fireplace installations. The Fireplace and DM chimney installation must comply with all local, regional, state and national codes and regulations.

3. Fireplaces and DM chimney systems are intended for use in any application where a traditional masonry type fireplace would apply. The chimney system must always vent vertically to the outside of the building.

4. Creosote and soot formation and the 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.

Because of creosote and soot buildup it is necessary to inspect and clean the fireplace and chimney prior to use and periodically during the heating season. Cleaning of the fireplace and the chimney system should be done annually at a minimum. In colder climates, chimney cleaning may need to be done more often, periodically throughout the heating season.

5. Before servicing, allow the fireplace to cool. Always shut off any electricity or gas to the fireplace while working on it.

6. Use only solid fuel or natural or LP gas log sets in this unit. Do not use artificial wax based logs, chemical chimney cleaners or flame colorants in this fireplace.

7. Never use gasoline, kerosene, gasoline-type lantern fuel, charcoal lighter fluid, or similar liquids to start or “freshen up” a fire in this fireplace. Keep all flammable liquids at a safe distance from the fireplace.

8. Always keep the flue damper open when heat is present in the fireplace.

9. Do not use a product not specified for use with Isokern fireplaces and the DM chimney system unless written authorization is given by Earthcore. Failure to heed this warning may cause a fire hazard and will void the Earthcore warranty.

10. These fireplaces are not intended to heat an entire home or to be used as a primary heat source. They are designed to ensure homeowner comfort by providing supplemental heat to the room.

11. Always ensure that an adequate supply of replacement air from the outside of the house is accessible to the fire to support normal combustion. Fireplaces consume large volumes of air during the normal firing process.

In the event the home is tightly sealed and has modern energy efficient features, the optional combustion air supply kits may not provide all the air required to support combustion and the proper flow of combustion gases up the chimney.

The manufacturer is not responsible for any smoking or related problems that may result from the lack of adequate air supply flowing into the house. It is the responsibility of the builder/contractor to ensure that adequate air supply has been provided for the fireplace.

12. “Smoke free” operation is not warranted nor is the manufacturer responsible for inadequate system draft caused by mechanical systems, general construction conditions, inadequate chimney heights, adverse wind conditions or any unusual environmental conditions or factors beyond the manufacturer’s control.

It is acceptable to use mechanical draft systems, if the venting companies do the engineering calculations and make the necessary recommendations for fan size and flue vent diameter following the guidelines of NFPA 211/2006, pg. 211-13. Installation of such systems must also follow the mechanical drafting company’s explicit installation and operation instructions.

Caution: When used with the fireplace systems, all gas log sets must be operated with the damper clamped in the fully open position. Only listed “vent free” log sets may be operated with the damper in the closed position.

13. When in doubt about a component’s usability - has visible or suspected physical damage - consult your Isokern distributor or authorized Isokern representative for advice.

Safety Instructions - (cont.)

14. Modifications to fireplace components not mentioned in this manual may void claims, listings and approvals and could result in an unsafe and potentially dangerous installation.

Alterations to the firebox are allowed with prior written approval and instructions from Earthcore Industries. The installer indemnifies the manufacturer of all claims and under no circumstances will manufacturer be liable for consequential, incidental, indirect, punitive or other damages of any kind or nature, whether foreseeable or not, based on any claim by any party as to the modifications of the fireplaces.

15. Keep all insulation, vapor barriers, “house wrap” paper and other insulating type membranes and products, including fiberglass, cellulose and other insulation, (anything that carries an “R” rating) a minimum of three inches (3”) away from all firebox and chimney surfaces. See exception. (Figure 34, Page 22)

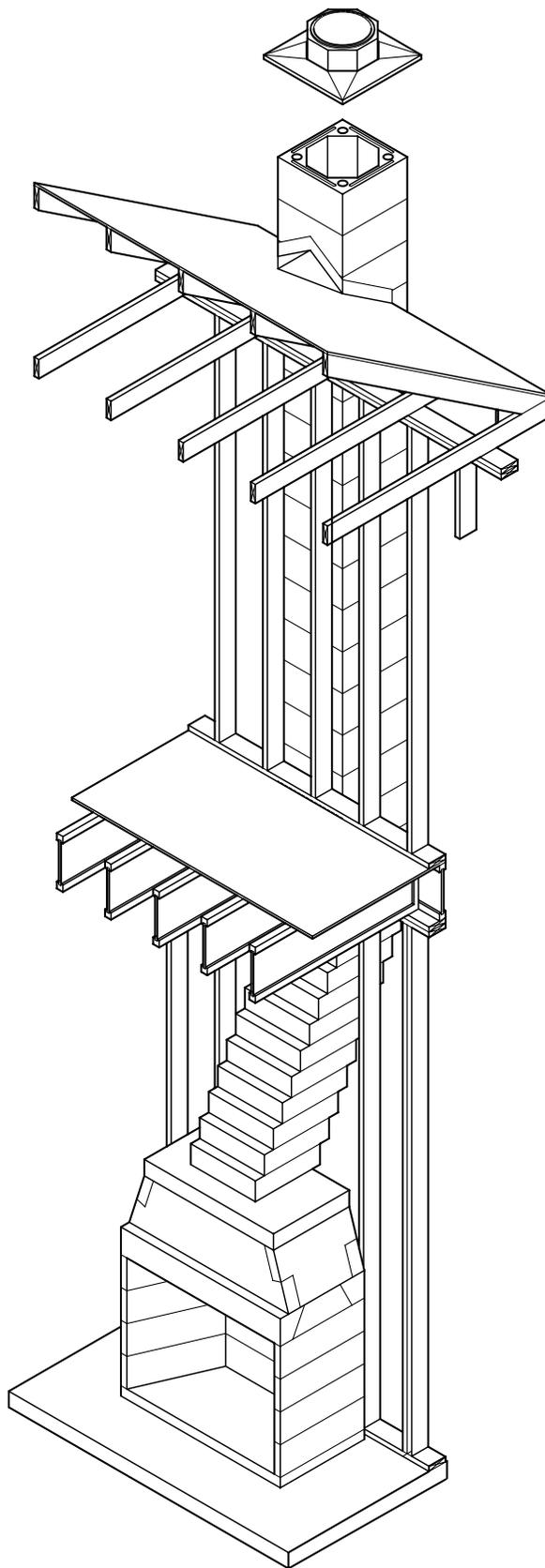
Exception:

If insulation is used in walls surrounding the fireplace, insulation may be installed behind sheathing of gypsum board, plywood, particle board or other material on the side facing the Isokern. The facing material cannot be within 1 1/2” to the fireplace sidewalls.

WARNING Do not pack required air spaces with insulation or other materials.

16. Never leave children unattended when there is a fire burning in the fireplace.

17. Burning some fuels (such as charcoal) can be hazardous due to the possibility of producing carbon monoxide, a colorless, odorless gas. Early signs of carbon monoxide poisoning resemble flu symptoms including headaches, dizziness or nausea. Over exposure to carbon monoxide can lead to illness and death. It is strongly recommended to install smoke and carbon monoxide alarm / detector devices wherever fireplaces are in use.



Warnock Hersey Listing Label - Facsimile -



Intertek
W/N 04895
DO NOT REMOVE
OR COVER
THIS LABEL

MODULAR REFRACTORY FIREPLACE
STANDARD: 36" 42" 46"
WH-
COMPLIES WITH APPLICABLE REQ. OF UL 127, ULC S610



MADE IN USA
 MADE IN DENMARK
EARTHCORE
INDUSTRIES
JACKSONVILLE,
FL 32256

CLEARANCE TO COMBUSTIBLES:

UNIT FRONT AND ISOKERN CHIMNEY	= 0 in.	
UNIT SIDES AND REAR	= 1.5 in. (38mm)	
COMBUSTIBLE SHEATHING ABOVE OPENING TOP	= 8 in. (205mm)	
SHEATHING OR TRIM TO OPENING SIDES	= 8 in. (205mm)	
MANTLE ABOVE OPENING	= 14 in. (356mm)	
OPENING TO SIDEWALL	= 26 in. (660mm)	
HEARTH EXTENTION BEYOND FRONT	= 20 in. (508mm)	
HEARTH EXTENTION BEYOND SIDES	= 12 in. (305mm)	
COMBUSTIBLE FLOOR	= 4 in. (102mm)	
INSULATION FROM FIREBOX	= 3 in. (76mm)	

DO NOT USE A FIREPLACE INSERT OR OTHER PRODUCTS NOT SPECIFIED FOR USE WITH THIS PRODUCT. "WARNING" THIS FIREPLACE HAS NOT BEEN TESTED FOR USE WITH GLASS DOORS. TO REDUCE THE RISK OF FIRE OR INJURY, DO NOT INSTALL GLASS DOORS. IF DOORS ARE USED, OPERATE FIREPLACE WITH DOORS FULLY OPEN. WHEN BURNING A DECORATIVE GAS APPLIANCE IN THE FIREPLACE, LOCK THE DAMPER IN THE FULLY OPEN POSITION. DO NOT OPERATE AN UNVENTED GAS LOG SET IN THIS FIREPLACE WITH THE CHIMNEY REMOVED.

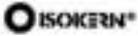
USE SOLID WOOD FUEL OR LISTED DECORATIVE GAS VENTED OR UNVENTED APPLIANCE. ALSO FOR USE WITH LISTED METAL CHIMNEY.
SEE INSTALLATION AND OPERATING INSTRUCTIONS FOR THIS MODEL AND ICC # ESR-2316,
L.A.RR #25483, MEA #2490E.
CONTACT BUILDING OFFICIAL PRIOR TO INSTALLATION

FIGURE 1 - ISOKERN STANDARD SERIES



Intertek
W/N 04895
DO NOT REMOVE
OR COVER
THIS LABEL

MODULAR REFRACTORY FIREPLACE
MAGNUM: 28" 36" 42" 48" 60" 72"
WH-
COMPLIES WITH APPLICABLE REQ. OF UL 127, ULC S610



MADE IN USA
 MADE IN DENMARK
EARTHCORE INDUSTRIES, LLC.
JACKSONVILLE, FL 32256

CLEARANCE TO COMBUSTIBLES:

		28", 36", 42", 48"		60" & 72"
UNIT FRONT AND ISOKERN CHIMNEY	= 0 in.		= 0 in.	
UNIT SIDES AND REAR	= 1.5 in. (38mm)		= 1.5 in. (38 mm)	
COMBUSTIBLE SHEATHING ABOVE OPENING TOP	= 8 in. (203mm)		= 24 in. (610 mm)	
SHEATHING OR TRIM TO OPENING SIDES	= 8 in. (203mm)		= 9 in. (229 mm)	
MANTLE ABOVE OPENING	= 14 in. (356mm)		= 38 in. (965 mm)	
OPENING TO SIDEWALL	= 26 in. (660mm)		= 48 in. (1219 mm)	
HEARTH EXTENTION BEYOND FRONT	= 20 in. (508mm)		= 33 in. (838 mm)	
HEARTH EXTENTION BEYOND SIDES	= 12 in. (305mm)		= 12 in. (305 mm)	
COMBUSTIBLE FLOOR	= 4 in. (102mm)		= N/A N/A	
INSULATION FROM FIREBOX	= 3 in. (76mm)		= 3 in. (76 mm)	

USE SOLID WOOD FUEL OR LISTED DECORATIVE GAS VENTED OR UNVENTED APPLIANCE. ALSO FOR USE WITH LISTED METAL CHIMNEY.
FIRE-LITE APPLICATION TO USE FTF13 OR EQUIVALENT CHIMNEY ONLY.

DO NOT USE A FIREPLACE INSERT OR OTHER PRODUCTS NOT SPECIFIED FOR USE WITH THIS PRODUCT. "WARNING" THIS FIREPLACE HAS NOT BEEN TESTED FOR USE WITH GLASS DOORS. TO REDUCE THE RISK OF FIRE OR INJURY, DO NOT INSTALL GLASS DOORS. IF DOORS ARE USED, OPERATE FIREPLACE WITH DOORS FULLY OPEN. WHEN BURNING A DECORATIVE GAS APPLIANCE IN THE FIREPLACE, LOCK THE DAMPER TO THE FULLY OPEN POSITION. ONLY UNVENTED GAS LOG SETS WHICH HAVE BEEN FOUND TO COMPLY WITH THE STANDARD FOR UNVENTED ROOM HEATERS, ANSI/AS/AGA Z21.11.2, ARE TO BE INSTALLED IN THIS FIREPLACE. DO NOT OPERATE AN UNVENTED GAS LOG SET IN THIS FIREPLACE WITH THE CHIMNEY REMOVED.

SEE INSTALLATION AND OPERATING INSTRUCTIONS FOR THIS MODEL AND ICC # ESR-2316,
L.A.RR # 25483, MEA #2490E.
ONLY UNVENTED GAS LOG SETS WHICH HAVE BEEN FOUND TO COMPLY WITH THE STANDARD FOR UNVENTED ROOM HEATERS, ANSI/AS/AGA Z21.11.2, ARE TO BE INSTALLED IN THIS FIREPLACE
CONTACT BUILDING OFFICIAL PRIOR TO INSTALLATION

FIGURE 2 - MAGNUM SERIES

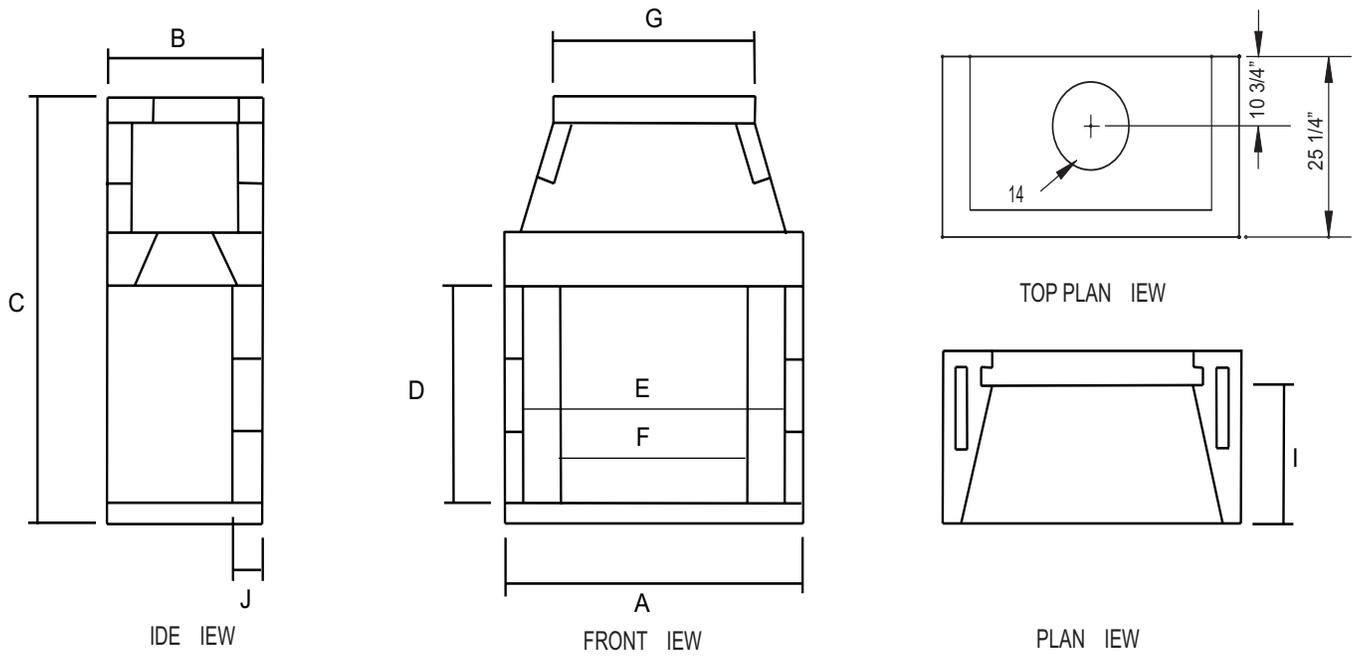
Isokern Fireplace and Chimney Systems are tested and listed to UL standards: UL 127, ULC S610, and UL 103HT. The listing labels shown in Figures 1 and 2 above outline the listed clearances to combustibles and indicates that the units are suitable for use with solid fuel or listed gas appliances. Refer to the manufacturer's installation manual for detailed description of clearances to combustibles and all other installation information.

A metal listing label similar to those shown above is affixed to each fireplace. Do not remove the listing label from the fireplace.

Prior to beginning installation, contact your local building official to determine the need to obtain a permit.

Assembled Firebox & Smoke Dome Dimensions

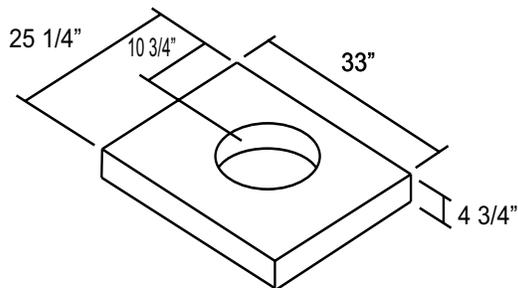
Isokern Standard Series 36, 42 & 46



MODEL	A	B	C	D	E	F	G	I	J	MINIMUM FRAMING	WEIGHT
36	43"	25 1/4"	63 1/4"	31 1/2"	36 1/8"	27 1/4"	33"	20 1/4"	5"	(46"W)x(65"H)x(26 3/4"D)	1205 lbs
42	49"	25 1/4"	63 1/4"	31 1/2"	43 1/8"	33 1/4"	33"	20 1/4"	5"	(52"W)x(65"H)x(26 3/4"D)	1325 lbs
46	53"	25 1/4"	63 1/4"	31 1/2"	47 1/8"	37 1/4"	43"	20 1/4"	5"	(56"W)x(65"H)x(26 3/4"D)	1450 lbs

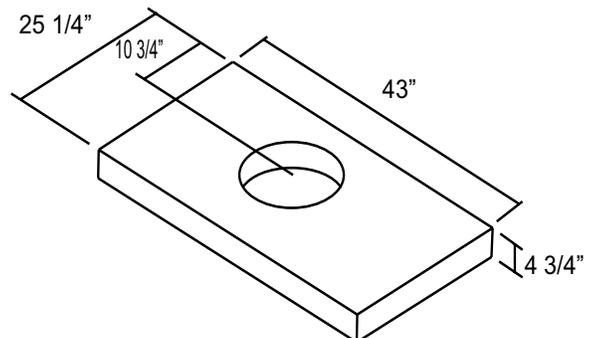
TOP PLATE, MEDIUM

Part No.	Model	Qty
77	36	1
77	42	1



TOP PLATE, LARGE

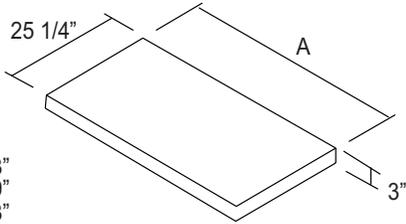
Part No.	Model	Qty
81	46	1



Component List & Dimensions Isokern Standard Series 36, 42 & 46

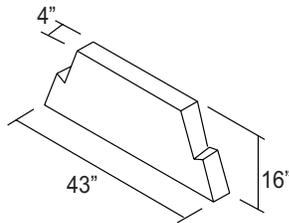
BASE PLATE

Part No.:	Fireplace Model:	Qty:	A
21	36	1	43"
22	42	1	49"
23	46	1	53"



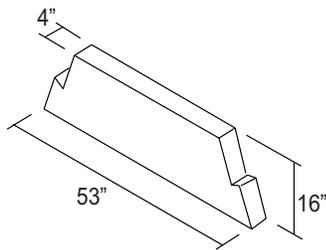
SMOKE DOME - MEDIUM

Part No.:	Fireplace Model:	Qty:
11	36	2
11	42	2



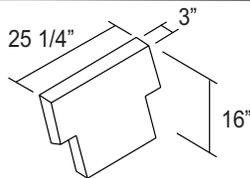
SMOKE DOME - LARGE

Part No.:	Fireplace Model:	Qty:
13	46	2



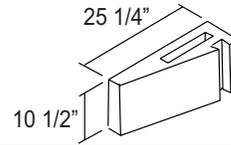
TOP-SLOPING

Part No.:	Fireplace Model:	Qty:
34	36	2
34	42	2
34	46	2



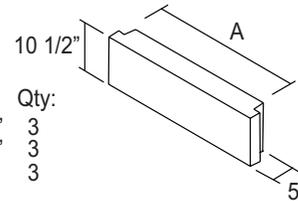
SIDE WALL

Part No.:	Fireplace Model:	Qty:
20	36	6
20	42	6
20	46	6



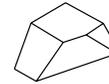
BACK WALL

Part No.:	Fireplace Model:	A:	Qty:
25	36	26 3/4"	3
28	42	32 1/4"	3
31	46	37"	3



DAMPER SUPPORT - LEFT

Part No.:	Fireplace Model:	Qty:
95L	36	1
95L	42	1
95L	46	1



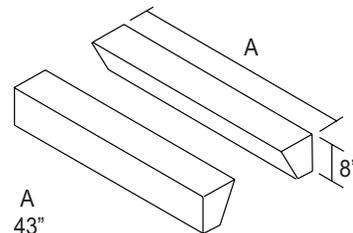
DAMPER SUPPORT - RIGHT

Part No.:	Fireplace Model:	Qty:
95R	36	1
95R	42	1
95R	46	1



DAMPER BEAM

Part No.:	Fireplace Model:	Qty:	A
68	36	2	43"
69	42	2	49"
70	46	2	53"



Required Clearance to Combustibles

The fireplaces and DM chimney systems are tested and listed for installation with “clearance to combustibles” as follows:

The Isokern Standard and Magnum Series firebox side walls and back wall require 1-1/2” clearance. (Figures 3 & 4)

The smoke dome front wall requires 0” clearance.

All DM chimney components require 0” clearance to combustibles. (Figure 3)

Note: “Combustibles” are defined as “normal construction materials” and are considered to be: wood framing materials, particle board, mill board, plywood sub-flooring, plywood paneling and wood flooring.

Sheathing materials, such as plywood, particle board and drywall may cover the smoke dome front at 0” clearance. All combustible sheathing materials that protrude beyond front of firebox must be held 8” away from the sides of the firebox opening and 8” above the top of the firebox opening.

Wherever insulation is used, the Fireplaces must not be placed directly against it. **Keep all insulation, vapor barriers, “house wrap” paper and other insulating type membranes and products, including fiberglass, cellulose and other insulation, (anything that carries an “R” rating) a minimum of three inches (3”) away from all firebox and chimney surfaces.**

Exception:

If insulation is used in walls surrounding the fireplace, insulation may be installed behind sheathing of gypsum board, plywood, particle board or other material on the side facing the Isokern. The facing material cannot be within 1 1/2” to the fireplace sidewalls.

Notes:

A. The fireplaces must sit upon a concrete support slab designed to bear the total installed weight of the fireplace and DM chimney system. These support slabs can have no wood underpinning. (Figure 4)

The fireplaces are rated for installation on a combustible floor system when using the Fire-Lite application only. See pages 46-51 for Fire-Lite installation instructions.

B. Concrete support slabs for fireplaces must provide the noncombustible hearth extension substrate needed to support the code required noncombustible hearth extension finish materials. (Figure 4)

C. All fireplaces shall have hearth extensions of approved noncombustible material such as brick, tile, or stone that is properly supported, with no combustible material against the underside thereof. Wooden forms used during the construction of hearths and hearth extensions must be removed when the construction is complete.

D. If a raised fireplace floor and raised hearth extension are preferred, the raised underlying structure must be built of noncombustible material and must sit on noncombustible substrate.

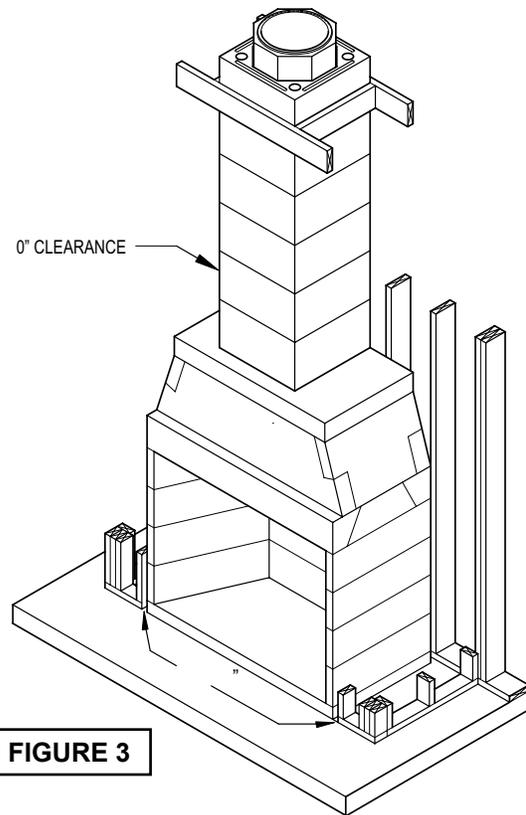


FIGURE 3

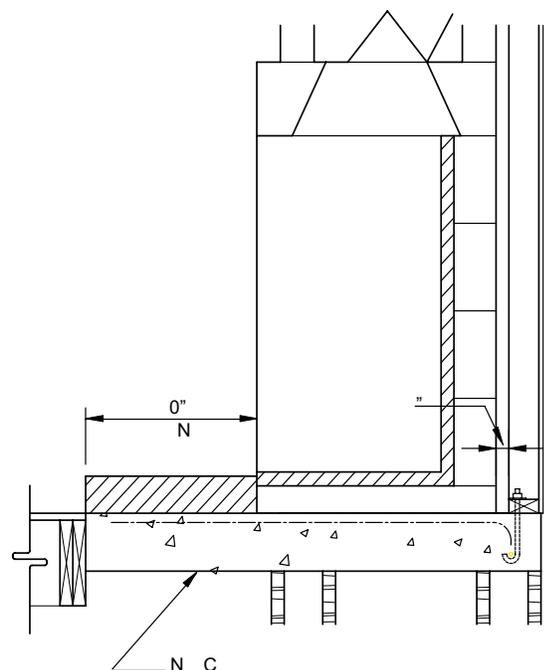


FIGURE 4

Rough Framing Dimensions

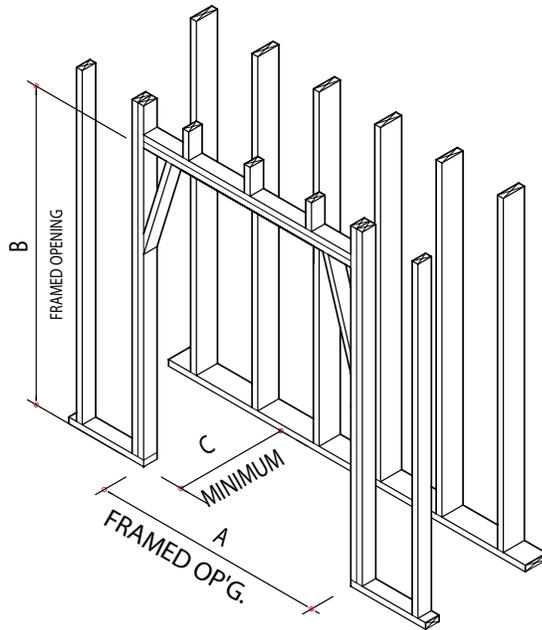


FIGURE 5

Rough Framing Dimensions

Model	Width A	Height B	Depth C
<u>Magnum</u>			
Model 28	38 1/2"	61 1/2"	29.5"
Model 36	46"	71"	29.5"
Model 42	52"	71"	29.5"
Model 48	56"	71"	29.5"
<u>Isokern Standard</u>			
Model 36	46"	65"	26 3/4"
Model 42	52"	65"	26 3/4"
Model 46	56"	65"	26 3/4"

Notes:

1. "B" includes the 3" thick base plate. "B" is reduced by 3" if the base plate is eliminated to create a "flush hearth".
2. "Raised hearth" requires additional rough opening height at "B" equal to the height of the raised hearth detail.
3. Rough framing dimension for width "A" allows for the required 1-1/2" clearance at the sides of the Fireplaces.
4. Rough framing dimension for depth "C" allows for the required 1-1/2" clearance at the back of the Fireplaces.

Corner Location Layout

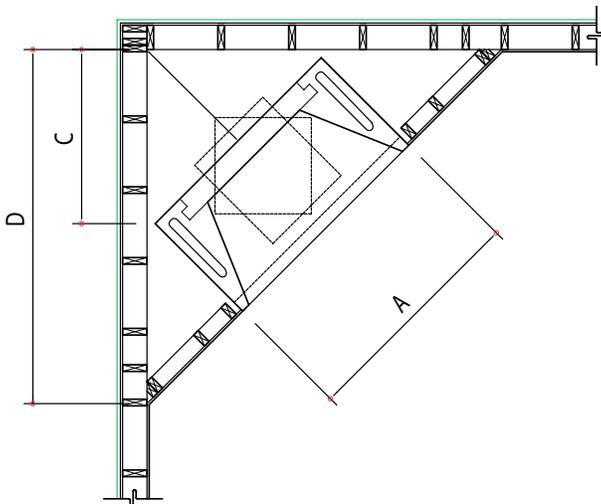


FIGURE 6

The following chart of dimensions is intended to aid in the positioning of a fireplace in a corner condition where the DM chimney must turn 45° degrees to align with overhead framing.

<u>Magnum</u>	A	B	C	D
Model 28	33 1/2"	18 1/4"	24"	65 1/2"
Model 36	43"	16 3/4"	32"	78 3/4"
Model 42	49"	26 1/2"	36"	83"
Model 48	53"	28 1/2"	39"	85 3/4"
<u>Isokern Standard</u>				
Model 36	43"	49"	35"	72"
Model 42	49"	52"	37"	75"
Model 46	53"	54"	39"	79"

To turn flue 45°, first set one offset block on the firebox so that the chimney offsets 3" toward the back of the firebox. (Figure 6)

Set a DM outer casing onto this offset block so that the outer casing is at 45° to the firebox and square to the overhead framing system. Run the vertical DM chimney through the overhead framing.

More offset blocks can be used - if necessary to align with overhead framing - before running the vertical DM chimney outer casing and liner.

Note: Support the third offset down to footings and at each third offset block thereafter (see pages 33 & 34).

Assembly Instructions

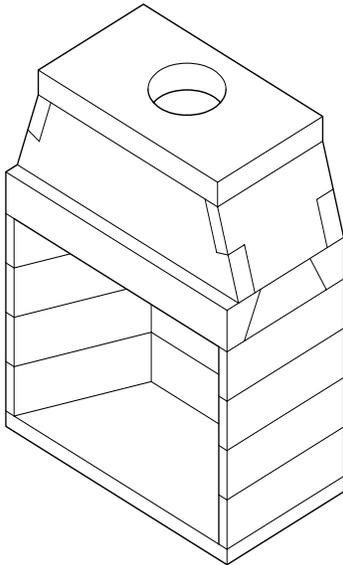


FIGURE 7

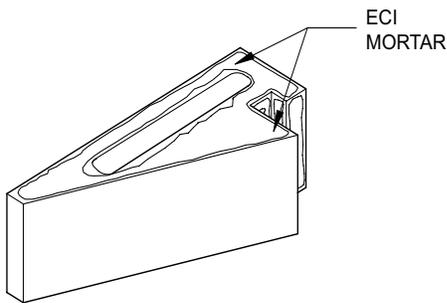


FIGURE 8

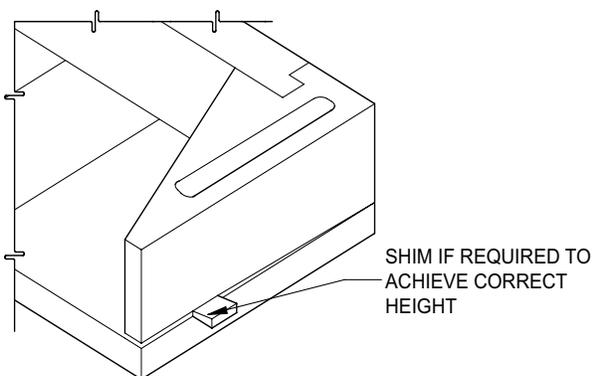


FIGURE 9

General Isokern Assembly Instructions:

Earthcore Mortar (a thin-set type masonry adhesive) is used to glue all Isokern components together during field assembly of the unit. The mortar is supplied dry, in 50 pound pails.

Earthcore mortar is mixed with clean water to a smooth, workable texture (without lumps or dry pockets) of a “toothpaste” consistency. This mixture is suitable for application onto Isokern components by using a masonry grout bag supplied with the unit.

Attention should be paid that the mortar mixture is not too thin or runny, as this will not allow the mortar to reach its maximum bonding strength.

Earthcore mortar is squeezed from a grout bag onto the contact surfaces of the Isokern components as they are fitted together.

It is important that a 1/2” bead of mortar on all the components’ contact surfaces is applied at about 1/2” in from all edges of the contact surface of the component. (Figure 8)

When setting the next component onto the mortared contact surface of the first component, some mortar should squeeze out along the face of the entire joint as a sign of complete and proper sealing of the joint.

On broader contact surfaces it is advisable to apply several additional 1/2” beads of the Earthcore Mortar to the area to assure proper sealing of the joint.

Properly mortared firebox and smoke dome assembly requires approximately 30 pounds (dry measure) of Earthcore mortar.

Broken Components:

Components broken into 2 or 3 pieces can be repaired by using Earthcore mortar along the break line as the component is set into place. Components broken into multiple small pieces should be discarded and replaced.

Leveling and Aligning Components:

Be sure to assemble all Isokern components level and flush with adjoining components.

Earthcore mortar is not intended to create a mortar joint of any thickness for leveling purposes. Therefore, leveling and alignment adjustments are made by the use of small plastic shims supplied with the unit. (Figure 9)

The shims can be inserted under a component to level and align it with adjacent Isokern components. Be sure to re-grout any and all gaps resulting from shim insertion to maintain components to full bearing.

Notes:

1. Do not mix Earthcore mortar with spirits or anti-freeze agents.
2. The maximum recommended mortar joint thickness at Isokern components is 1/4”.

Assembly Instructions - (cont.)

3. Earthcore mortar can be troweled over the face of a joint where it has squeezed out while setting components. It is not intended that the exposed faces of the Isokern components be completely covered with mortar.

Installation:

Step 1: Set the base plate in a full bed of Earthcore Mortar flat on a proper concrete support foundation. (Figure 10). Do not set the base plate so that it is in span. Level the base plate by floating it in a bed of Earthcore Mortar to full bearing against the underlying noncombustible support surface.

Notes: If the design preference is for a “flush hearth” (fireplace floor flush with the room’s floor), the base plate can be omitted from the assembly and the firebox walls built directly on the concrete support slab. The fire brick floor of the firebox is then set directly to the concrete support slab. This makes the fireplace finished fire brick floor approximately one and one-half inches (1-1/2”) above the top of the concrete support slab. (Figure 11)

If the design preference is for a raised hearth (floor of the fireplace elevated above the room’s floor), then the base plate can be set on a noncombustible platform that is built up to the desired raised hearth height on the concrete support slab. (Figure 12)

When calculating raised hearth height be sure to allow for the three inch (3”) thick base plate plus the one and one half inch (1-1/2”) thick fire brick floor in addition to the height of the platform.

Whether a flush hearth is preferred or a raised hearth, the combustible floor on front of the fireplace must be covered with a noncombustible hearth extension set tight against the fireplace front and extending at least 20 inches out from the finished fireplace and at least 12 inches beyond the finished sides of the fireplace opening.

For all “raised hearth” construction where concrete blocks are used to create the raised platform, it is necessary to use the base plate. Be sure to mortar the concrete block platform together. CMU used for base plate support should be rated ASTM 90.

Step 2: Set the first course of the firebox back wall and side walls into place.

It may be convenient to dry set the first course of side wall and back wall into place on the Isokern base plate and then to trace their position on the base plate with a pencil.

After outlining the dry set pieces, remove them and apply Earthcore Mortar to the areas traced on the base plate where the side walls and back wall are to sit. By doing this, the first layer of Wall components can be set directly into mortar already applied to the proper areas on the base plate. Be sure to put Earthcore Mortar on the contact surfaces of the vertical joints where the side wall and back wall components connect. (Figure 13)

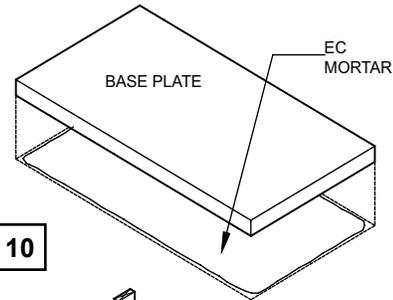


FIGURE 10

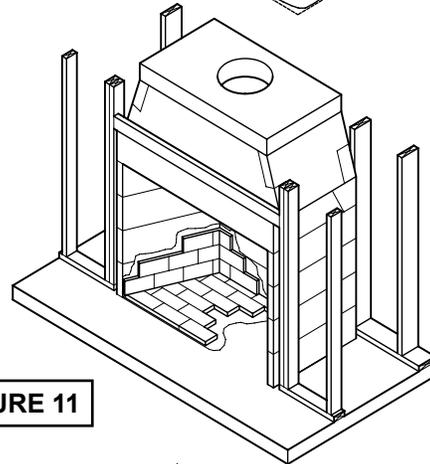


FIGURE 11

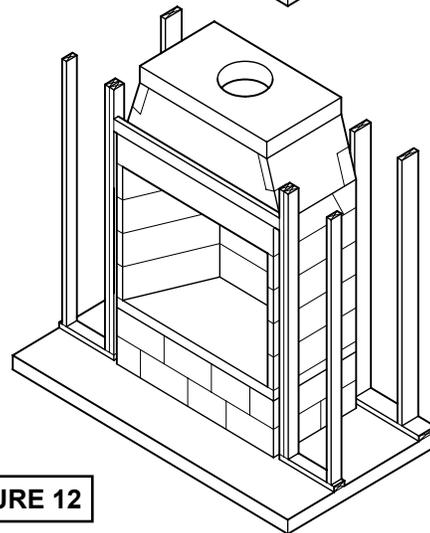


FIGURE 12

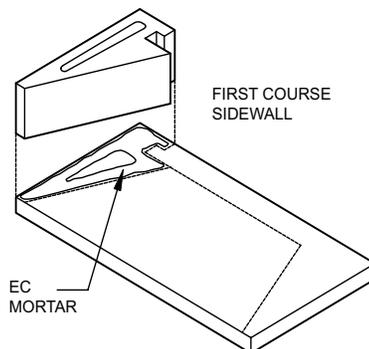


FIGURE 13

Assembly Instructions - (cont.)

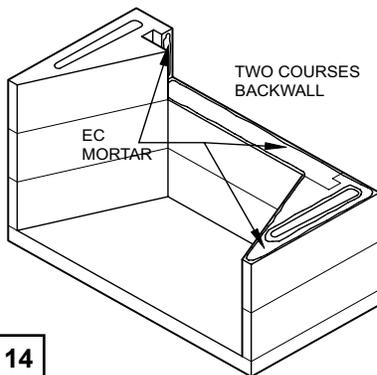


FIGURE 14

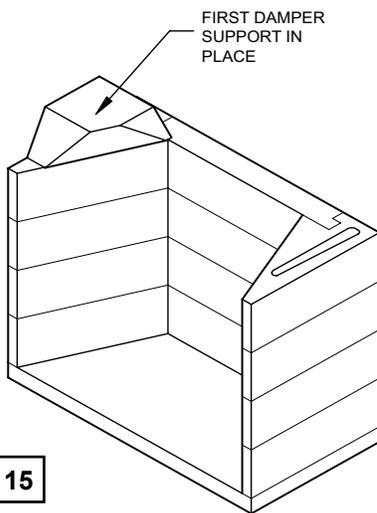


FIGURE 15

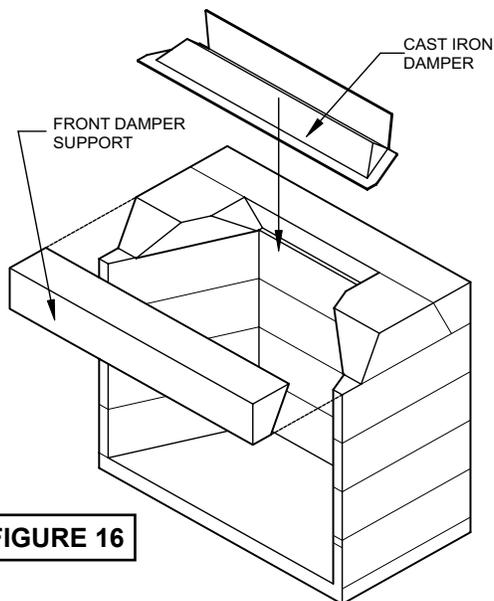


FIGURE 16

Note: At all component placement, be sure to mortar all component contact surfaces with Earthcore Mortar. Check for complete sealing of each contact joint while assembly progresses.

Step 3: Continue assembly of the consecutive courses of the firebox side wall and back wall. (Three courses for the Isokern Standard Series, Four courses for the Magnum Series). Apply mortar to the top of each layer of wall components, set the next course above into place. Be sure to mortar all vertical joints of the side wall to back wall connection when setting each component to its mate. (Figure 14)

Look for some mortar to squeeze out along the joints of all contact surfaces as a sign that the joint is thoroughly sealed with the approved mortar.

Step 4: When all of the firebox wall components are set, check the top surface of the firebox for level. If necessary, adjust the top surface of the box assembly for level by inserting a shim between the lowest wall component and the top surface of the base plate. (Figure 9)

Any gap created under the wall components during the Shim leveling process must be filled with mortar to full bearing against the base plate.

Step 5: Make sure that the firebox assembly has been set level and square. Adjust as required while the mortar is still wet.

Make a final inspection of all contact joints in the firebox assembly to be sure they are properly sealed. Fill any and all gaps in the assembly, as necessary, with the approved mortar.

Step 6: The fireplaces come with an eight inch (8") thick damper beam assembly, a four piece component group that is to be assembled on top of the firebox sidewalls.

The damper beam assembly consists of two long lintel pieces and two short damper beam side pieces.

The damper side pieces are designed to sit on the firebox side wall between the front lintel and the back lintel. Each of the damper side pieces is designed specifically for its own side of the unit. When properly set, each damper side piece fits flush with the outside face of the firebox sidewall so that its interior bottom edge aligns with the interior angle of the firebox side wall that it sits on. (Figure 15)

The two long lintels are identical in shape, size and in length, equal to the width of the fireplace model that they serve. Properly placed, one lintel is to sit on top of the firebox back wall and flush with it; the other lintel sits flush with the front of the firebox, spanning the firebox opening. These components both sit on their narrow base so that their beveled face points down and into the firebox interior. (Figure 16)

Be sure to mortar all damper beam components to the top surfaces of the firebox.

Mortar the contact surfaces of each damper side component where it meets the front and back damper beam lintel components.

Assembly Instructions - (cont.)

Step 7: With the damper beams assembled and mortared together, set the cast iron throat damper (unless another damper type is being used) on top of the damper beam and over the smoke chamber opening. The cast iron damper's operating plate should face toward the rear of the fireplace. (Figure 17) The flange at all four sides of the cast iron damper should be supported by the damper beam's top surface.

Before adjusting the cast iron damper to its final position proceed to Step 8.

Note: A Damper is not required for exterior installations.

Step 8: Position the cast iron damper so that its front flange is approximately one inch (1") away from the inside face of the front smoke dome component. (Figure 17)

Run a thin bead of mortar around the four sides of the cast iron damper or tack the corners of the flange to avoid movement of the damper as it gets opened and closed. Set the rear smoke dome component across the damper beam in a bed of mortar and flush with the back face of the back damper beam lintel. (Figure 18)

Set the Isokern Standard front smoke dome component in mortar across the front damper beam and flush with it. Set the Magnum front smoke dome component in mortar across the front damper beam and 2 -1/4 inches back from the front of the front damper beam lintel. This placement should create a space of 17 inches (17") between the front and rear smoke dome components.

Step 9: Position the smoke dome's sloping sidewalls at each end of the smoke dome components. (Figure 18)

The sloping sidewalls fit in between the front and rear smoke dome components and also fit into the haunches at the ends of the front and rear smoke dome components. Mortar all contact surfaces thoroughly. The smoke dome sloping sidewalls have a beveled bottom edge so that they will sit tight onto the flat top of the damper beam assembly.

Step 10: Make sure that all component contact surfaces have been properly sealed with approved mortar.

Check smoke dome front and rear walls to see that they are plumb, level and in alignment with mating components.

Check alignment of the smoke dome sloping sidewall components to see that they are fully seated.

Step 11: Set the top plate into position on top of the smoke dome wall assembly. (Figure 19)

One side of the top plate shows a thickened center. This side is the bottom face.

The flue hole in the top plate is centered in the smoke dome from side to side but is offset from front to back, the center being 10 3/4" from the back of the firebox.

Make sure that the top plate is set so that the flue hole is closer to the back wall of the smoke dome assembly.

Be sure to set the smoke dome top plate flush with the front, back and sides of the smoke dome assembly. All contact surfaces must be properly sealed with the approved mortar.

Note: The completed smoke dome assembly should present a stable and level surface for setting the flue components. (Figure 19)

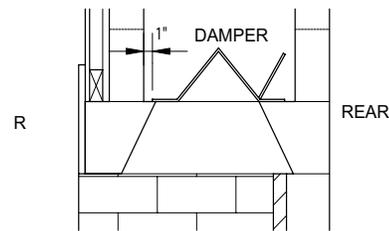


FIGURE 17

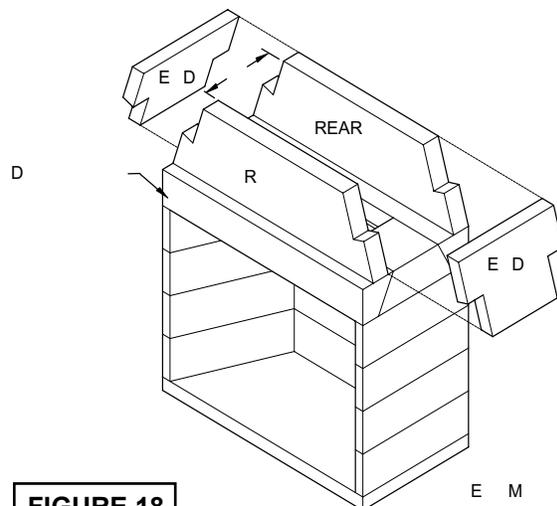


FIGURE 18

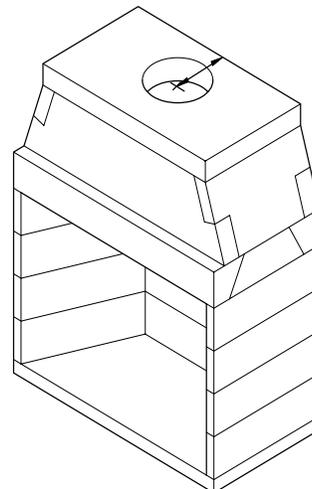


FIGURE 19

Access Modification

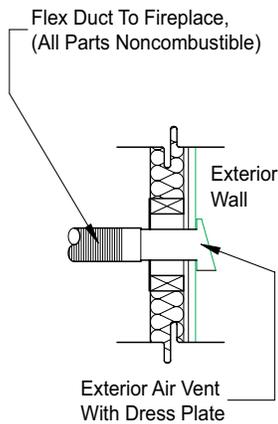


FIGURE 20

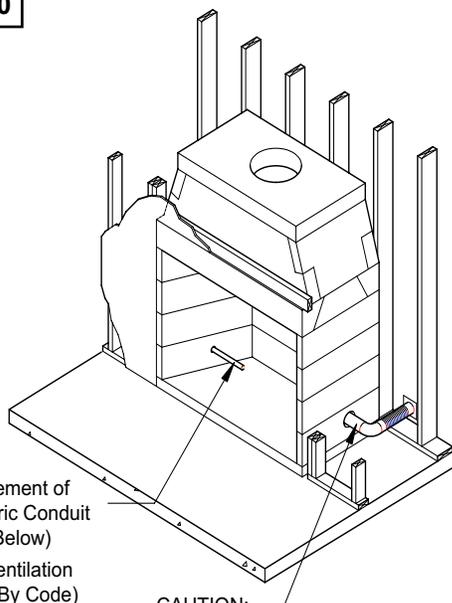


FIGURE 21

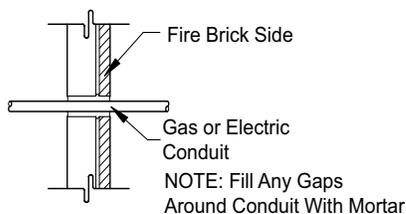


FIGURE 22

Through-Wall Accesses:

1. **Combustion Air Inlet:** Combustion air inlet kits though not required by Earthcore may help improve fireplace operation in homes tightly sealed and with other ventilating appliances installed (Figures 20 & 21). **Check local codes for combustion air inlet requirements.**

The following is a general representation of a generic combustion air kit and not a requirement of Earthcore Industries. Local building codes prevail and should be checked before installation.

Generic fireplace combustion air kits typically consist of a sliding stainless steel access door affixed to a three inch (3") or four inch (4") diameter stainless steel sleeve approximately twelve inches (12") long. An exterior vent with dress plate, weather hood and rodent prevention screen of a maximum one-quarter inch (1/4") wire mesh completes the kit. (Figure 20)

The access door is fitted into the finished fire brick lining at the interior sidewall of the firebox. The twelve inch (12") long sleeve can be introduced into the firebox side wall by core drilling an appropriately sized hole at the selected firebox location. Keep the top of the access hole no more than six inches (6") above the finished firebrick floor. The hole size should allow for a one-quarter inch (1/4") mortar joint around the air access sleeve for heat expansion.

The sleeve passes through the firebox side wall and must be connected to metal pipe (by others) - either flexible or rigid - that leads to the source for outside combustion air, as directly as possible from the fireplaces (Few to no bends) with a maximum length of sixty feet (60').

WARNING: Do not use combustible duct material. Avoid installing a combustion air inlet where the opening could be blocked by snow, bushes or other obstacles. Air inlet must terminate a minimum of three feet below the chimney cap level. Air inlet ducts shall not terminate in attic spaces.

2. **Gas Line Feed:** For a fireplace having the provision for installation of a gas pipe, the provision is intended only for connection to a decorative gas appliance.

CAUTION: When using the decorative appliance, the fireplace damper must be set in the fully open position. Gas line for gas log sets used in the Isokern firebox can be routed through the side wall of the firebox by drilling an appropriately sized hole using a masonry drill bit (Figure 21).

3. **Electrical Line Feed** can be routed through the firebox side walls by drilling an appropriately sized hole using a masonry drill bit (Figure 21). Be sure to follow the gas log Appliance Manufacturer's explicit electrical line connection instructions for vented masonry fireplace installations. Gas line and electric line must be fed through separate access holes. Be sure to fill any gaps around conduit with EC mortar. (Figure 22)

Fire Brick Installation

Fire Brick Installation:

The manufacturer requires that the fireplace fireboxes be lined with a minimum one and one-eighth (1-1/8") thick fire brick. Thicker fire brick may be used as an option. The pattern for the fire brick lining is an owner option. Standard N or S type brick mortar is suitable mortar for the fireplace.

Fire brick mortar needs to be suitable to both adhere the fire brick to the inside of the firebox and to create the finished face joints of the brick work. Based on a history of field applications and experience, a suitable mortar would be as follows:

Mix:

- * 1 bucket masonry mortar (S or N type)
- * 5 lbs Earthcore mortar
- * Six parts sand (1 1/2 bucket)
- * One part Fire Clay (optional)
- * Water to a sticky, toothpaste consistency

These instructions may vary because of different climates and conditions. The use of good masonry practices for your area should also be considered. It takes about 25 lbs. of mortar mix (dry measure) to fire brick line a fireplace.

Installation Instructions:

1. Wet mop the inside of the fireplace with a damp sponge to remove dust and loose particles from the interior before fire-bricking.

HINT: Dip each firebrick into water before applying.

2. Face joint dimensions of 1/4" to 3/8" in the brick work is recommended and has the best appearance. Other face joint dimensions are acceptable however smaller joints may not leave room for heat expansion of fire brick.

3. Start the fire brick at the front edge of the floor of the Isokern firebox, proceeding inward toward the back. Let the floor brick gap approximately 1/2" off the back wall and side walls. This air space allows heat expansion of the fire brick and is to be left empty of mortar. (Figure 23)

4. Next, apply fire brick to the back wall of the unit. The back wall fire brick covers the 1/2" expansion gap left at the brick floor along the back wall of the firebox. (Figure 25)

5. Set the side wall fire brick by starting at the front edge of the unit's side wall and working inward toward the back wall fire brick. The side wall fire brick, when completed, covers the 1/2" expansion gaps where both the floor fire brick and the back wall fire brick were held off the units side walls. (Figure 24)

All required through-wall accesses (gas and electrical line feeds and combustion air supply access holes) should be drilled before the required fire brick lining is installed.

Earthcore makes no claims as to the performance of fire brick or fire brick mortar(s). It is typical for heat stress cracks to appear in the fire brick in fireplaces.

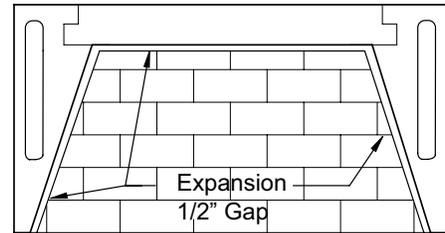


FIGURE 23

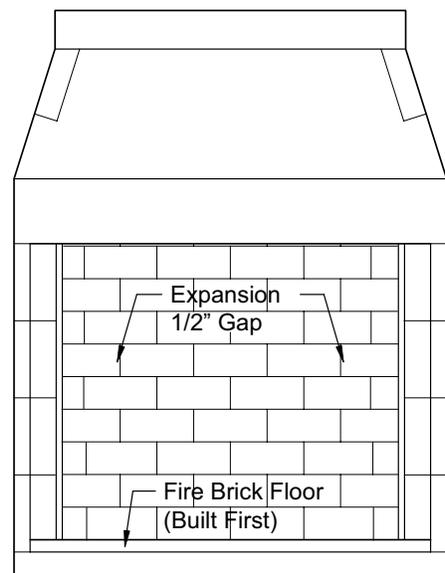


FIGURE 24

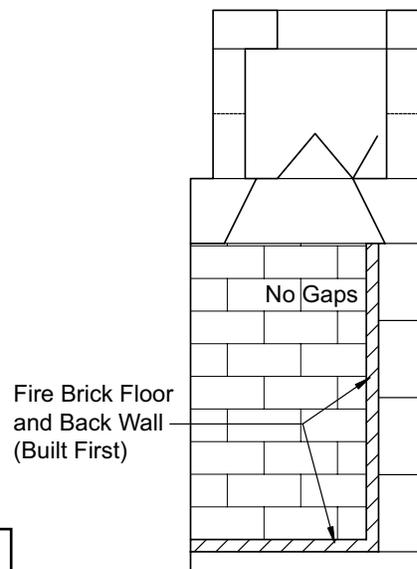


FIGURE 25

Flush Wall Finish Detail

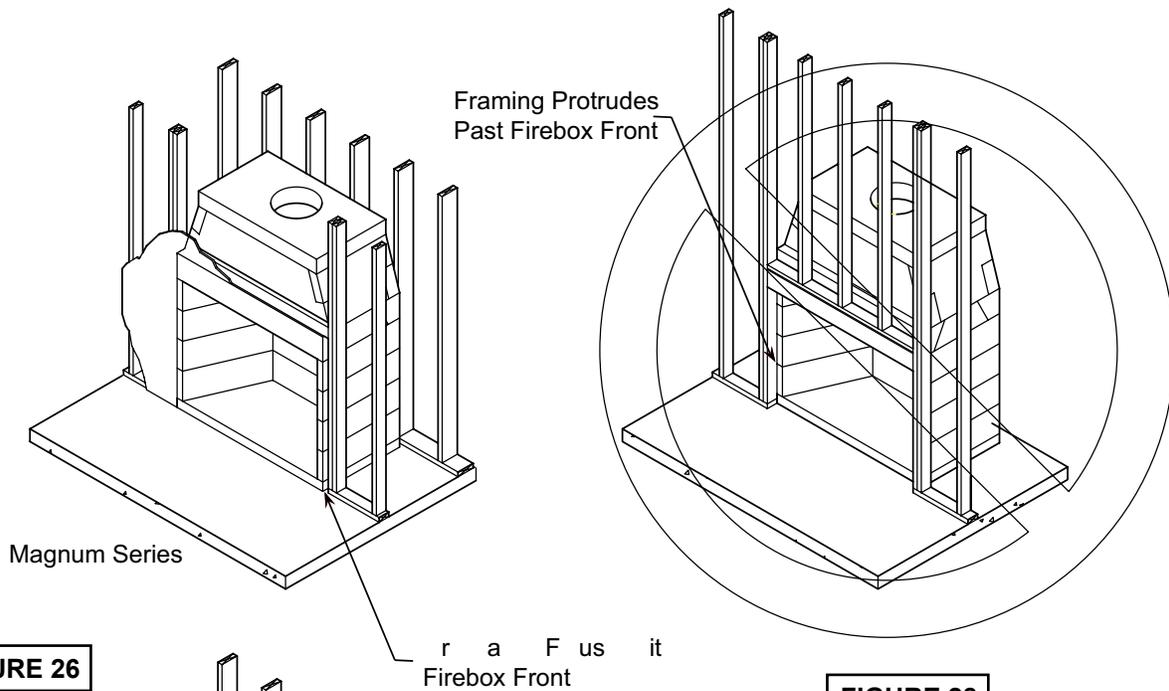


FIGURE 26

FIGURE 28

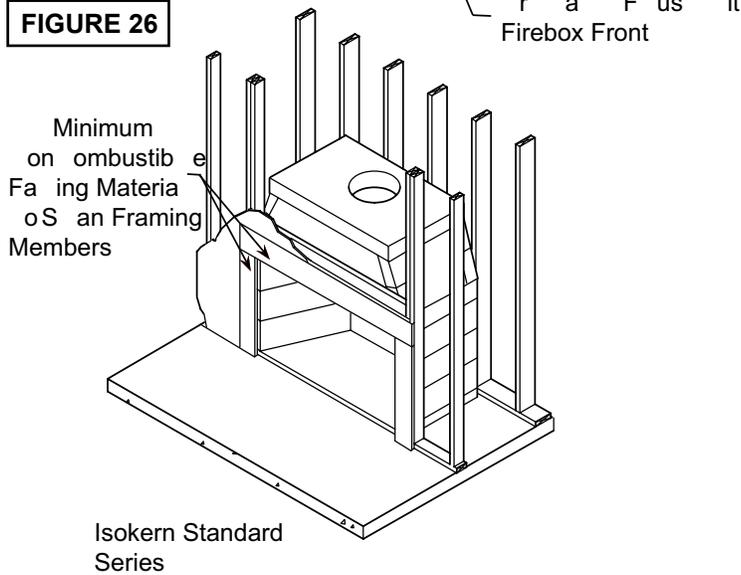


FIGURE 27

Fireplaces are designed to be installed so that the rough front face of the firebox and damper beam project into the room approximately one-half inch (1/2") beyond the face of the rough framing members that create the room's wall surface. The Magnum smoke dome front sits two and three-fourths inches (2-3/4") back from the rough face of the firebox and damper beam. This set back dimension allows for one and one-half inch (1-1/2") framing plus one-half inch (1/2") thick wall board to pass in front of the smoke dome and at the same time align flush with the room face of the Magnum damper beam. Set in this position, framing and wall board are kept to the required eight inches (8") above the firebox opening top (Figure 26).

The Isokern Standard smoke dome front sits flush with the rough face of the firebox and damper beam. Eight inches (8") of noncombustible facing material must span framing members for drywall to keep the required eight inches (8") above the firebox opening top; It is after this noncombustible material that framing members can be placed as shown above. Eight inches (8") on each side of the firebox opening is also required to be covered in noncombustible material. (Figure 27)

Important: Do not build a frame wall in front of the Magnum or Isokern Standard firebox and damper beam. (Figure 28)

Required Clearances (when sheathing protrudes beyond front of firebox)

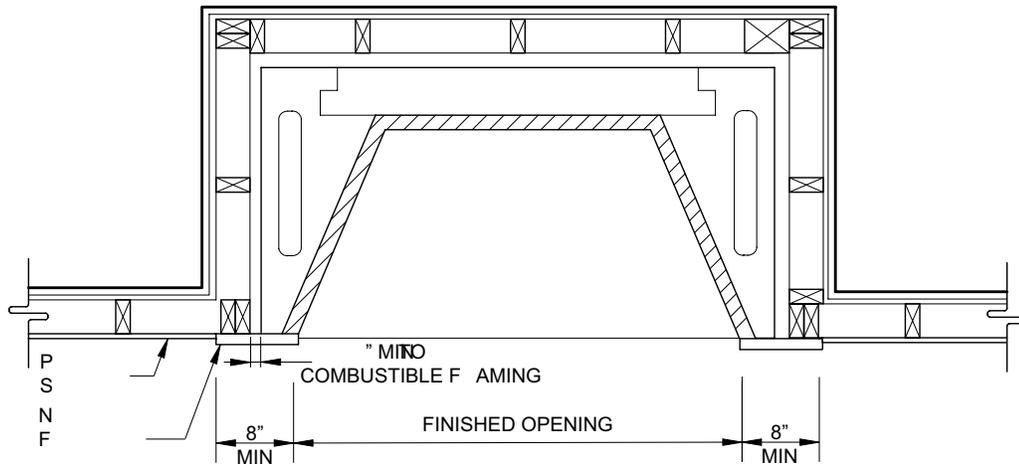


FIGURE 29

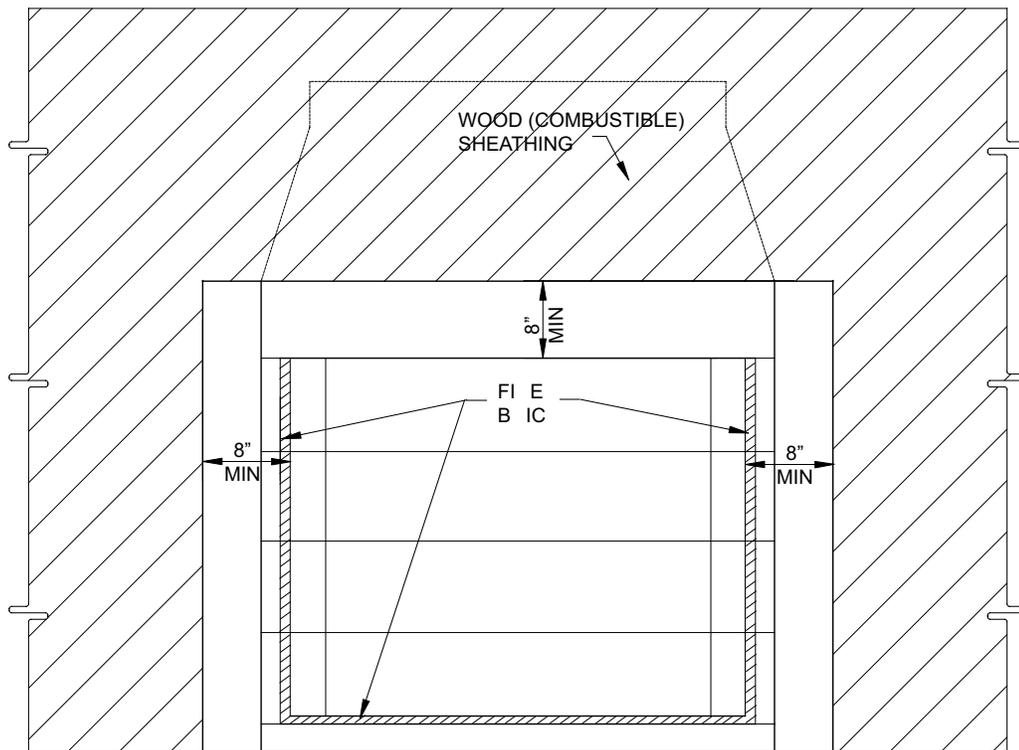


FIGURE 30

Combustible sheathing such as plywood and particle board may be used to cover the front face of the smoke dome and be in direct contact with it. If sheathing protrudes in front of the firebox, application of such combustible sheathing must assure that the sheathing is held a minimum of eight inches (8") away from each side of the finished firebox opening and a minimum of eight inches (8") above the top of the finished firebox opening. (Figure 29 & 30)

Do not build a combustibles framed wall out in front of the firebox.

If sheathing and framing are to be installed across the front face of the firebox smoke dome, then the framing and sheathing must be held a minimum of eight inches (8") above the top of the firebox opening. This means that framing and sheathing across the smoke dome front must be kept at or above the damper beam.

Flush Wall Fire Brick Finish Detail

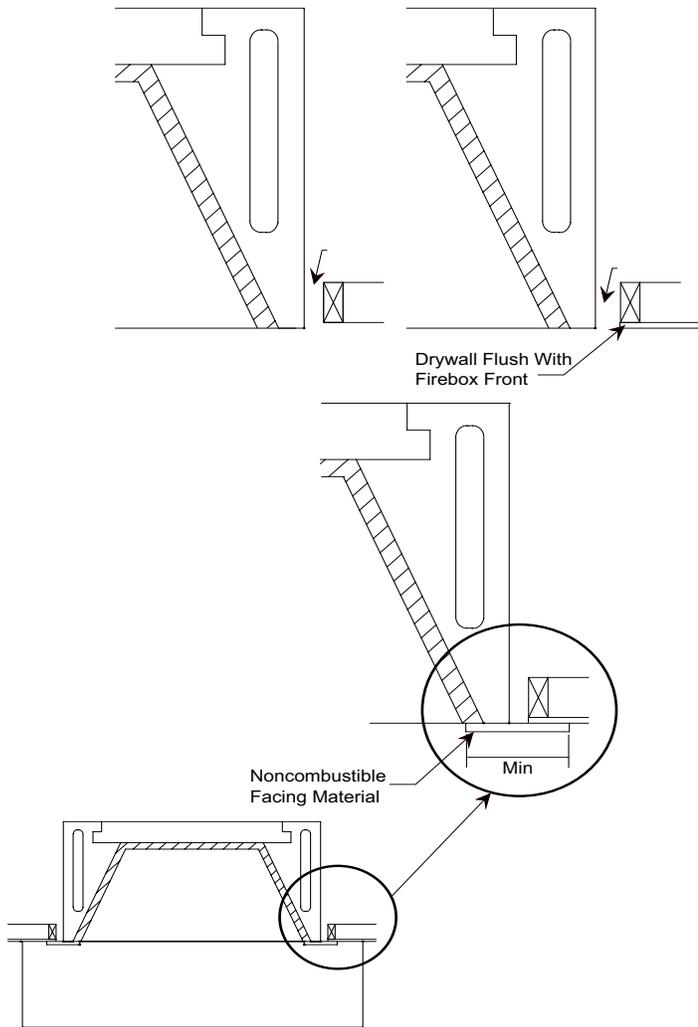


FIGURE 35

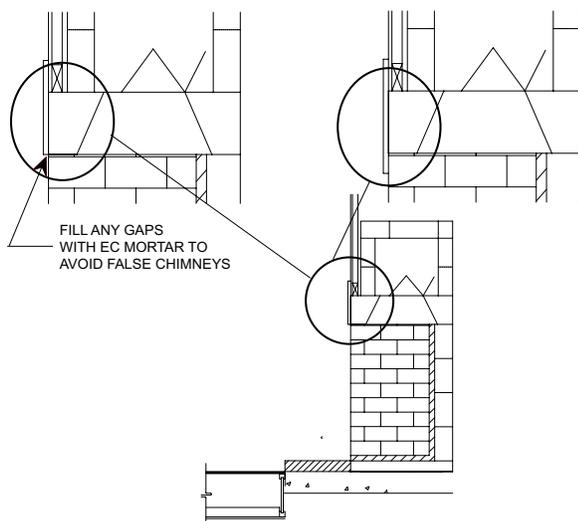


FIGURE 36

Recommended Fire Brick Detail: When drywall is the wall finish at the firebox face and flush with the rough face of the firebox and damper beam, it is recommended when installing the required fire brick lining to the interior of the firebox, that the leading edge of the fire brick - at the floor and at the side walls of the firebox - be set flush with the rough firebox front. This will aid in the overall fit and finish of the fireplaces front when the code required noncombustible finished facings are applied.

This alignment of fire brick application as shown, (Figure 35), allows the fire brick lining to be in the same plane with the room's wall finish surface. With the fire brick set in this fashion the noncombustible finish facing material can be set tight against the leading edge (or, "room edge") of the fire brick at the sides of the fireplace opening. At the same time the finished facing material can lay flat against the room's finished wall surface.

Important: Since there is no fire brick set along the top of the firebox opening, when setting the noncombustible finished facing material (code required and supplied by others) across the top of the firebox opening or to lower the opening, there may be a gap between the back of the noncombustible finish material and the rough front face of the fireplace damper beam.

Be sure to check for and fill any such gap with noncombustible Earthcore Mortar in conjunction with placement of the code required noncombustible finish facing material set across the top of the firebox opening. (Figure 36)

WARNING: Avoid false chimneys.

Important: Failure to seal any gaps between the front face of the damper beam and the back of the noncombustible finished facing material will create what is known as a "false chimney". A "false chimney", in this case, is the narrow gap (mentioned above) between the back of the noncombustible facing material at the top of the firebox opening and the rough front of the fireplace damper beam. If left unfilled this gap creates a "false chimney" which can draw smoke, heat and fire out of the firebox into the space behind the noncombustible finish facing and on up into overhead framed spaces causing a fire hazard.

It is acceptable to apply noncombustible finish facing to the front and below the firebox opening to create an arched look, etc. When doing so, make sure to check for and fill any such gap with noncombustible mortar in conjunction with placement of the code required noncombustible finish facing material.

NOTE: You must still keep a minimum 8" from the firebox opening to any combustible materials.

Interior Masonry Veneer Fireplace Finishes & Clearances

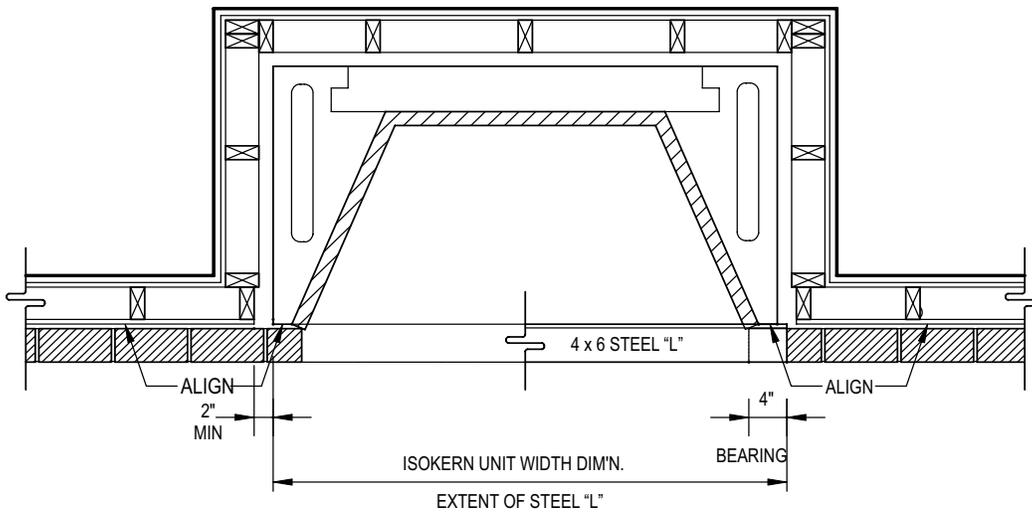
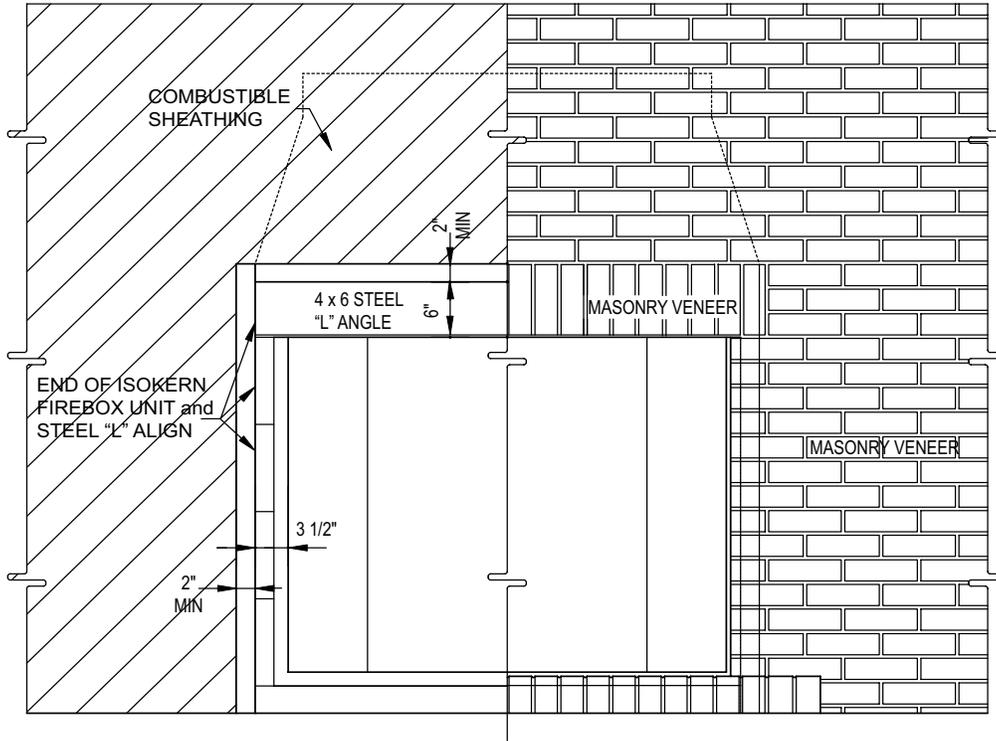


FIGURE 37

Stucco Finish Application:

Any finish can be applied to an Isokern fireplace however with each finish there are different application techniques which can help with the longevity of your finish. When applying a stucco finish to the Isokern material, it is recommended that a scratch coat is applied first to provide a strong base for the system. It is embedded in a wire lathe (not felt backed) which is screwed with care to the fireplace unit. Use 1 1/4" Tapcon screws to attach the lathe to the firebox using the minimum amount needed to secure the wire lathe. A brown coat is applied next to create an even surface for the finish coat. The finish coat is applied last, creating the decorative finish on the wall surface.

Masonry Veneer Construction Details

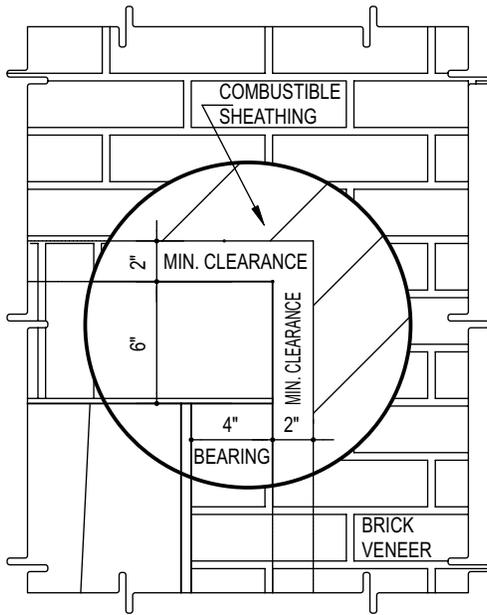


FIGURE 38

Brick, stone or other masonry veneer finished fronts to fireplaces are possible. Special attention is required with regards to:

- (1) the placement of the proposed masonry veneer facing and its interface with the fire brick lining, and
- (2) the masonry veneer and clearance to combustible framing and sheathing from any steel "L" support used in the masonry veneer around the front of the fireplace unit behind the veneer facing.

Any proposed brick, stone or other masonry veneer facing must have sufficient foundation to support the full weight of the veneer work. This may require review by a local structural engineer prior to construction.

The veneer facing, when installed, must present a tight seal with the leading edge - the room edge - of the fire brick lining at the sides of the firebox opening. (Figure 39)

A steel "L" will need to span the top of the finished fireplace opening to carry the masonry veneer as it spans over the firebox opening. (Figure 37)

By code requirement this steel "L" must have a minimum four inch (4") end bearing. This bearing surface area shall be provided in the veneer work. (Figure 39) It is important that the steel "L" is set tight against the damper beam front and set in a mud joint to avoid creating a "false chimney" between the back of the steel "L" and the damper beam front. (Figure 39)

Steel "L" or "angle" used to support masonry veneer as it spans the firebox opening must, in all cases, have a two inch (2") minimum clearance to all combustible materials. The vertical leg of the steel "L" cannot exceed six inches (6") in height.

Note: Properly placed combustible sheathing is kept a minimum of eight inches (8") away from the firebox opening sides and top.

Important: Combustible framing members, normally set at one and one-half inch (1-1/2") clearance to the sides of the firebox must be moved to at least two inch (2") clearance to the firebox sidewalls to maintain minimum two inch (2") clearance to the steel "L" to avoid a potential fire hazard.

Moving framing members two inches (2") away from the firebox side walls will maintain the minimum required two inch (2") clearance from the steel "L" and, at the same time allow full four inch (4") end bearing required for the steel "L". (Figure 38)

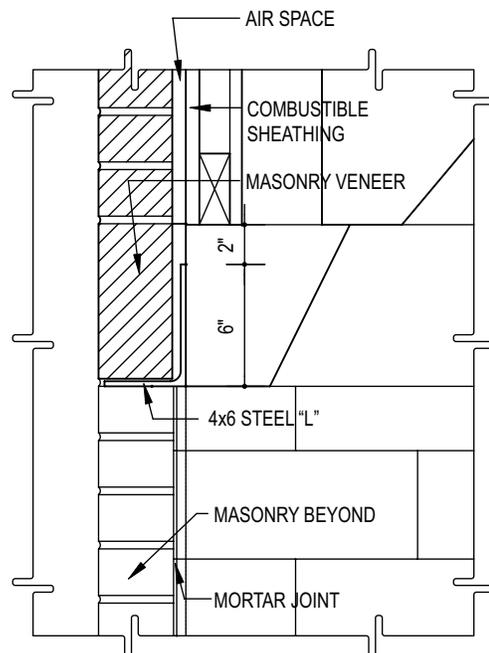


FIGURE 39

Non-combustible Finished Facing Requirements & Clearance to Combustible Trim

Hearth Extensions:

All Fireplaces shall have hearth extensions of brick, concrete, stone, tile or other code approved noncombustible material. Suitable hearth extension material for the fireplaces shall be placed on the hearth extension's noncombustible substrate and must extend to at least twenty inches (20") in front of the fireplace's finished opening and must extend to at least twelve inches (12") beyond the sides of the finished fireplace opening. (Figure 41)

WARNING: The noncombustible hearth extension, by code, must sit on noncombustible substrate which shall have no wood underpinnings.

This means that off-grade wood floor systems shall be constructed in such a way that all wood floor joists and subflooring shall stop twenty inches (20") out from the front of the firebox. (Figure 40)

Mantle and Mantle Shelf Clearances: Fireplaces are subject to the same building code safety clearances to combustible trim as with any radiant heat fireplace.

All combustible trim shall be kept at least eight inches (8") from the finished fireplace opening.

Combustible trim located along the sides of the fireplace opening, which project more than one and one-half inches (1-1/2") from the face of the fireplace, shall have additional clearance from the eight inches (8") equal to the projection.

Combustible projecting mantles - up to twelve inches (12") of projection - shall not be placed less than fourteen inches (14") from the top of the fireplace opening. Combustible mantles which project more than twelve inches (12") from the face of the fireplace, shall have additional clearance from the fourteen inches (14") equal to the projection.

Note: The local authority having jurisdiction may require greater clearances for projecting combustible mantle shelves. Be sure to check local building codes regarding required clearances to projecting combustible mantles.

Adjoining Walls. Side walls and walls to rooms adjoining fireplace installations cannot be closer than twenty-six inches (26") to the finished fireplace opening. (Figure 41)

Note: "Clearance to Combustible Trim" are those distances required to ensure that a fireplace mantle or facing will not catch fire. In most cases the distances should also be adequate to prevent any discoloration or warping due to heat. However each installation presents a unique and completely different set of circumstances involving many variables.

These include paint or finish composition, previous exposure to heat, methods and quality of construction, air flow patterns, etc. Because of these variables, the manufacturer does not guarantee that heat warping or discoloration will never occur.

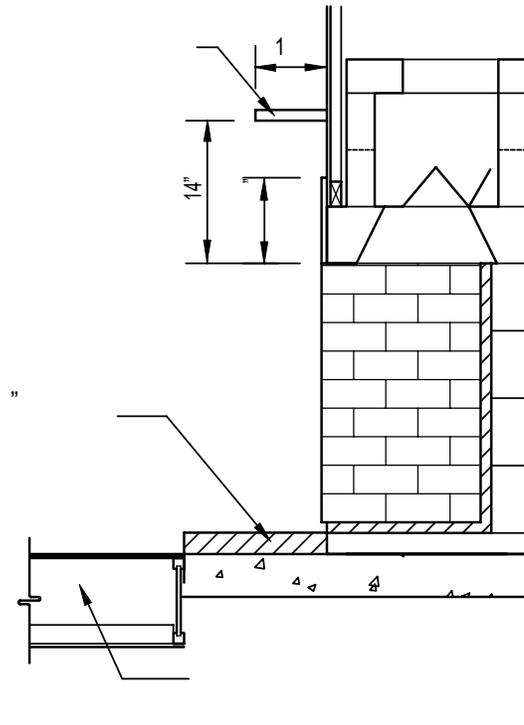


FIGURE 40

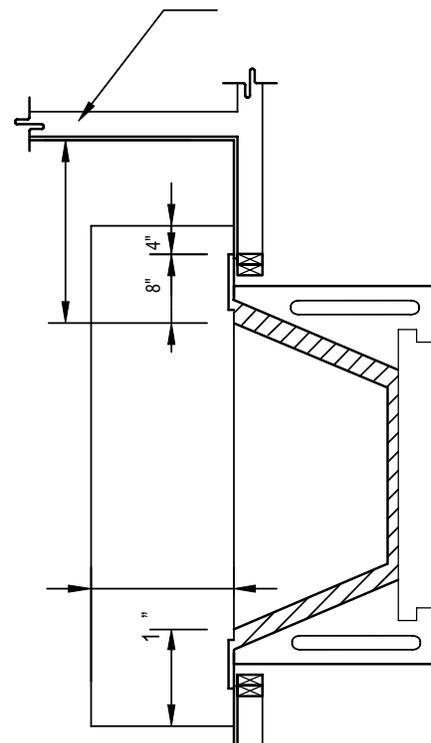


FIGURE 41

Concrete Support

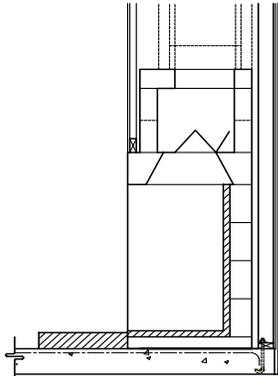


FIGURE 42

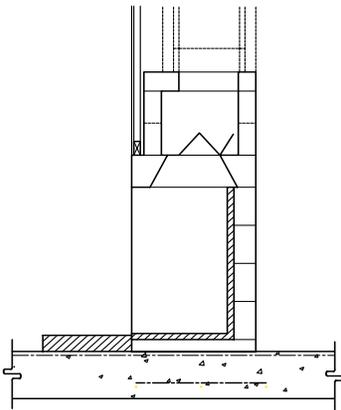


FIGURE 43

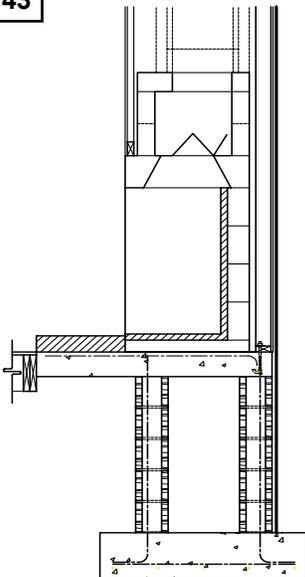


FIGURE 44

The Fireplaces are not rated for installation on a combustible floor system unless used in the Fire-Lite application. Fireplaces must be built upon a concrete support slab with no wood underpinnings. Proper reinforced concrete support slab for fireplace installations may include the following types:

1. Slab on grade: standard residential, minimum four inch (4") thick, 2500 psi concrete foundation on properly compacted fill. This type foundation can support Isokern installations up to thirty feet (30')* overall height without additional structural support. (brick ledge installations not included) (Figure 42)

* Minimum height. See page 3 for specific models.

2. Slab-on-grade foundations, thickened and reinforced: for additional load carrying. (Figure 43)

3. Off-grade slab on foundation walls and footings

Projects with off-grade floor systems as well as upper story installations require this type of support. When building off-grade support slabs the code required hearth extension substrate should be built as a continuation of the support slab for the fireplace unit. (Figure 44). Supports for off grade slabs must be concrete or steel and capable of supporting the slab, Isokern unit and the chimney.

For multi-floor and back-to-back installations proper weight computation on an individual basis is required. Consult a local structural engineer for load bearing requirements.

Important: Foundations and footings must meet local code and be approved by the local building authority. For any foundation design and load requirements check with a local structural engineer. It is the responsibility of the General contractor to insure adequate foundations.

Fireplace weights* and "foot print" areas:

The total fireplace weight and footprint for each model listed below includes: Fireplace pumice components only:

A. Model Magnum 28: 1040 lbs. - 35.5" x 28" = 6.90 sf.

B. Model Magnum 36: 1300 lbs. - 43" x 28" = 8.36 sf.

C. Model Magnum 42: 1420 lbs. - 49" x 28" = 9.52 sf.

D. Model Magnum 48: 1600 lbs. - 53" x 28" = 10.3 sf.

A. Isokern Standard 36 - 1205 lbs. - 43" x 25.25" = 7.54 sq. ft.

B. Isokern Standard 42 - 1325 lbs. - 49" x 25.25" = 8.59 sq. ft.

C. Isokern Standard 46 - 1450 lbs. - 53" x 25.25" = 9.29 sq. ft.

*Totals are exclusive of any chimney components. See page 30 for Isokern DM chimney component weights.

"Footprint" areas listed above are base plate dimensions for each model and are exclusive of manufacturer's required hearth extension areas. See page 26 for hearth extension dimensions.

Note: Additional support slab area may be required at the side or back of the fireplace unit to provide bearing for structural supports to a DM offset chimney sequence. (See pages 33-35 for offset chimney support requirements.)

DM Chimney System: General Information

The DM chimney system is a dual module, refractory masonry chimney system. It is composed of two precast, mating components, the outer casing block and an inner liner.

General Information:

This chimney system is designed for installation in accordance with the National Fire Protection Standard for Chimneys and Solid Fuel-Burning Appliances, NFPA 211 and in accordance with codes such as ICC, BOCA Basic/National Codes, the standard Mechanical Code and the Uniform Building Code.

Note: Illustrations shown reflect “typical” installations with nominal dimensions and are for design and framing reference only. Always maintain minimum required clearances to combustible materials and do not violate any specific installation requirements.

Required DM Chimney Clearance:

The DM chimney system, rated UL 103HT, is listed for zero clearance to normal construction materials.

The DM chimney system may be enclosed in a wood chimney chase at zero clearance to wood framing members.

WARNING: Keep all insulation minimum of three inches (3”) away from all DM chimney components. If insulation is used in walls surrounding the chimney, insulation may be installed behind sheathing of gypsum board, plywood, particle board or other material on the side facing the Isokern material. The facing material cannot be within 1 1/2” to the chimney outer casing. Failure to use manufacture’s provided parts or variations in techniques and construction materials or practices other than those described in this manual may create a fire hazard and void the limited warranty.

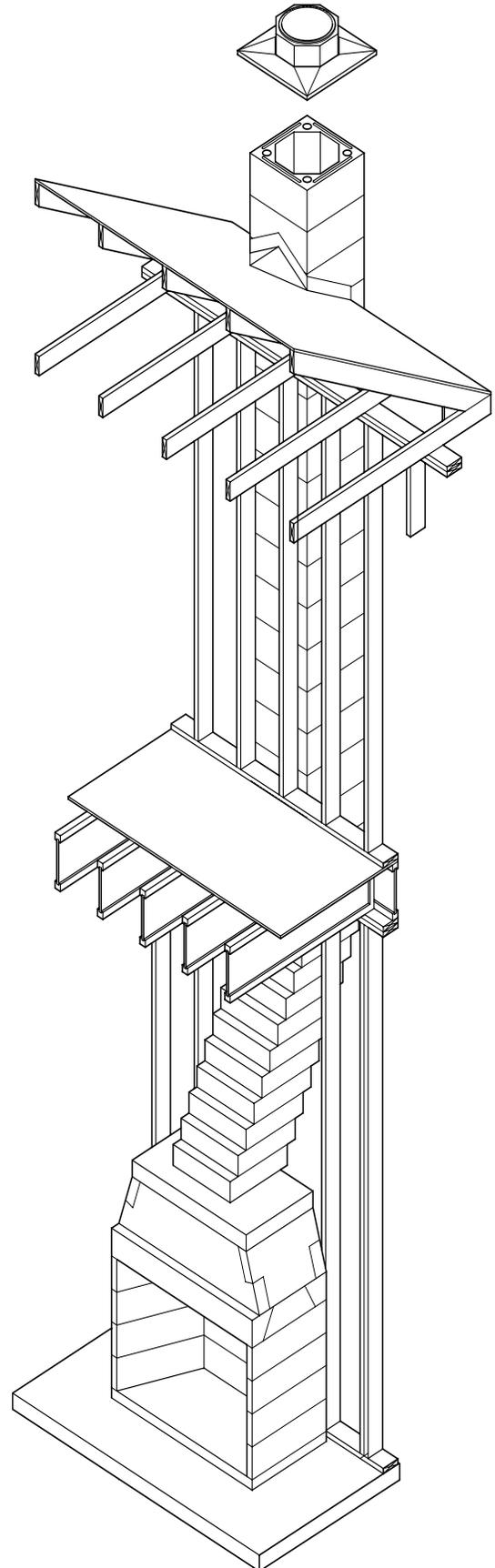
Note: A firestop is required wherever a chimney passes between one zone of a building to another. Ex: When the chimney passes through the ceiling into the attic area, there must be a sealed area around the chimney so there isn’t a chaseway for a fire to get to the attic.

When lateral support is required for DM chimneys, the framing members will be in contact with the DM chimney system.

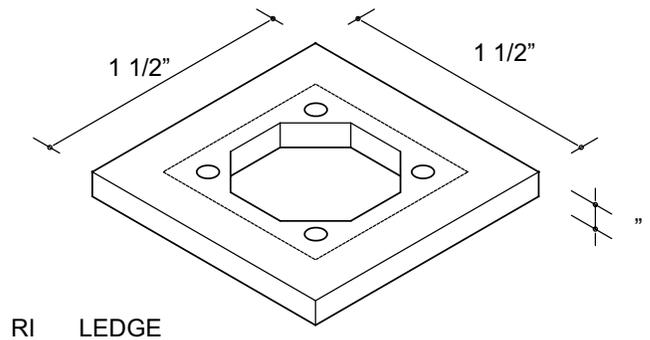
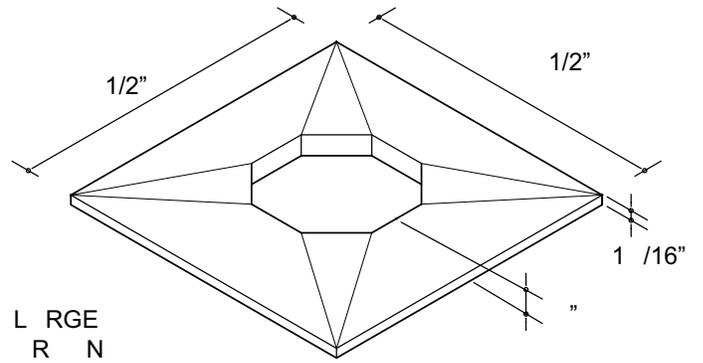
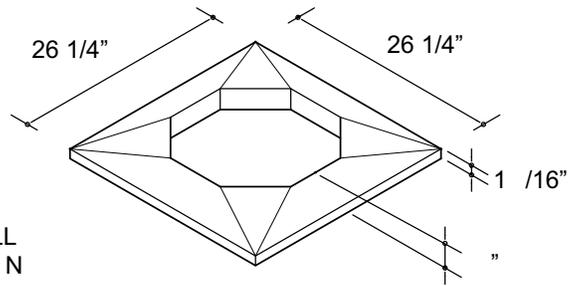
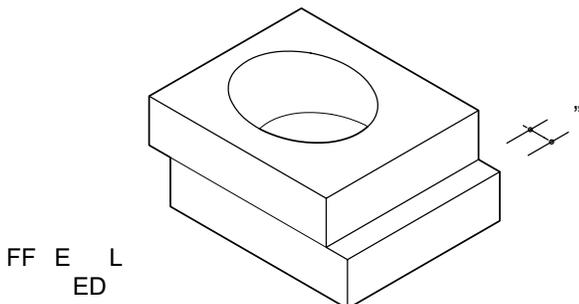
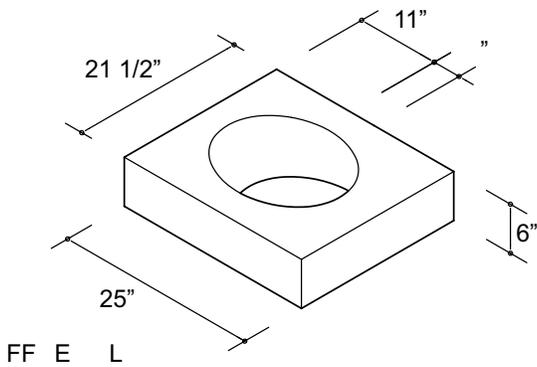
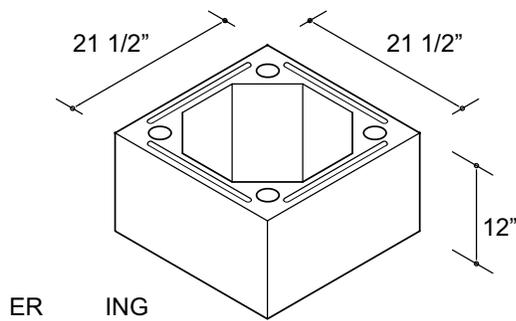
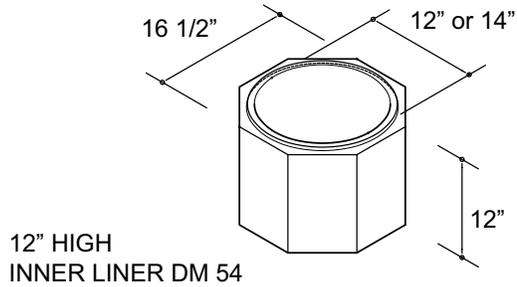
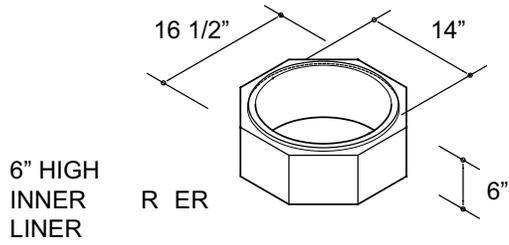
Important: “Combustibles” are defined as “normal construction materials” and are considered to be: framing materials, particle board, mill board, drywall, plywood paneling, plywood sub flooring, and wood flooring.

Mechanical Vent Systems:

It is acceptable to use mechanical draft systems, if the venting companies do the engineering calculations and make the necessary recommendations for fan size and flue vent diameter following the guidelines of NFPA 211/2006, pg. 211-13. Installation of such systems must also follow the mechanical drafting company’s explicit installation and operation instructions.



DM Chimney Component List & Dimensions



DM Chimney: Component Weights

Isokern DM Chimney Weights:

Total installed Isokern DM chimney weight will vary according to each specific installation. Total installed chimney weight will be based on the overall height and the configuration of the chimney system.

Chimneys may be straight vertical stacks of DM outer casing and inner liner but may also include the use of offset chimney blocks, brick ledges, chimney reinforcement, brick/stone veneers, cement crown caps and chimney shrouds.

The DM chimney component weights are as follows:

Small crown cap:	80 lb.
Large crown cap:	100 lb.
Brick ledge:	110 lb.
14" diameter inner liner:	45 lb.
Outer casing block:	90 lb.
Offset block*:	84 lb.

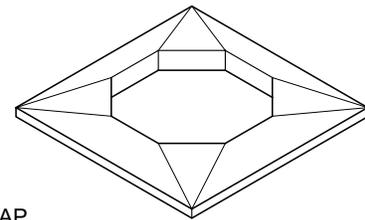
*Construction of an offset block sequence will shift a portion, if not all of the chimney load off of the firebox and smoke dome. Additional reinforced concrete footing and slab area may need to be provided adjacent to or as a continuation of the primary support slab area for bearing the steel or masonry support required for an offset sequence. (See pages 33-35) Consult a structural engineer for specific, individual structural requirements.

Notes:

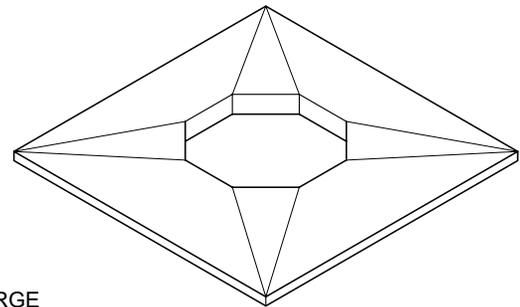
Plan chimney configuration carefully before constructing the required reinforced concrete support foundation for the fireplaces. Be sure that enough structural masonry area is available to support any offset chimney sequence included in the proposed chimney design. (See Page 35)

Earthcore is not responsible for site specific structural support details and load specifications for fireplaces and DM chimney system installations. Consult local structural engineer for proper job-specific support structure design, sizing and load bearing specifications.

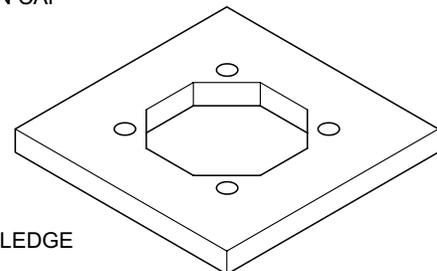
Unless otherwise noted, all floor drawings in this manual are merely illustrations to indicate the presence of an underlying noncombustible support structure to the fireplace installation.



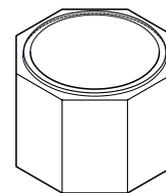
SMALL
CROWN CAP



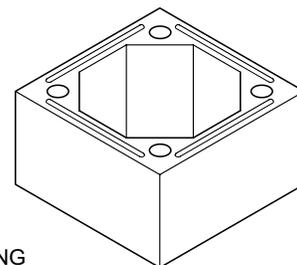
LARGE
CROWN CAP



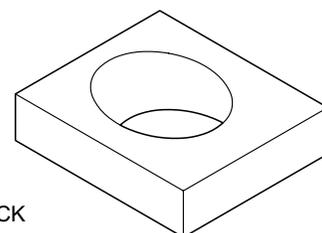
BRICK LEDGE



INNER LINER



OUTER CASING



OFFSET BLOCK

DM Chimney System: Installation Instructions

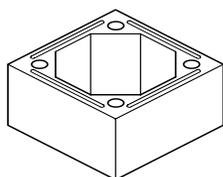


FIGURE 45

1 "



FIGURE 46

"



FIGURE 47

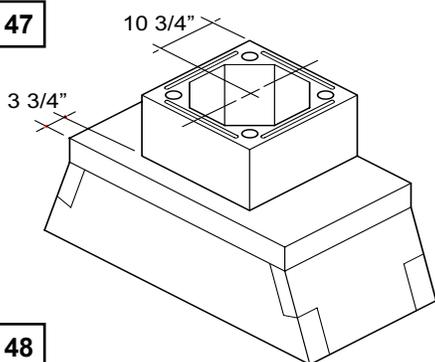


FIGURE 48

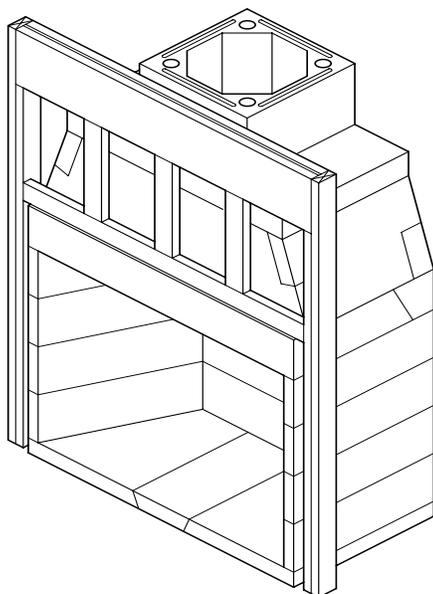


FIGURE 49

DM Chimney Alignment:

Where the chimney run is to be a straight vertical run the DM outer casing block sits directly onto the Isokern smoke dome lid. The DM outer casing block, properly set is intended to be flush with the back face of the firebox smoke dome assembly (Figures 48 and 49).

Set in this way the DM outer casing block will sit three and three fourths inches (3-3/4") back from the front face of the smoke dome. (Figure 48).

This total set-back distance makes it possible for a three and one-half inches (3-1/2") thick bearing header to pass over the firebox smoke dome assembly and for the DM chimney to run straight up the back side of the bearing header (Figure 49).

Installation of the DM chimney:

Begin straight DM chimney runs by setting a DM outer casing block in a bed of mortar on top of the smoke dome lid with the outer casing block centered on the lid from side to side and flush with the back of the smoke dome lid.

Be sure that the outer casing block aligns with the flue hole in the smoke dome lid.

Next set the DM inner liner's six inch (6") tall starter piece (Figure 47) inside the first outer casing block. The "factory" version of the six inch (6") tall inner liner starter piece has a female end and a flat end. Set this inner liner starter with the flat end down. Set the downward end into Earthcore Mortar so that it is fully sealed to the smoke dome lid.

WARNING: Do not mortar the air space between the inner liners and the outer casing blocks.

Starting with the six inch (6") tall inner liner starter piece creates six inch (6") staggered horizontal joints between the inner liner and the outer casing block.

Both the outer casing block and the inner liner components have tongue and groove type detailing on each end to assure alignment and interlock of the pieces as they are stacked and glued together.

Notes: If the "factory" inner liner starter piece is broken or otherwise unavailable then a full twelve inch (12") tall inner liner piece can be cut to six inches (6") in height to make an inner liner starter piece.

DM chimney inner liners can be stacked with either the male or the female end up. In either case start the inner liner stack with a six inch (6") starter piece.

After setting the DM inner liner starter piece, apply mortar to the top of the starter liner. Continue the straight chimney run by placing a full height inner liner onto the six inch (6") starter liner. The top of this full height inner liner will sit 6" above the top of the outer casing block that was previously set.

DM Chimney System: Lateral Support

This six inch (6") offset between joints of the inner liner stack and the joints of the outer casing stack continues to the top of the chimney run.

Continue the straight vertical DM chimney by setting an outer casing block onto the mortared top surface of the preceding outer casing. The grooves on the bottom end of the upper outer casing block fit onto the tongues on the top of the lower outer casing block. This assures proper alignment of the two components.

Next place a full height inner liner onto the mortared top end of the previously set inner liner. Proceed this alternate stacking of outer casing blocks and inner liners until the desired height of the flue is attained. Mortar all outer casing blocks together and mortar all inner liners together. **Do not mortar or fill the space between the outer casing and the inner liner.**

Lateral Support for DM Chimneys:

Though not required, it is recommended that where the DM chimney is built up along an exterior wall the vertical chimney system can be connected to the structural wall system at a minimum of four foot (4') intervals. This connection can be made using 18 gauge strap ties (Simpson Strong Tie CS coil strap, or equivalent).

Starting on one side of the DM chimney, at four foot (4') intervals up the structural wall adjoining the chimney, connect one 18 gauge strap tie to the structural wall with two, three inch (3") #8 (minimum) wood screws or masonry anchors, as appropriate.

Next fold the strap around the three exposed sides of the outer casing. Connect the strap to each of the three outer casing faces with two, one and one-half inch (1-1/2") long masonry anchors, such as "Tapcon" or "Titen" screws. Fasten the strap back to the structural wall with two three inch (3") #8 (minimum) wood screws or masonry screws, as appropriate. (Figure 50)

Where DM chimneys are built up from the interior walls the DM chimney outer casing block is to be laterally braced at ceiling and roof penetrations.

Pressure treated two inch (2") by four inch (4") blocks, set at each side of the flue between the trusses or rafters and fastened to the pre-engineered roof trusses or rafters with two 16d common nails at each end, provides lateral support, parallel with the framing. Additionally, a two inch (2") by four inch (4") by six feet (6') minimum pressure treated member ("rat run") installed on each side of and butted up to the outer casing block will provide lateral support perpendicular to the direction of the truss or rafter framing system.

Fasten the perpendicular member with two 16d common nails to each intersecting truss or rafter. The perpendicular bracing should be installed on the top side the ceiling level framing as well as on the bottom side of the rafters. (Figure 51)

Note: A firestop is required wherever a chimney passes between one zone of a building to another. Ex: When the chimney passes through the ceiling into the attic area, there must be a sealed area around the chimney so there isn't a chaseway for a fire to get to the attic.

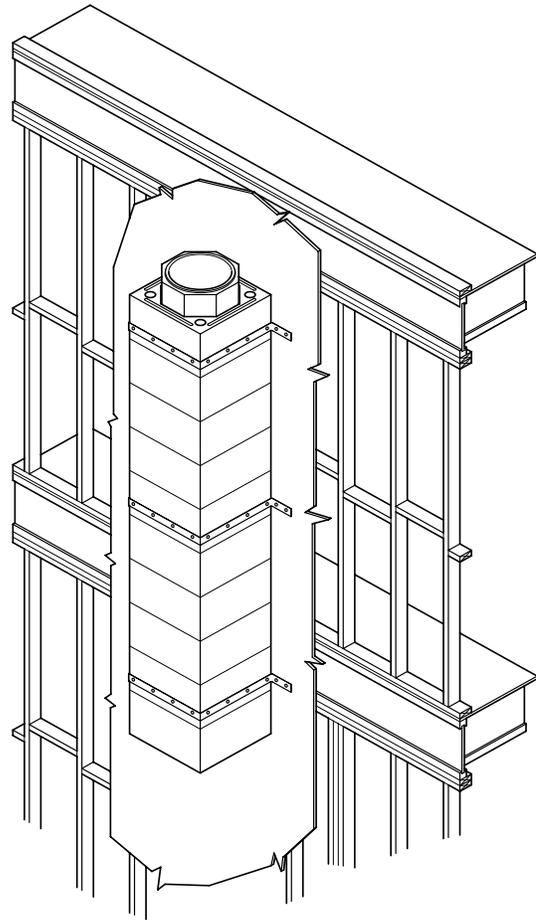


FIGURE 50

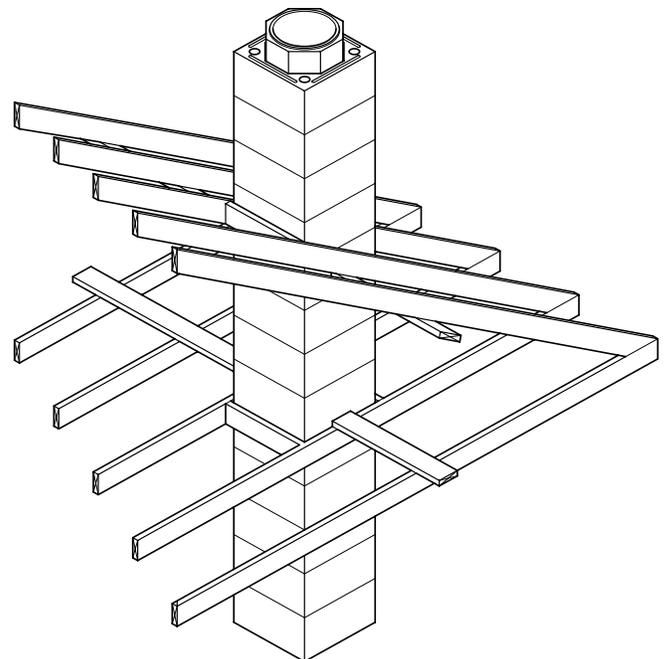


FIGURE 51

DM Chimney System: Offset Block

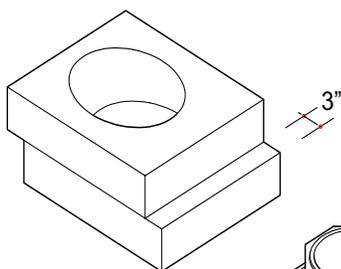


FIGURE 52

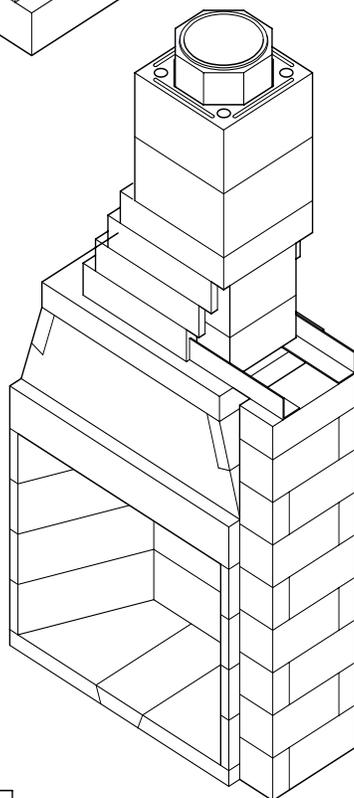


FIGURE 53

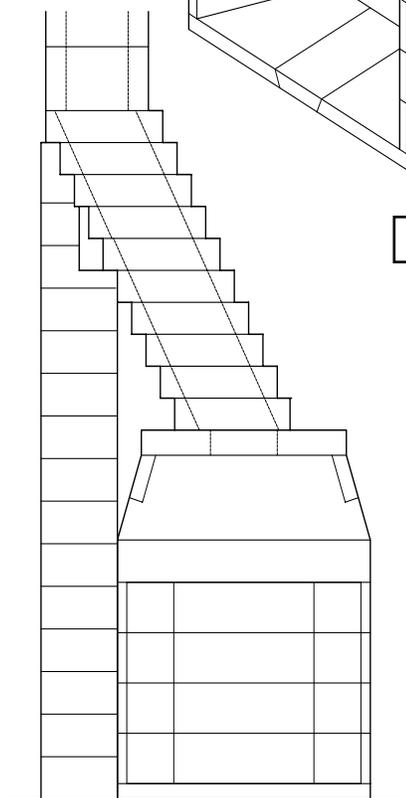


FIGURE 54

DM Offset Chimney Block:

For vertical DM chimney to bypass overhead obstructions, the Isokern offset chimney block is used. Offset blocks are six inch (6") thick, single module chimney components, measuring twenty-one and one-half inch (21-1/2") wide by twenty-five inches (25") long. The fourteen inch hole passes through the block at thirty (30°) degrees. An offset chimney block can be set as the first flue component on top of the fireplace smoke dome.

When building offset sequences it is necessary to support the third offset block in the sequence and every third offset block thereafter. When using only one or two offset blocks no additional support is required.

Offset sequences are best when built as low as possible in the chimney run to maximize performance. Do not make support columns of brick, stone or wood. All support columns must bear onto proper noncombustible foundations.

Isokern Offset Chimney Block Installation:

Isokern offset chimney blocks are stacked in a stair step fashion with each successive block overhanging the previous offset block by three inches (3"), allowing the flue to rise at an angle of thirty (30°) degrees off of vertical. (Figure 52)

When building offset sequences check the interior flue alignment as each offset block is set to avoid creating overhanging ledges on the inside of the flue. Such internal overhangs will inhibit flue drafting.

Each offset block is to be set fully in a bed of Earthcore Mortar, completely sealing each offset block to the underlying component.

Offset chimney block sequences can be built to shift the chimney run to the left, right or to the rear of the firebox/smoke dome assembly. Offset blocks can also be set in a spiraling rotation, thus moving the chimney to a point that is diagonally away from its starting point.

Offset blocks require a 1 1/2" clearance to combustible framing.

Offsets to the Left or Right:

When offsetting chimneys to the left or right of the firebox it is not possible to build a support column directly under the third offset block. To create proper support, construct a support column against the firebox from bearing up to the level of the smoke dome. Bridge from the column over to bearing on the smoke dome with two pieces of four inch (4") by four inch (4") by five-eighths inch (5/8") steel angle. On the steel angles build a masonry or steel support column up to the underside of the third offset block in the sequence. (Figure 53)

Note: For offset chimney block sequences that clear the side wall of the firebox below, it is allowable to support the first offset block that clears the the firebox side wall and then to proceed with supports at each third offset block thereafter. (Figure 54)

DM Chimney System: Offset Block (cont.)

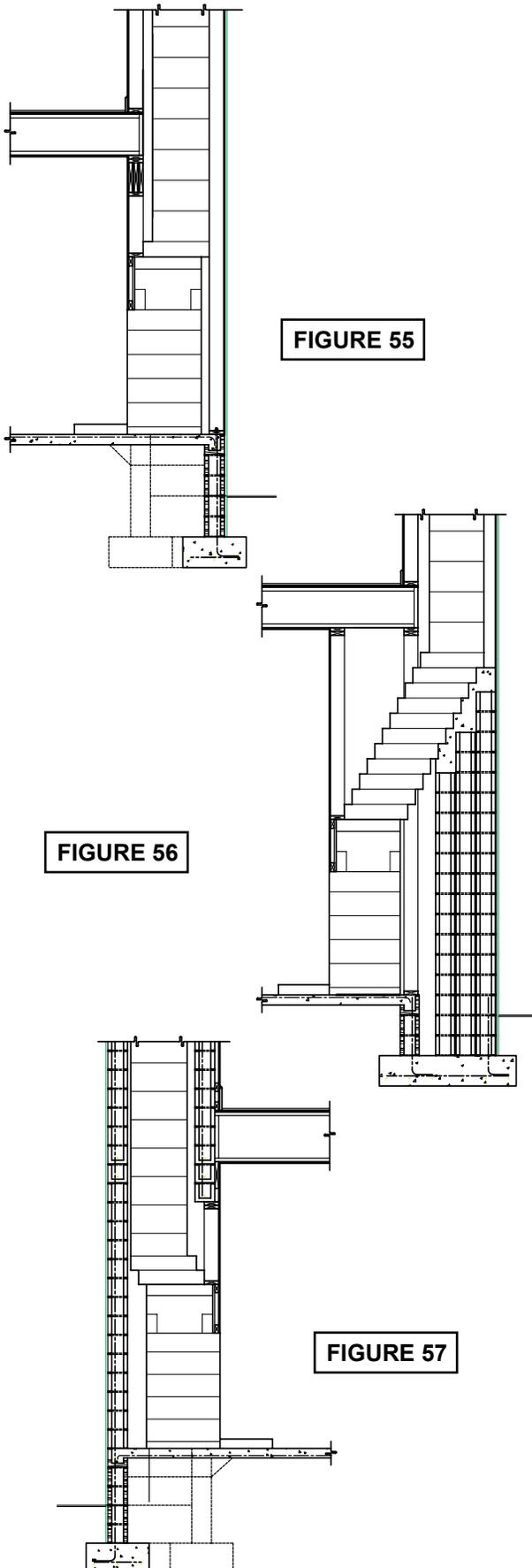


FIGURE 55

FIGURE 56

FIGURE 57

With straight chimneys the front of the DM outer casing block sits approximately three and three-quarters inch (3- 3/4") back from the front of the smoke dome. This allows for a nominal 4" thick wall to be flush with the room side face of smoke dome assembly while the DM chimney passes up the backside of the wall.

For a nominal 2" by 6" wall thickness the chimney can be offset 3" rearward. Set the first DM outer casing block flush to the back end of this offset block. This will leave a distance of 6-3/4" from the face of the firebox smoke dome assembly to the face of the DM outer casing block. This allows for the smoke dome to sit flush with the inside face of the 2" by 6" wall and the straight chimney to run up the outside of the wall. (Figure 55).

For a wall thickness of 9", nominal 8" CMU plus 1-1/2" furring strip - first set two offset chimney blocks in sequence, rearward. This leaves a distance of 9-3/4" from the front face of the smoke dome to the front face of the DM outer casing once the outer casing block is set in position. (Figure 57)

Greater offset distances can be accomplished by building with more offset chimney blocks. (Figure 56)

Offset block Support Foundations:

It is required that every third Isokern offset chimney block in the sequence be supported down to footings via concrete block or steel support columns.

Plan fireplace and DM chimney systems carefully before foundations are laid to assure that proper footings are available to support Isokern offset blocks chimney run.

Calculate Offset Distance:

To calculate the distance of Isokern offset chimney travel in a straight line to the right, left or to the rear of the firebox/smoke dome assembly, proceed as follows:

Refer to Figure 58: temporarily dry set a DM outer casing block in its proper location on top of the completed firebox/smoke dome assembly as though starting a straight chimney.

If the offset sequence is to move to the left then, starting from the right side of the temporary DM outer casing measure left ward to the far face of the overhead obstruction that needs to be bypassed by the vertical chimney run.

For accurate measuring drop a plumb line down from the far face of overhead obstruction to the level of the top of the smoke dome assembly. Measure from the far side of the temporary DM outer casing to the plumb line.

This measurement, taken in inches and divided by three (three inches of horizontal travel per offset block) gives the total number of offset blocks needed to accomplish the required travel distance.

To calculate the height that the offset block sequence will require, take the total number of offset blocks needed to accomplish the travel distance (described above) multiplied by 6". This number is the height (inches) that the offset sequence will require.

DM Chimney System: Offset Block (cont.)

When establishing the “far face” of the overhead obstruction, be sure that the DM chimney blocks can run straight to chimney termination without further overhead obstruction. (Figure 59)

Be sure that there is sufficient space beyond the “far face” of the overhead obstruction to accept the DM chimney’s outer casing dimension of 21 1/2”. Support all offset sequences down to bearing as discussed on previous pages.

Notes:

A) Always support the last offset block in a sequence for full support of the DM chimney where it returns to vertical. Support columns often carry the majority of the total load of the vertical chimney that is set onto the last offset block.

B) The total chimney weight above the last offset block will be the total weight of the vertical chimney plus any additional allowable loads such as the Isokern brick ledge, its related brick or stone veneers, and any crown caps, or other chimney terminations.

C) Be sure the foundation under all support columns is made of concrete or steel and designed to support the loads applied to it.

D) Check with local codes and a structural engineer to confirm loading and foundation requirements.

E) Maximum horizontal distance of offset is six feet (6’) and represents twenty-four offset blocks in sequence.

F) By code the maximum angle of offset for a chimney system is 30° off of vertical.

DM Brick Ledge:

The DM brick ledge is a 3” thick, 31-1/2” square, steel reinforced, concrete and pumice slab (Figure 60).

The Brick ledge provides a 5” ledge at all four sides of the outer casing block and is designed to support masonry veneers to DM chimneys starting below the rafters and continuing to termination. (Figure 61)

The component is cast with an octagonal hole in its center so that the DM octagonal inner liner can pass through it.

The brick ledge has four 2-1/2” holes through it that align with the hole in each of the four corners of the DM outer casing block. These four holes are provided for reinforcement of the chimney stack by the insertion of #4, minimum, steel reinforcing rods and subsequent grouting. (Figure 60 & 61)

The brick ledge is intended for use in chimneys that rise through the roof only where all four sides of the chimney are bounded by the roof.

WARNING: To maintain structural performance the DM brick ledge must not be cut or altered in any way.

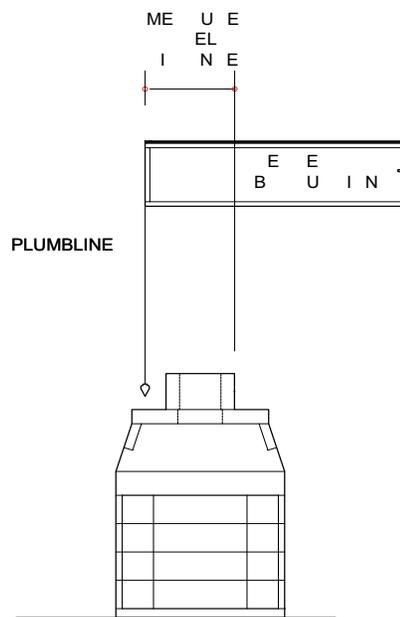


FIGURE 58

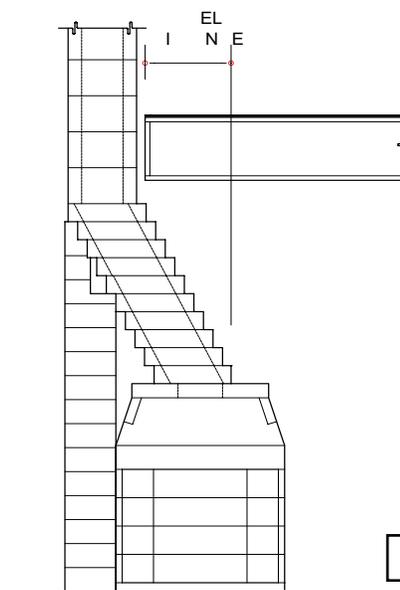


FIGURE 59

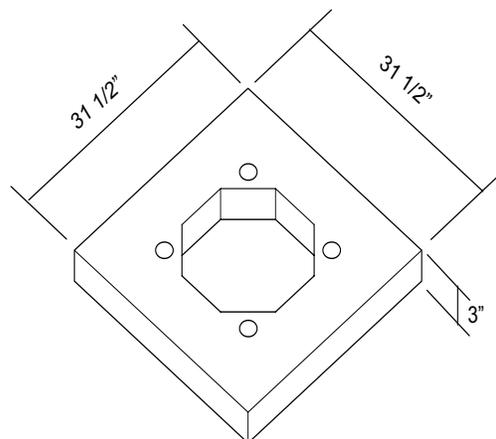


FIGURE 60

DM Chimney System: Brick Ledge Installation

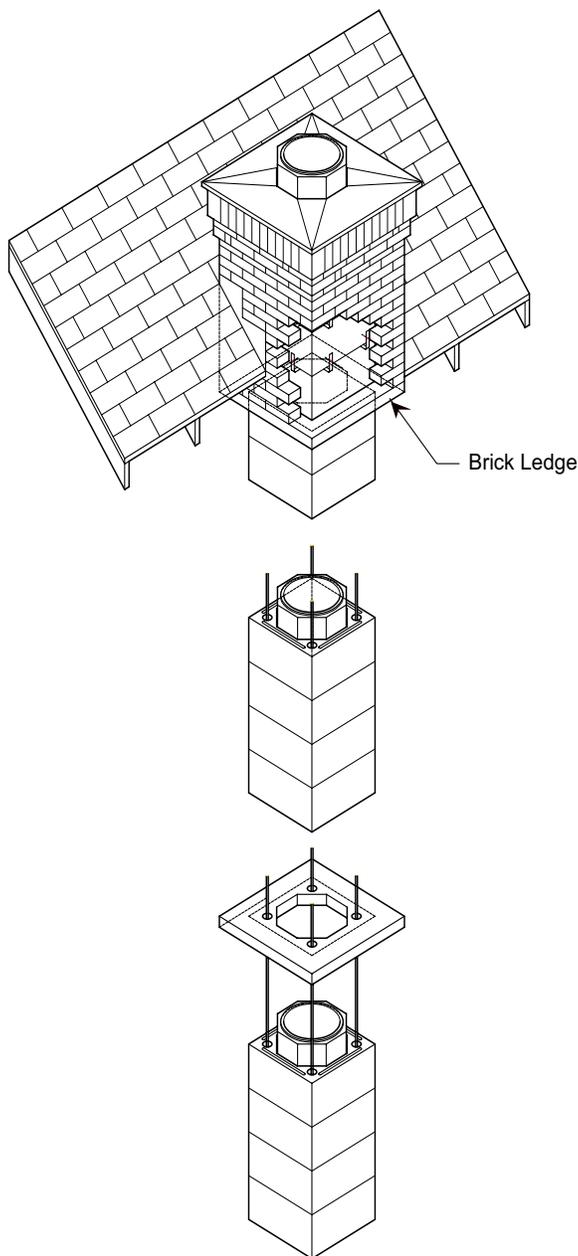


FIGURE 61

DM Brick Ledge Installation:

Use of the brick ledge will require a roof framing rough opening of at least 34" in width. The required opening dimension along the length of the rafter, where the chimney is to penetrate the roof line, will increase above 34" relative to the pitch of the roof.

As the DM outer casing and inner liner assembly approaches the roof penetration set an outer casing block to a level as close to the the low side of the roof framing as possible. (Figure 62)

The alignment tongues on the top of this outer casing block must be ground off to leave a flat contact surface for the brick ledge. Temporarily leave out the inner liner that fits this outer casing block.

Set the Isokern brick ledge onto the flat top surface of the outer casing in a full bed of Earthcore Mortar. Be sure to align the four 2-1/2" holes in the brick ledge with the matching holes in the outer casing block below it. Return to setting the next inner liner in the sequence. This inner liner comes up from below and passes through the octagonal hole in the brick ledge. The liner's top end will be approximately 3" above the top surface of the brick ledge. Set the next outer casing block onto the top of the brick ledge in a bed of Earthcore Mortar.

Insert one piece of #4 (minimum) steel reinforcing rod into each of the four 2-1/2" holes in the brick ledge. The reinforcement rods must start from a depth of at least 18" below the bottom of the brick ledge, (In some cases, a minimum recommendation could be 5').

Consult local structural engineer for proper job-specific support structure design, sizing and load bearing specifications.

If short lengths of steel rods are used be sure to properly lap and wire tie all splices in the rebar. As the reinforcing progresses, completely fill the holes with grout. Suitable grout can be a pourable mixture of Portland cement and sand or Portland cement, sand and pea gravel. The rebar must be fully embedded in grout.

Leave enough of the #4 steel reinforcing rod exposed above the brick ledge so that as the stacking of outer casing blocks continues to termination the reinforcing rods and grout can continue through the stack. Reinforcing shall continue to chimney termination.

All DM chimneys that include the brick ledge must be reinforced as described above.

CAUTION: When using the Isokern brick ledge it is required that the firebox/smoke dome assembly include the placement of a 4" by 4" by 3/8" minimum steel angle across the firebox opening. (See page 40 for "Structural Information" for details regarding specification and placement of steel angles in fireplaces.)

DM Chimney System: Brick Ledge Load Capacity

Lateral Support for Isokern Brick ledge Chimneys:

Once the DM chimney and brick ledge are assembled and after the intended masonry veneer has been installed on the brick ledge, be sure to brace the chimney following the guidelines on page 32 of this manual for Lateral Support of DM chimneys.

Load Capacity for Brick Ledge:

The sources of load delivered into the Isokern brick ledge are:

- (1) the total physical load of brick, stone or other masonry veneer on the brick ledge, and
- (2) loading due to the force of wind delivered against the exposed height of the chimney mass.

The required height of any chimney is governed by applicable local building codes. The overall finished height of any chimney varies based upon site-specific conditions (eg. elevation of roof line, roof pitch, distance of the chimney from the ridge, etc.).

It is relatively simple to calculate the total physical load on the brick ledge resulting from the physical weight of applied veneers built to code height, however calculation values for load to the brick ledge due to wind are site specific and based on local variables such as wind speed zone, exposure classification, eave height and roof pitch of the structure, as well as height of chimney mass exposed to wind.

The total of physical load and load due to wind must not exceed ninety four hundred (9400) pounds.

Notes:

Calculation of wind load requires the services of a local structural engineer who can evaluate wind load for the specific structure and site in question.

Do not subject the brick ledge to unequal loading when applying veneers. Build veneers equally on all four sides of the brick ledge.

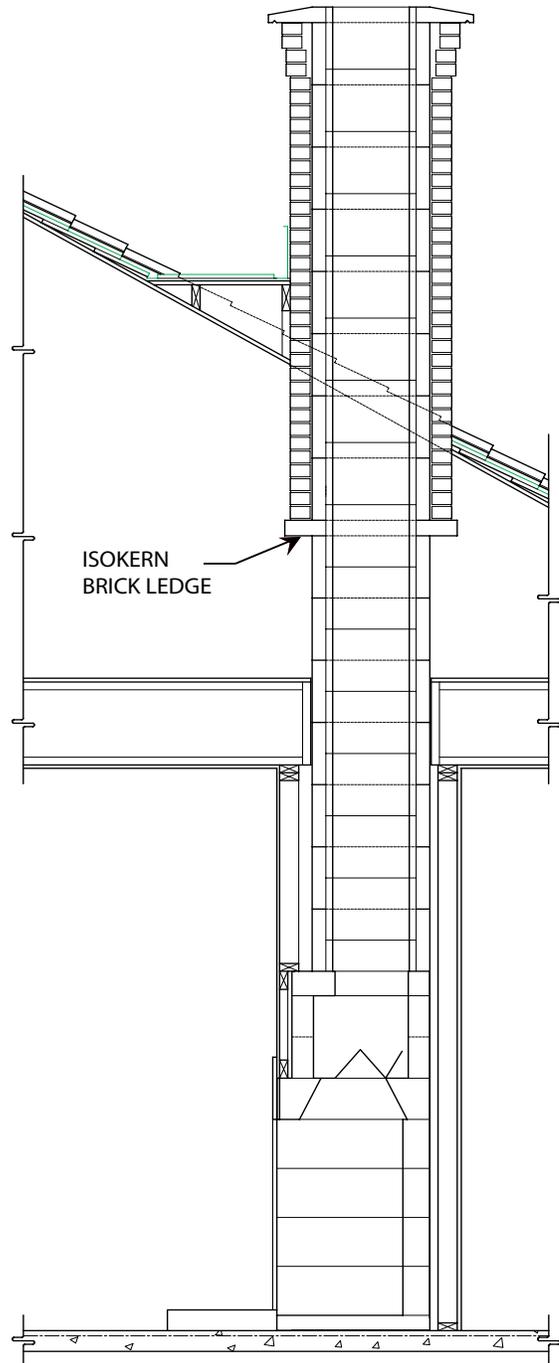
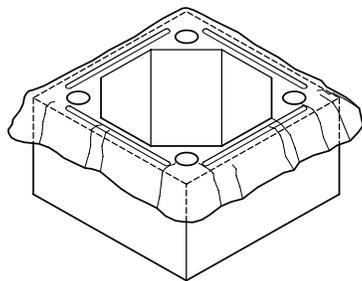


FIGURE 62

DM Chimney System: Flashing & Crown Caps



INNER
FLASHING

FIGURE 63

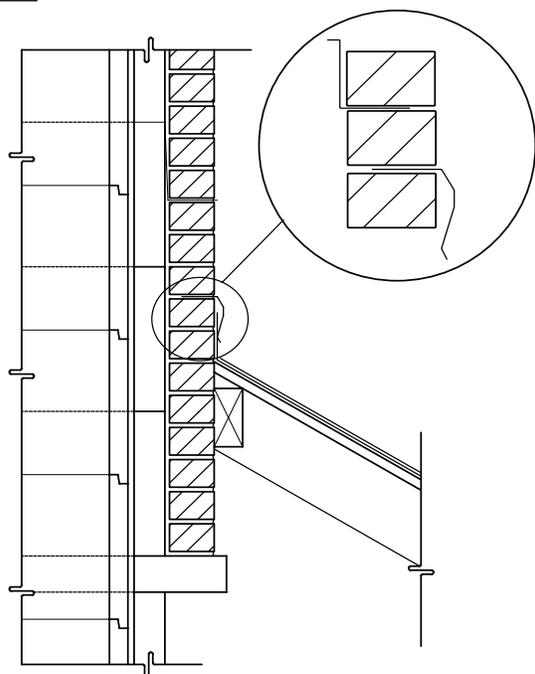
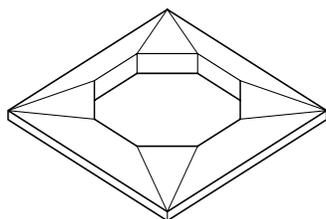
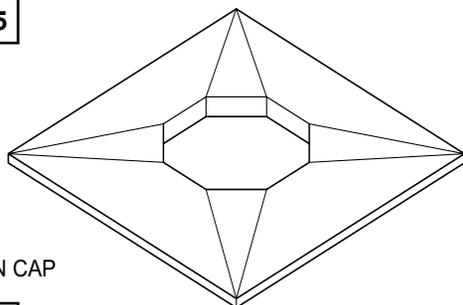


FIGURE 64



SMALL
CROWN CAP

FIGURE 65



LARGE
CROWN CAP

FIGURE 66

Brick ledge Veneer Finish and Flashing Details:

When applying brick, stone or other masonry veneer to the Isokern brick ledge standard good building practices for masonry veneer work should govern weather-proofing details and the placement of flashings.

A typical flashing detail would be to field fabricate an aluminum or galvanized sheet metal flashing, approximately thirty-two inches (32") square with a twenty inch (20") square hole in it, to serve as an inner flashing. (Figure 63)

Place the inner flashing on the first DM outer casing block that fully clears the roof line. Keep the flashing to about a one-half inch (1/2") lap onto the top of the outer casing block. The twenty inch (20") square hole in the flashing should fit to the outside of the alignment grooves on top of the DM outer casing. Continue the DM chimney up to the required termination height.

Once the masonry veneer is in progress the inner flashing is set into a horizontal joint in the veneer at a level above all other roof deck flashings, chimney-to-roof flashings and counter flashings. Weep holes should open to the outer face of the veneer at vertical mortar joints located at the level of the inner flashing. (Figure 64)

Where moisture may develop between the DM outer casing and the chimney veneer, inner flashings as described above will help to divert such moisture to exterior face of the veneer by way of the weep holes and thereby keep such moisture from working its way down between the veneer casing and the DM outer casing and into the interior of the structure below.

DM Small Crown Cap (Figure 65)

The DM small crown cap is a prefabricated cement weather cap that measures 26- 1/2" square and 3" thick. The small crown cap is designed and installed the same as the large crown cap.

The small crown cap is intended for use where DM chimneys are to receive thin veneers and cultured stone that do not require the installation of the Isokern brick ledge. The small crown cap is also suitable where DM chimneys are to receive a stucco finish. Other chimney terminations are possible with DM chimneys. Check local codes for use of custom chimney terminations and decorative shrouds.

DM Large Crown Cap (Figure 66)

The DM large crown cap is a prefabricated cement weather cap for masonry veneer chimneys. The large crown cap measures 37-1/2" square and is 3" thick at its center.

The component has an octagonal hole at its center so that the top inner liner of the DM chimney stack can pass through it. The crown cap then sits on the top most DM outer casing block.

To set the large crown cap the last inner liner should be at least 3" above the last outer casing block in the chimney stack.

Mortar the top of the last outer casing block. Set the large crown cap over the inner liner and onto the top of the last outer casing in the stack.

Caulk or mortar the joint between the octagonal liner and the crown cap where the liner comes through the top surface of the large crown cap.

DM Chimney System: Height Requirements

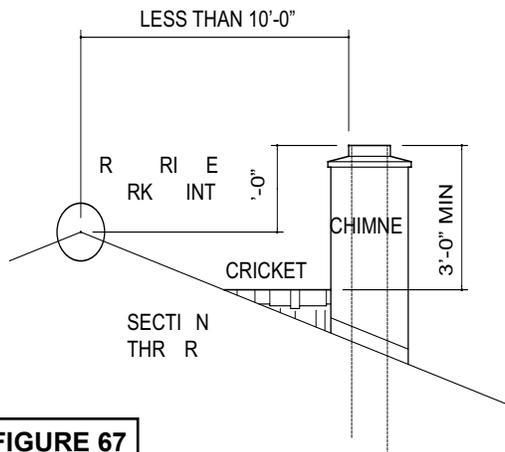


FIGURE 67

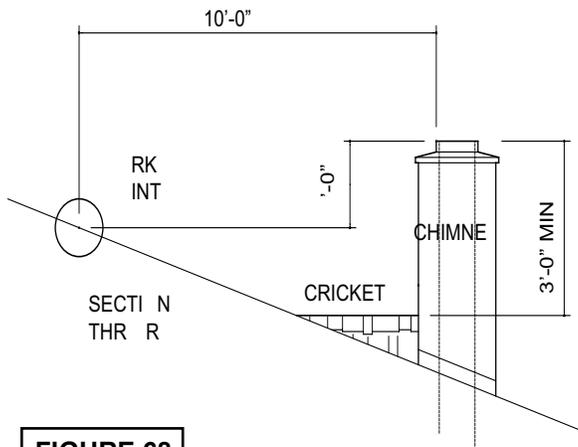


FIGURE 68

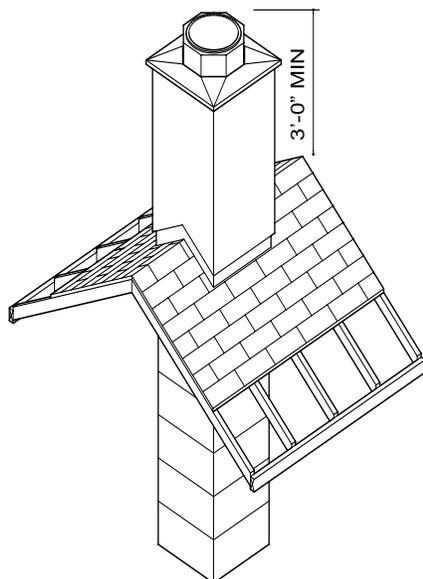


FIGURE 69

Chimney Height Requirement:

The required minimum chimney height above the roof and adjacent walls and buildings is specified by all major building codes and is summed up in what is known as “the 2 foot in 10 foot rule”:

- (1) If the horizontal distance from the roof ridge to the opening of the chimney is less than 10’, the top of the chimney must be at least 2’ above the roof ridge. (Figure 67)
- (2) If the horizontal distance from the opening of the chimney to the roof ridge is more than 10’ then a chimney height “work point” is established on the roof surface 10’ horizontally from the opening of the chimney. The top of the chimney must be at least 2’ above this work point. (Figure 68)
- (3) In all cases, the chimney cannot be less than 3’ above the roof at the edge of the chimney. (Figure 67 & 68)

A simple example of this would be if the roof is flat then the chimney would need to be at least 3’ above the roof surface. Or, if the chimney penetrates the roof at the ridge then the chimney must be at least 3’ above the ridge. (Figure 69)

Note: The “2 foot in 10 foot rule” is necessary in the interest of fire safety but does not ensure smoke-free operation of the fireplace. Trees, buildings, adjoining roof lines, adverse wind conditions, etc. may require a taller chimney for the fireplace to draft properly.

Chase Enclosures: DM chimneys can be enclosed within a wood framed chase at zero clearance to wood framing members. Chase enclosures need to be built to local wind load requirements and shall be structurally independent of the Isokern chimney. As with all chimney installations, avoid overhead obstructions such as trees, power lines, etc.

WARNING: Keep all insulation minimum of three inches (3”) away from all DM chimney components. If insulation is used in walls surrounding the chimney, insulation may be installed behind sheathing of gypsum board, plywood, particle board or other material on the side facing the Isokern material. The facing material cannot be within 1 1/2” to the chimney outer casing. Failure to use manufacture’s provided parts or variations in techniques and construction materials or practices other than those described in this manual may create a fire hazard and void the limited warranty. Do not pack insulation around the fireplace or chimney. Do not insulate the chase cavity with blown or loose-fill type insulation materials.

Chase Top Flashings:

Non-combustible, weather tight chase flashing must be used to cover the top of the chimney chase. Be sure to seal the joint where the DM liner passes through the chase top flashing for positive weather seal. Chase flashings may be supplied by others.

Structural Information

The firebox/smoke dome assembly has a load capacity that allows for the fireplace system to carry a limited amount of straight, vertical DM chimney sections. The load capacity for each model, stated as maximum DM chimney heights without additional structural support, are listed on page 3.

These chimney heights are for straight chimneys (no offsets) and are exclusive of the brick ledge.

Important: DM chimneys taller than the listed maximum heights require a steel angle (minimum of 4" x 4" x 3/8") be set across the firebox opening when assembling the unit as a structural lintel. Consult a structural engineer to design proper structural support.

This steel angle shall span the firebox opening, bearing fully on the front 4 inches of the firebox side wall components. The vertical leg of the angle steel lintel should turn up and sit in front of the damper plate component. (Figure 70)

Important: The application of the steel angle as described above is also required in all fireplace installations where the brick ledge is used.

This required steel lintel placement is in addition to the reinforcing required for DM chimneys with brick ledge as described on pages 36 and 37.

Important: For DM chimneys with both offsets and a brick ledge it is important to fully support the last offset block where the chimney returns to vertical. This is required in order to provide complete vertical support for the brick ledge and its related loads.

Important: When placing steel angles or any other steel support members into the Fireplaces structure maintain a 2" minimum air space around steel members for clearance to combustible members and combustible surfaces.

Wind Load Calculations: Using the required Earthcore Mortar to install the DM chimney system, the maximum height above the roof line of a one story residence with an exposure classification C without additional structural support is:

90 MPH	26'-0"
100 MPH	24'-0"
110 MPH	21'-8"
120 MPH	19'-8"
130 MPH	18'-0"
140 MPH	17'-6"
146 MPH	16'-8"
150 MPH	16'-4"

For two story residences, please call the Technical Department at: 800-642-2920.

Important: The top plate of the firebox is not meant to be used as a structural support of any veneer. Consult a structural engineer for structural support of any veneer bearing weight on the Isokern top plate for additional structural support.

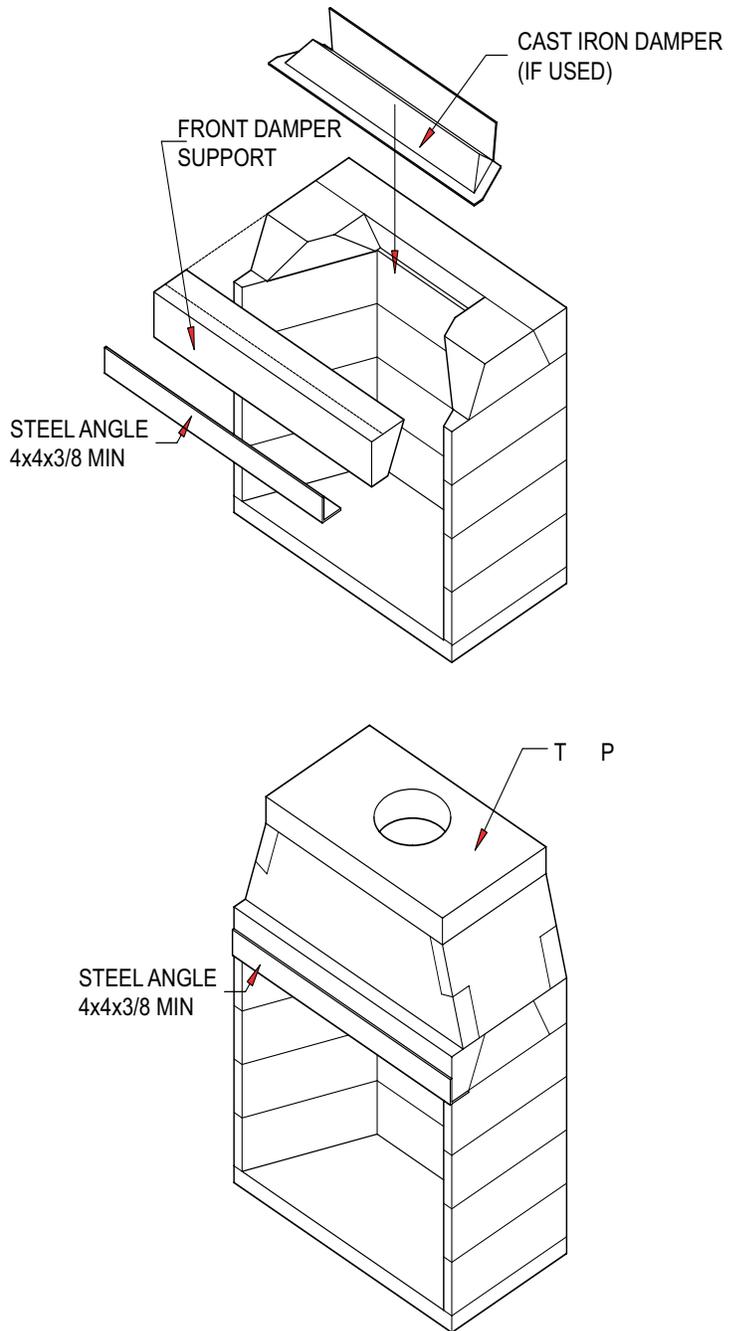
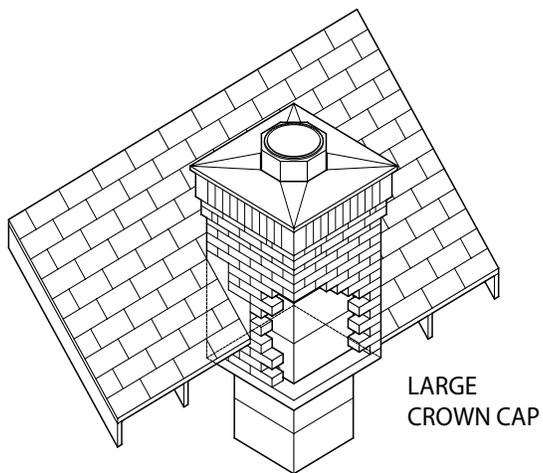


FIGURE 70

Common Chimney Terminations



Two chimney terminations are offered by Isokern, the DM large crown cap and the DM small crown caps. These are cement crown caps designed to provide a weather cap to the DM chimney system. Their design is typical of the cement caps found on traditional masonry chimneys.

Due to owner preference and architectural design criteria other chimney terminations can be used alone or in conjunction with the crown caps. Special design caps may be designed and constructed by others and must be fashioned so as not to restrict the flow of smoke and gasses out the top of the flue opening. Figure 71 depicts some common chimney terminations.

Check with local building codes to establish the need for chimney caps and spark arrestors or for any limitations to their design and use.

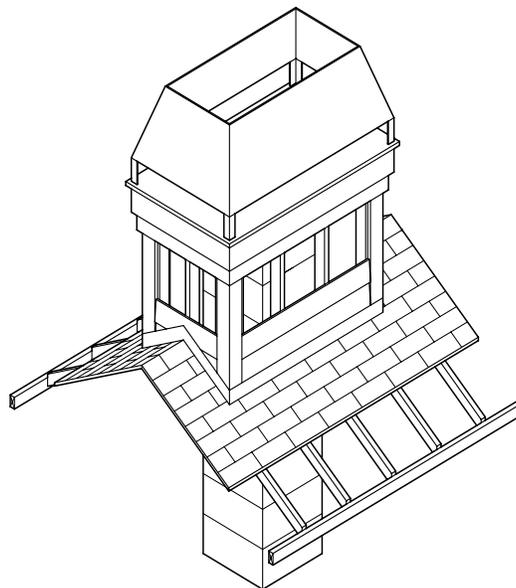
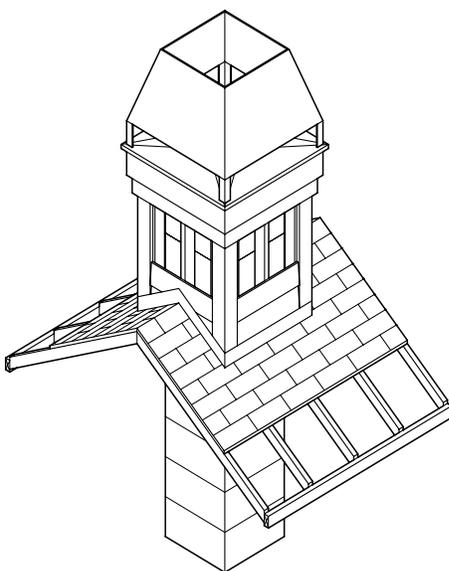
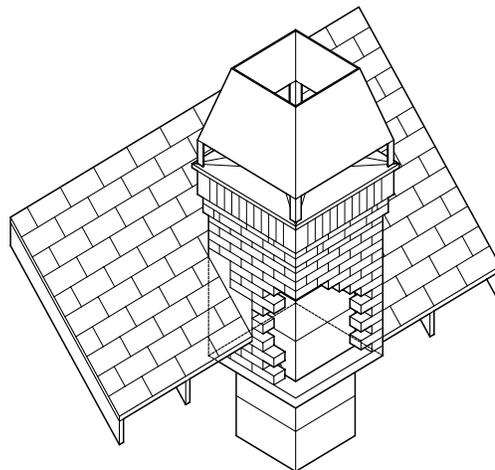
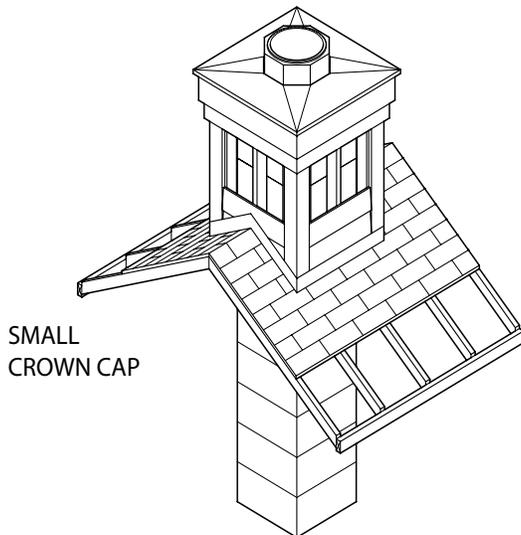


FIGURE 71

Metal Flue

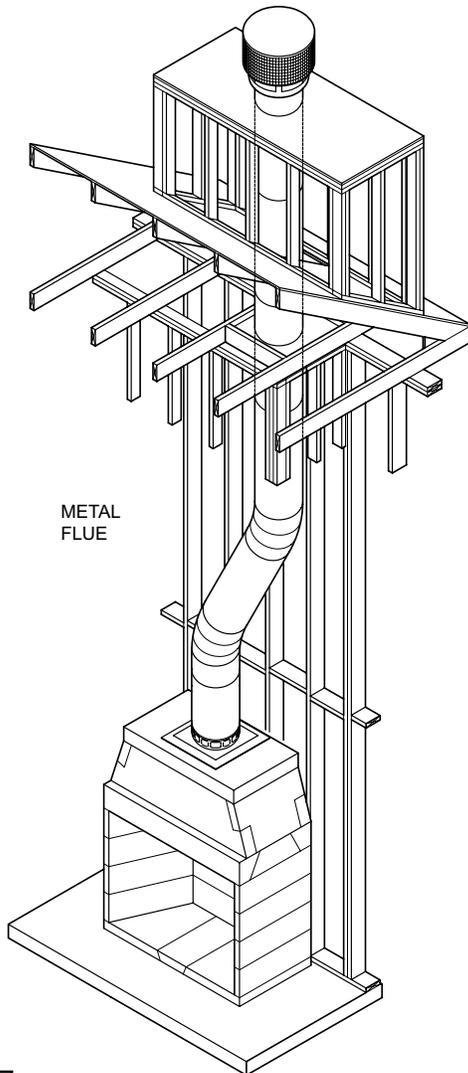
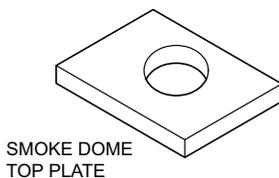
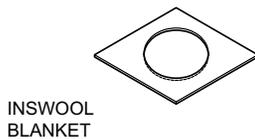


FIGURE 72



FIGURE 73



Fireplaces are tested and listed for use with factory-built metal, Class "A" (solid fuel) chimneys as an option. Any Class "A" or UL 103 listed metal chimney system is acceptable for use on any Isokern system. (Figure 72)

Metal Flue Types:

The selected factory-built metal chimney for use with the fireplaces, at a minimum, must be listed by a recognized agency for solid fuel and as tested to UL 103, for continuous use of one thousand degrees (1000°) Fahrenheit and intermittent use of seventeen hundred degrees (1700°) Fahrenheit.

The factory-built metal flue design can be from the following types:

1. Non-insulated completely thermal siphoning, double-wall, air-cooled solid fuel rated chimneys listed to UL 103, ULC S629.
2. Double-wall with solid-pack insulation.
3. A combination of double-wall, solid-pack insulation and air space (triple-wall).
4. Triple-wall air space solid fuel chimney.
5. Listed chimney liners conforming with the seventeen hundred degree (1700°) Fahrenheit requirements of UL 1777 or ULCS635 or ULC640 may also be used with Isokern fireplaces.

Note:

The selected, approved chimney manufacturer must provide the masonry anchor plate designed to fit their flue system. (Figure 73)

All chimneys and chimney liners must be installed in accordance with the manufacturer's installation instructions and under the terms of their listing for use with open faced fireplaces.

Maximum height of a metal flue system is not required as all the load can be taken off the firebox.

Refer to metal flue manufacturer for number of offsets, approved chimney shrouds, clearance to combustibles and any information specific to that flue system. Earthcore does not manufacture these components and defers to manufacturers instructions.

Specialty Applications - See-Thru

The See-Thru application of the fireplace is built with a fireplace kit, omitting the back walls. To support the smoke dome and chimney, steel angle is required to be installed as described. Note that due to the large opening area of a two-sided fireplace this type of fireplace can be difficult to get to reach and to maintain proper drafting.

Constructing a See -Thru Unit:

1) Set the base plate in place.

Notes: If the design preference is for a “flush hearth” (fireplace floor flush with the room’s floor), the base plate can be omitted from the assembly and the firebox walls built directly on the concrete support slab as long as there are no combustible underpinnings underneath the concrete slab.

Whether a flush hearth is preferred or a raised hearth, the combustible floor on front of the fireplace must be covered with a noncombustible hearth extension set tight against both open sides of the fireplace and extending at least 20 inches out from the fireplace opening and at least 12 inches beyond the finished sides of the fireplace opening.

2) The firebox back wall components are not used. The firebox side walls are set, reversed from their normal position, their flared faces set to the outside of the firebox. (Figure 74)

The firebox side walls must sit a full 3” on the front & rear of the base plate. Since the side wall components flair from 3” at the narrow front end to 8” on the wide rear end, the side walls will overhang the base plate by approximately 5” at the rear of the unit. (Figure 76)

3) Once the side wall assembly is complete it is necessary to place a steel angle minimum 4”x 4”x 3/8” across each face of the two sided opening before building the smoke dome assembly. Notch the ends of each sidewall equal to the thickness of the steel as shown. Each end of the steel angles must bear fully at least 3” onto the side wall assembly. (Figure 74)

4) Since there is no back wall assembly and no side wall ledge for placement of a cast iron throat damper, the smoke dome for the See-Thru fireplace is built by placing one long damper beam on top of the firebox back wall and flush with it; the other long damper beam sits flush with the front of the Isokern Standard firebox, spanning the firebox opening.

These components both sit on their narrow base so that their beveled face points down and into the firebox interior.

5) The damper plate end pieces are designed to sit on the firebox side wall between the front and back long damper beams. Place the vertical face of each piece 1-1/2” to the inside of the inside sidewall of the firebox. This will allow the fire brick to align flush with the damper end pieces. (Figure 75)

6) Once the smoke dome assembly is built and the DM chimney is installed, a chimney top damper is set at the top of the flue or a bottom mount damper is installed to the inside of the top plate.

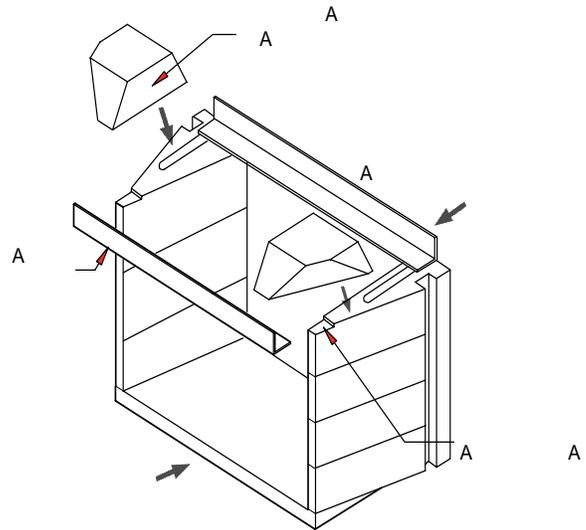


FIGURE 74

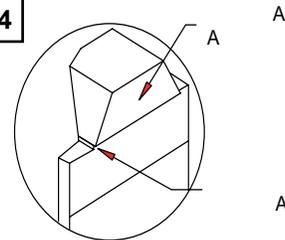


FIGURE 75

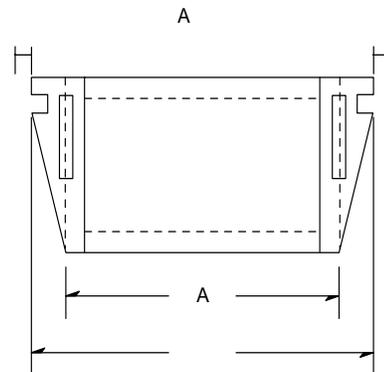


FIGURE 76



Specialty Applications - Two Story Stacked Installations

General Information:

To install one Fireplace and DM chimney system above one another, as in a two story stacked installation, both the upper and lower fireplace installations require a structurally designed support down to footings designed by a structural engineer.

Frequently in two story stacked installations the lower unit is supported by a slab-on-grade, whereas the upper unit is a typical off-grade support. The off-grade slab for the upper unit must be built with sufficient width in order to accommodate the width of the upper fireplace plus the width of the by-passing chimney system rising from the lower unit. (Figure 77)

Dimensions for each fireplace unit can be found on the website at: www.earthcore.co.

The slab for the lower unit will need to be built with enough width to provide support for the lower fireplace unit plus the bearing surface for the support columns needed to carry the offset chimney sequence of the lower system. (Figure 77)

Floor-to-Floor Height Considerations:

In order for the lower fireplace installation to have enough overhead height clearance for its chimney to rise at a thirty degree (30°) angle of offset (maximum angle of offset as allowed by code) and bypass to one side of the firebox in the upper location there are minimum required floor-to-floor height dimensions. (See chart, page 45 - Dimension "F")

The minimum floor-to-floor height required for an installation is determined by calculating the total horizontal distance the lower flue must travel to the left or right for it to bypass to one side of the upper fireplace. (see calculating offsets on pages 34 & 35)

The total amount of horizontal chimney offset travel distance will be determined by two factors:

1. The width dimension of the upper unit; and
2. The horizontal distance between centerlines of the proposed upper and lower units.

Example:

If the upper fireplace and the lower fireplace sit on the same centerline then the required floor-to-floor dimension is at a maximum (See Figure 78 and chart, page 45 dimension, column "F".)

For every 3" of horizontal distance separating the centerlines of the upper and lower units the overall height of the offset sequence is reduced by one offset block or by 6".

Notes:

A raised hearth at the lower fireplace will increase the minimum floor-to-floor height requirement by the height dimension of the raised hearth.

In the interest of clarity the drawing on pages 44 and 45, (Figures 77 & 78) of the offset chimney sequence does not show the offset block support columns as required for offset sequences and as described on pages 33 & 34 of this manual.

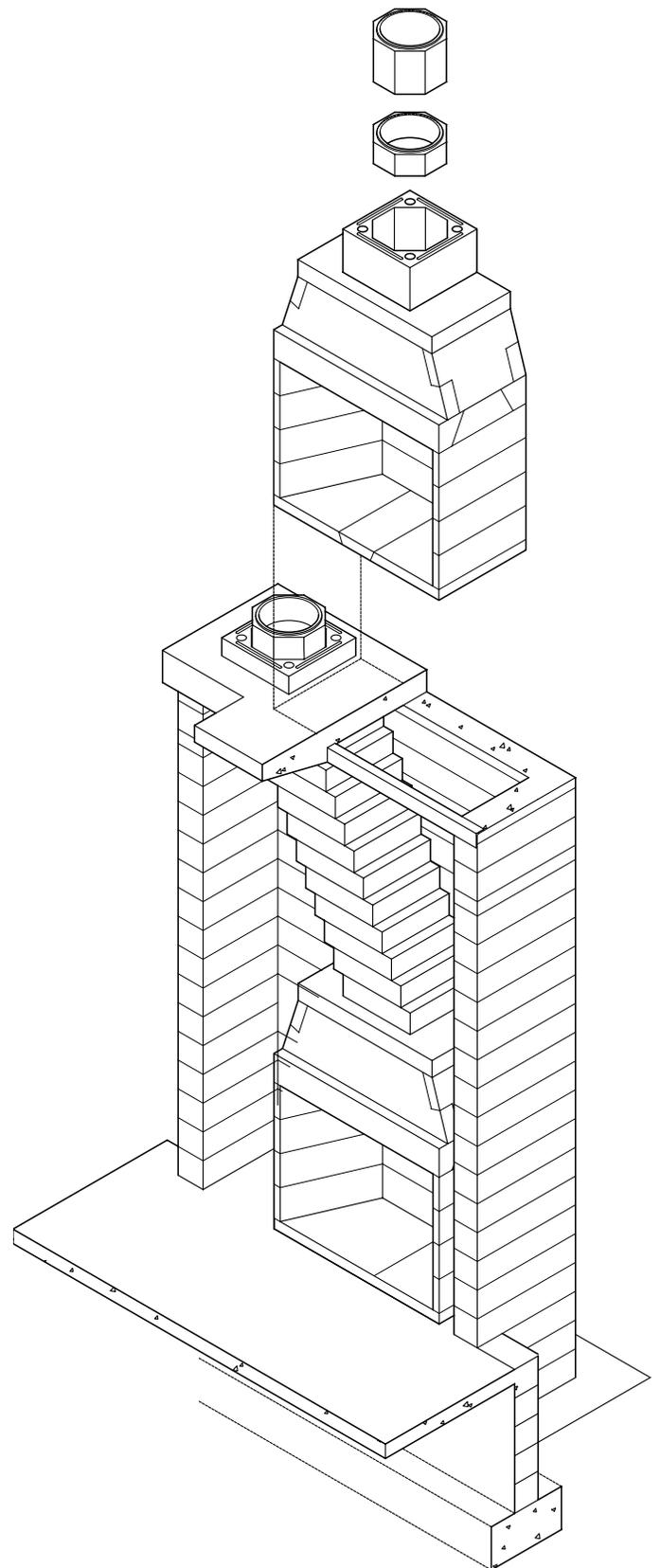


FIGURE 77

Specialty Applications - Two Story Stacked Installations (cont.)

The following chart gives important dimensions needed when laying out two story stacked fireplace units. Chart dimensions assume that both the upper and lower fireplace units sit on the same centerline.

Note: Widths of both Isokern Standard and Magnum fireplaces are the same. Only the depth of the firebox and the height of the finished opening differ.

Upper/Lower	A	B	C	D	E	F
36/36	43	51	30	81	70	142
36/42	43	51	33	84	70	142
36/48	43	51	35	86	70	142
42/36	49	54	33	87	70	148
42/42	49	54	33	87	70	148
42/48	49	54	35	89	70	148
48/36	53	56	35	91	70	149
48/42	53	56	35	91	70	149
48/48	53	56	35	91	70	149

Chart Dimension Description: (Figure 78)

“A” is the outside width dimension of the Fireplace model chosen for the upper unit.

“B” dimension represents distance (taken in the direction of the chimney offset) from the centerline of the lower fireplace to the outside face of the eight inch (8”) thick bearing wall underpinning the upper unit’s floor system.

“C” dimension is the distance (taken away from the direction of the chimney offset) from the centerline of the lower or the upper fireplace, whichever is the larger plus eight inches (8”) to the outside of the eight inch (8”) thick bearing wall for the upper unit’s support slab.

“D” is the outside-to-outside dimension of the two eight inch (8”) thick bearing walls underpinning the upper unit’s support slab. “D” is also the width of the upper unit’s support slab and includes the additional space for the width of the DM chimney as it bypasses the upper unit. “D” is also the sum of “B” plus “C”.

“E” is the height of the Fireplaces chosen for the lower unit and includes the Isokern three inch thick base plate.

“F” is the dimension from the top of the support slab of the lower unit to the top of the floor of the upper unit.

Notes:

If raised hearths are planned for the lower unit then “F” dimension will increase by the height of the raised hearth at the lower unit.

In the interest of clarity the drawings on page 44 and 45 (Figures 77 & 78) of the offset chimney sequence do not show the offset block support columns as required for offset sequences. See pages 33 & 34 for complete offset support instructions.

Consult local structural engineer for support slab load calculations.

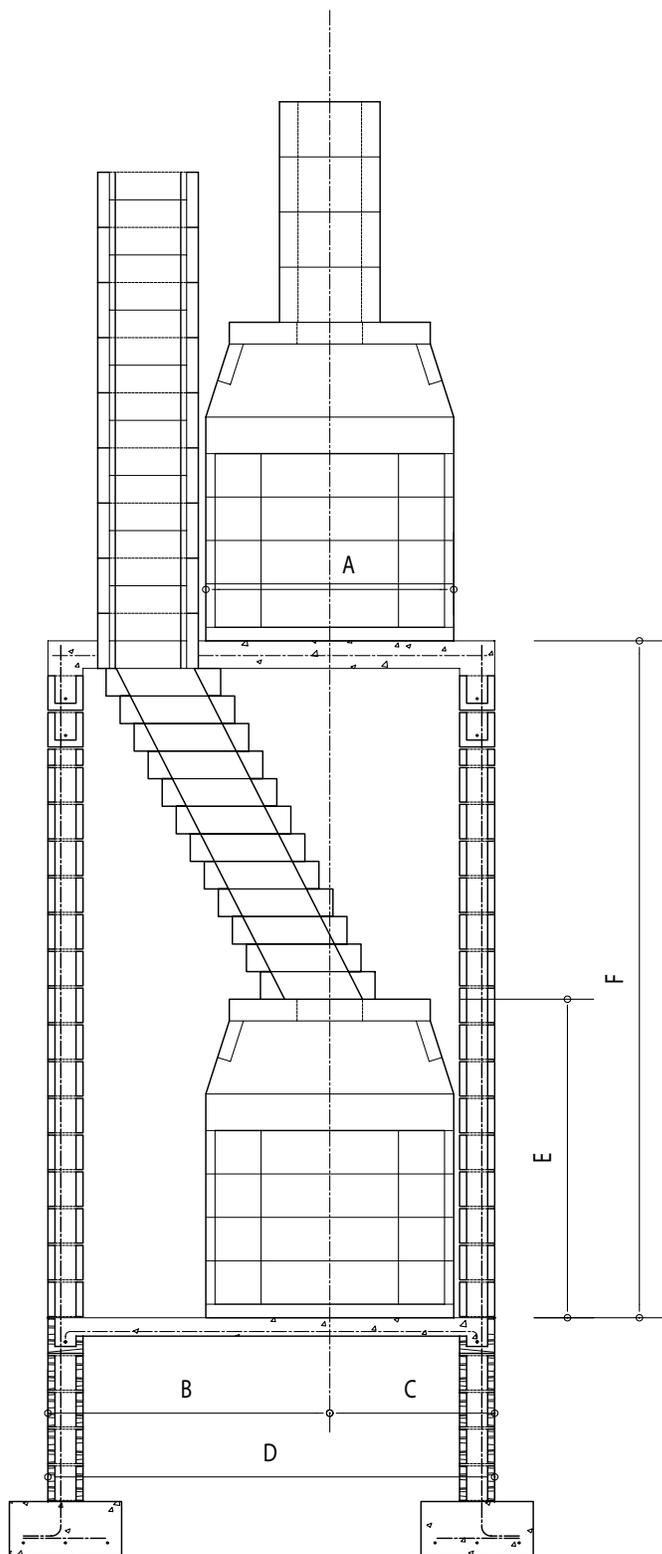


FIGURE 78

Fire-Lite Application - General Information

General Information:

The Fire-Lite is an application of the Isokern Standard and Magnum fireplaces designed, tested and listed with the ability to be installed on a combustible floor system. The design and installation require that the system use Class A metal flue, or equivalent. The Fire-Lite assembled unit must sit on a raised, noncombustible platform allowing a minimum 4" air space between the Isokern base plate and the combustible floor.

Many of the requirements for the Fire-Lite such as fire brick installation, safety precautions and installation instructions for the Isokern Standard and Magnum fireplaces will apply and are referred to in previous pages of this manual. Refer to those instructions for additional information.

The following pages will refer to installation requirements specific to the Fire-Lite system.

Intended Use Statement:

The Fire-Lite fireplace is designed to sit on a combustible floor system and is intended to burn solid wood fuel, propane or natural gas. The fireplace is intended for use as a supplemental heat source only and is not intended for heavy use as a primary heating system.

Notes:

The local authority having code jurisdiction should be consulted before installation to determine the need to obtain a permit. Refer to page 4 of this manual for areas of concern.

Do not scale drawings. Illustrations in this manual are not to scale and are intended to show "typical" installations. Nominal dimensions are given for design and framing reference only, since actual installations may vary due to job specific design preferences. Always maintain the stated minimum clearances to combustible materials. Do not violate any specific installation requirements.

The Fire-Lite has been tested and listed by Warnock Hersey (Report Nos. J20004277-231 and 632-912500) to UL 127-1999. These units are intended for installation in residential homes, and other buildings of conventional construction.

Fire-Lite fireplace systems are also designed for installation in accordance with the National Fire Protection Association Standard for chimneys, fireplaces, vents and Solid Fuel-Burning Appliances (NFPA 211).

Though any Class A or UL 103 metal chimney can be installed with a Fire-Lite, the following installation instructions refer to the FTF-13 chimney system. If an equivalent metal chimney system is used, follow the metal flue manufacturer's explicit installation instructions.

Safety Instructions:

Because the Fire-Lite is an application of the Magnum or Isokern Standard Series fireplaces, the safety instructions are listed on pages 5 & 6 of this manual. Please refer to them and read them carefully before installing your Fire-Lite system.

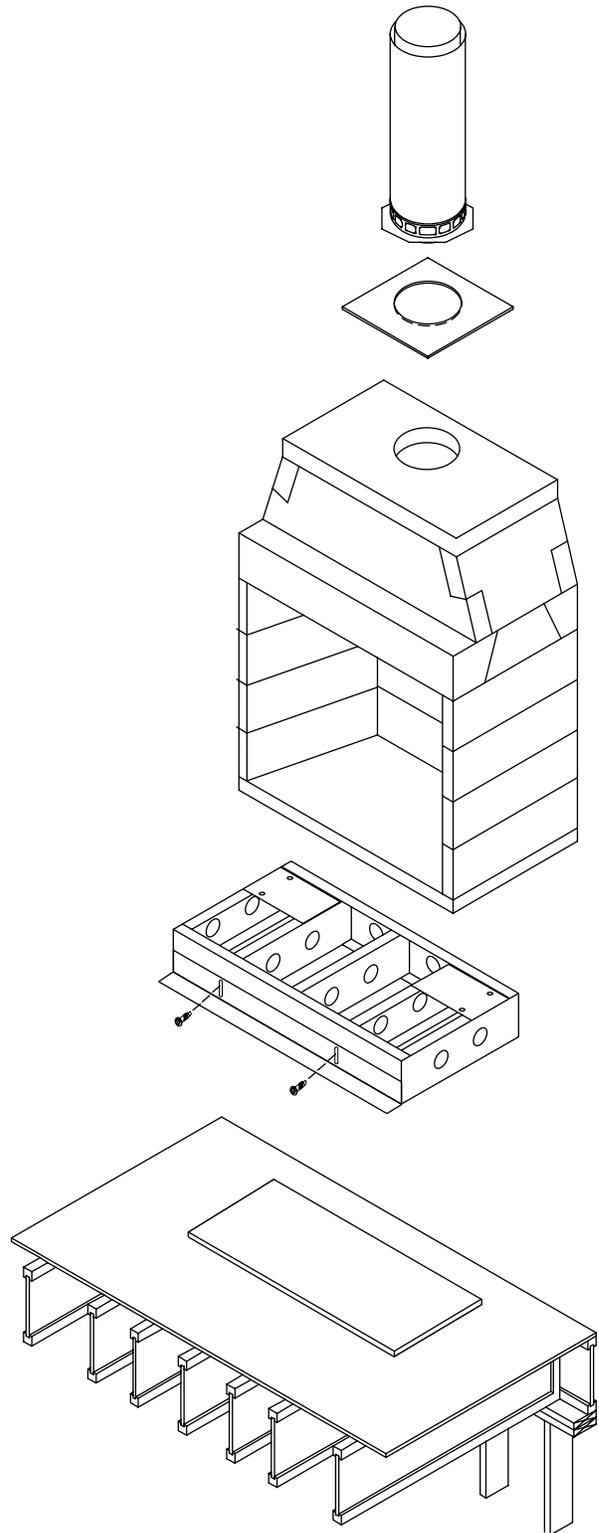


FIGURE 79

Fire-Lite Application - Required Clearance To Combustibles

The Fire-Lite is tested and listed for installation with "clearance to combustibles" as follows:

- 1) Four inches (4") clearance to the combustible floor.
- 2) Zero inch (0") clearance at the Isokern smoke dome front wall (Figure 77).
- 3) One and one half inches (1-1/2") clearance at the Isokern firebox back walls and side walls.
- 4) Two inches (2") minimum air space to combustibles at all FTF-13 metal chimney components' outer layer.

Important: "Combustibles" are defined as "normal construction materials" and are considered to be: wood framing materials, particle board, mill board, plywood sub-flooring, plywood paneling and wood flooring. Sheathing materials, such as plywood, particle board and drywall may cover the smoke dome front at zero inch (0") clearance. All combustible sheathing materials must be held eight inches (8") away from the sides of the firebox opening and eight inches (8") above the top of the firebox opening.

The firebox backwall, side walls and the smoke dome back require 1 1/2" clearance. (Figures 80 & 81)

Keep all insulation, vapor barriers, "house wrap" paper and other insulating type membranes and products, including fiberglass, cellulose and other insulation, (anything that carries an "R" rating) a minimum of three inches (3") away from all firebox and chimney surfaces.

Exception: If insulation is used in walls surrounding the fireplace, insulation may be installed behind sheathing of gypsum board, plywood, particle board or other material on the side facing the Isokern. (Figure 81)

The sheathing material holding back the insulation cannot be closer than 1 1/2" to the fireplace sidewalls, backwall or chimney system. (Figure 83)

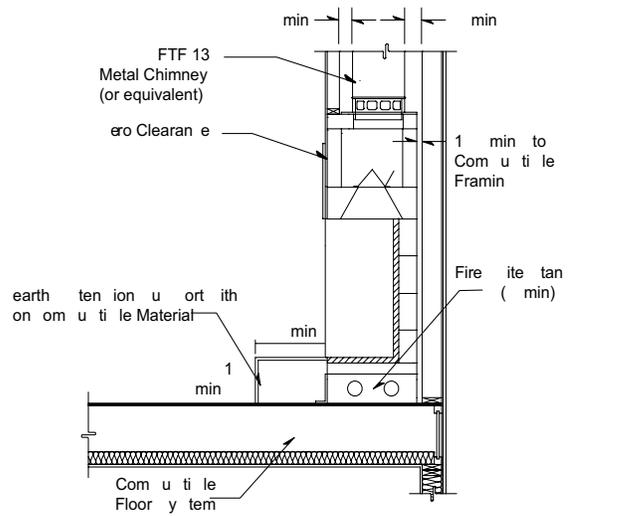
When Fireplace installations are surrounded by walls that are to be insulated, the walls must have enough clearance to the Isokern unit in order to maintain the three inch (3") minimum clearance to insulation for unsupported insulation. **Never spray the Fireplace or chimney system with any type of sealer, insulation or other material.**

Notes:

The Fire-Lite Application is designed, tested and approved for installation at a minimum of four inches (4") above combustible floor systems per the installation specifications given in this manual.

All portions of the combustible floor system under the Fire-Lite stand are to be covered with minimum 1/2" thick ceramic fiber inswool or equivalent rated to 2100 degrees Fahrenheit (Figure 79).

All Fire-Lite Series result in the finished fire brick floor of the firebox being at least eight inches (8 1/2")* above the combustible floor system (Figure 80).



This height may vary a e on the fire ri ue
FIGURE 80

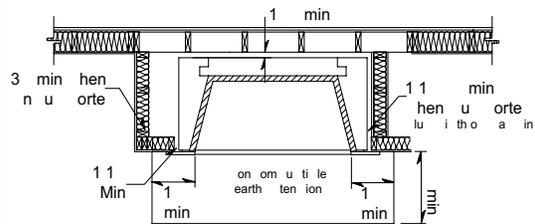


FIGURE 81

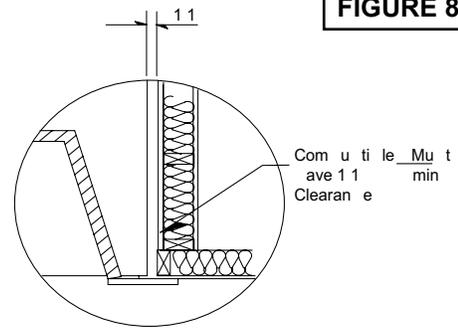


FIGURE 82

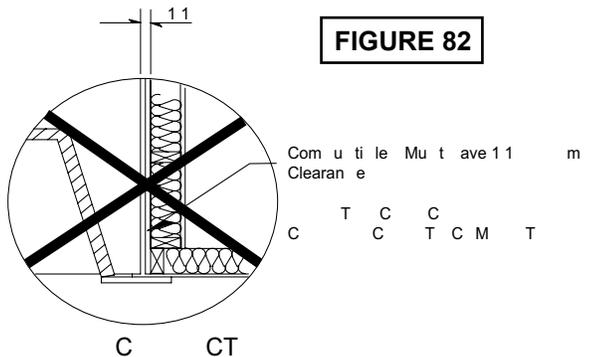


FIGURE 83

Fire-Lite Application - Load Calculations

Floor framing for a Fire-Lite installation will need to be designed and built to accept substantial dead loads spread over a relatively small floor area.

The following weights and sizes can be used to calculate Fire-Lite loading. Consult with local structural engineer for proper sizing of structural floor frame members for specific installations.

Load Calculations:

Total dead load amounts include (but are not necessarily limited to) the following items and their corresponding weight estimates listed below:

1. Fire-Lite unit model weights:

MFP = Magnum Series - SFP = Isokern Standard Series

- a. Model 36 MFP: 1300 lbs. - 36 SFP: 1205 lbs.
- b. Model 42 MFP: 1420 lbs. - 42 SFP: 1325 lbs.
- c. Model 48 MFP: 1600 lbs. - 46 SFP: 1450 lbs.

2. Damper, fire brick and mortar: 450 - 500 lbs.

3. Raised platform: 40 lbs.

4. Fireplace finished facing: approx. 200 lbs.
(dependant on facing used)

5. Weight of metal flue: negligible

By adding the weight of the appropriate Fire-Lite Model listed in #1 above to the allowance given for each item in 2 through 5, above, the total weight of the Fire-Lite Series can be estimated.

The floor area for each model is as follows:

Magnum:

Model 28 FP @ 35.5" x 28" = 6.90 sq.ft.

Model 36 FP @ 43" x 28" = 8.36 sq.ft.

Model 42 FP @ 49" x 28" = 9.52 sq.ft.

Model 48 FP @ 53" x 28" = 10.3 sq.ft.

Isokern Standard:

Model 36 FP @ 43" x 25.25" = 7.54 sq.ft.

Model 42 FP @ 49" x 25.25" = 8.59 sq.ft.

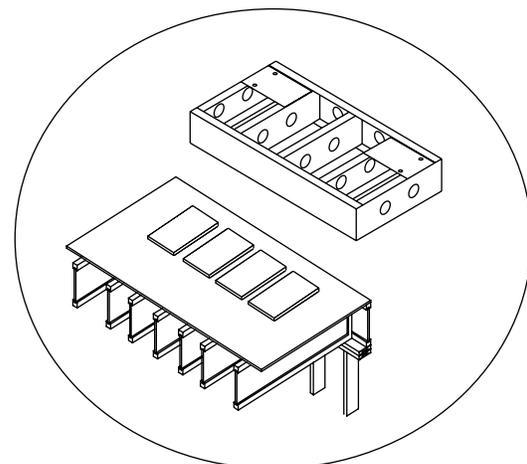
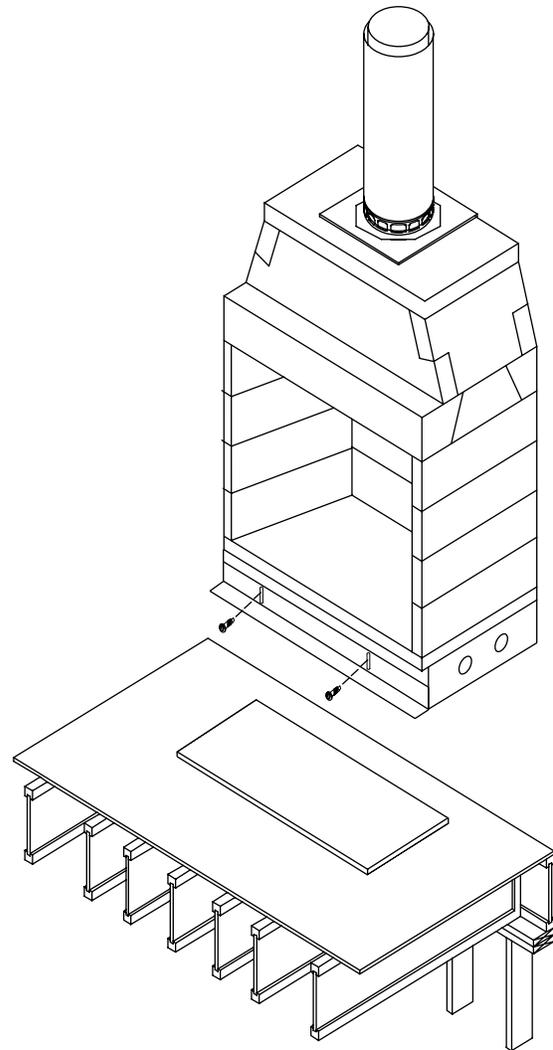
Model 48 FP @ 53" x 25.25" = 9.29 sq.ft.

Notes:

These dead load totals are in addition to the live load and other dead load requirements for the specific site's proposed floor.

The load estimates given above for items are estimates only and may not accurately define total loads related to the completed fireplace due to material choices that are at owner option. Consult your local structural engineer for proper floor system design, sizing and specifications.

Isokern is not responsible for structural floor support details for the Fire-Lite fireplace. Unless otherwise noted all floor framing drawings in this manual are merely illustrations to indicate the presence of an underlying floor system.



Use of Insboard cut out underneath the Fire-Lite stand is still an accepted installation practice.

FIGURE 84

Magnum Series Shown for Illustration Purposes Only

Fire-Lite Application - Hearth Conditions

The noncombustible raised platform must be set with a minimum one and one half inch (1-1/2") clearance to the wall to the sides and directly behind the Fire-Lite assembly.

Raised Platform:

Nominal four inch (4") metal base. (Figure 85). Set the Fire-Lite base plate in a mortar bed on to the non-combustible raised platform.

Metal safety strip - a metal angle is attached to the Fire-Lite stand when shipped. This angle is to be removed before installation, turned over and re-attached to the metal stand so that the 2" lip faces forward of the metal stands. This creates a metal safety strip and can be adjusted to ensure your metal stand, set on top of the inswool will be level. The safety strip must extend out from the front of the raised platform at least two inches (2") (Figure 85).

The exposed combustible floor underneath the noncombustible raised platform must be completely covered with Inswool ceramic fiber insulation (Figure 84). The Inswool is dry laid to the floor within the block perimeter.

The ceramic fiber must have a thermal conductivity rating equal to or greater than 0.4 Btu-in/hrsq. ft-degree Fahrenheit. (Reference: Harbison-Walker, 600 Grant St., Pittsburgh, PA 15219, ph. 412-562-6200: "Insboard 2100" or equivalent.)

Fire Brick Installation: Follow instructions on page 19 of this manual.

Recessed Fire-Lite:

If the design preference is for a flush hearth Fire-Lite application (floor of the fireplace at the same level the room's floor), with advanced planning, the metal stand can be lowered, set and attached to the joist system. (Figure 86)

NOTE: For seismic anchorage design and instructions of the flush hearth application, please contact the Technical Department at 1-800-642-2920.

When calculating flush hearth height be sure to allow for the four or eight inch (4" or 8") metal stand, three inch (3") thick base plate plus the one and one half inch (1-1/2") thick fire brick floor.

Whether a flush hearth is preferred or a raised hearth, the combustible floor in front of the fireplace must be covered with a noncombustible hearth extension set tight against the fireplace front and extending at least 20 inches out from the finished fireplace and at least 12 inches beyond the finished sides of the fireplace opening.

For all "Fire-Lite" construction, it is necessary to use the base plate. Be sure to secure the Fire-Lite metal stand to the floor framing system, then mortar the base plate to the metal stand for stability.

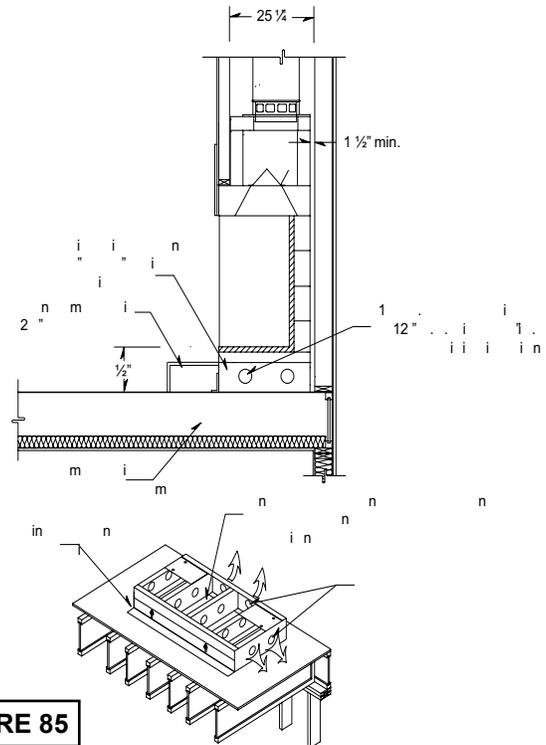


FIGURE 85

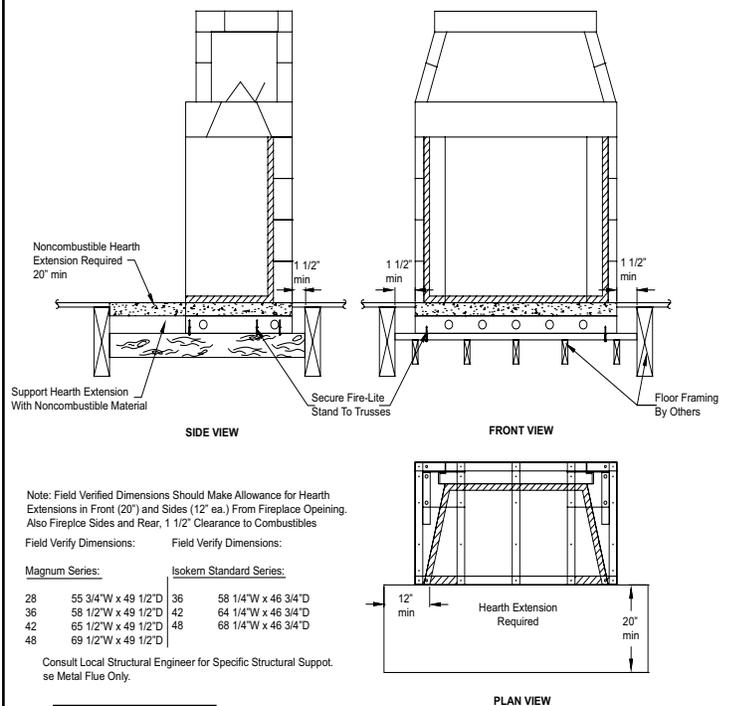
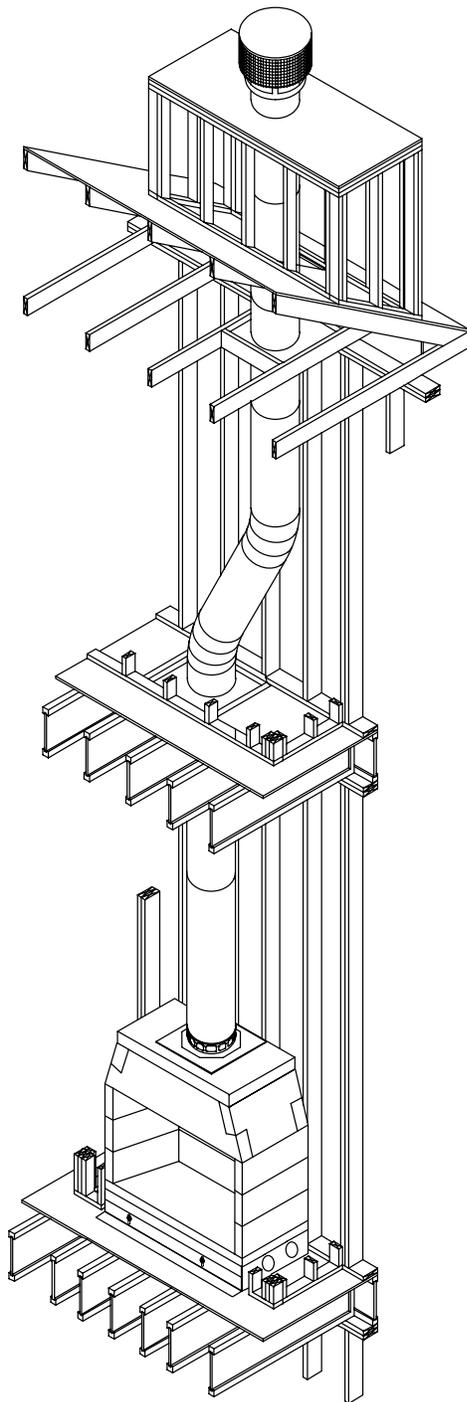


FIGURE 86

FTF-13 or Equivalent Chimney System



Revised: 2013-02-13

FIGURE 87

The Fire-Lite is designed, tested and listed for use with UL 103 or Class A metal chimney system, or equal.

Do not modify or alter metal flue or metal flue components as this could result in an unsafe and potentially dangerous installation that may cause a serious hazard and void the listings, approvals and the limited warranty of the system.

The following installation instructions refer to FTF-13 chimney system. If “equal” metal chimney systems are used, follow the metal flue manufacturer’s explicit installation instructions.

General Information:

This chimney system is designed for installation in accordance with the National Fire Protection Standard for chimneys and solid fuel burning appliances, NFPA 211 and in accordance with codes such as BOCA Basic/National codes, the Standard Mechanical Code and the Uniform Building Codes.

Note: Illustrations shown reflect “typical” installations with nominal dimensions and are for design and framing reference only. Actual installations may vary due to individual design preferences. However, always maintain minimum required clearances to combustible materials and do not violate any specific installation requirements.

WARNING: Failure to use manufacture’s provided parts, variations in techniques and construction materials or practices other than those described in this or the manufacturers manual may create a fire hazard and void the limited warranty.

Chimney Clearance Requirements:

The FTF-13 chimney’s outer layer requires a minimum two inch (2”) air space to combustibles.

The chimney system must be enclosed when installed in or passing through a living area where combustibles or people may come in contact with it. This is important to prevent possible personal injury or fire hazard.

The FTF-13 chimney’s fire stop spacer and roof flashing (not chase flashings) may be placed directly on or against normal construction materials.

Note: “Normal construction materials” are considered to be: framing materials, particle board, mill board, plywood, paneling, flooring, and drywall.

Chimney Height Requirements:

Refer to flue manufacturer for chimney height requirements and recommendations.

FTF-13 or Equivalent Chimney System (cont.)

Installation of the FTF-13 Metal Chimney System for the Isokern Fire-Lite:

Transition from the Isokern to the FTF-13 Metal Chimney System:

The FTF-13 metal flue attaches to the smoke dome's top plate by use of the AP-ISO masonry anchor plate. The Anchor Plate is fitted with an octagonal base plate to affix it to the smoke dome's top plate. The anchor plate also has starter rings for both the inner and the outer sleeves of the metal flue (Figure 89).

Step 1. Lay a twenty-four inch (24") square, half inch (1/2") thick (minimum) piece of ceramic fiber high temperature blanket ("Inswool" Ceramic Fiber HP Blanket, rated for temperatures up to 2400 degrees F., or equal.) on the top of the top plate. Cut a hole approximately 11" in diameter in the center of the high temperature blanket and align the blanket on the flue hole in the top plate (Figure 89).

Step 2. Fit the AP-ISO Anchor Plate assembly onto the Inswool so that the inner flue sleeve projecting out the bottom of the anchor plate is inserted through the high temperature blanket and into the hole in the top plate. The high temperature blanket is held between the anchor plate and the top plate as a gasket (Figure 89). Attach Anchor Plate to the top plate with masonry attachment screws through holes provided in the anchor plate into the top plate. Do not over torque masonry screws into the Isokern material. (Figure 90)

Chimney Terminations:

FTF-13 chimney pipe requires a termination component to be installed at or near the top of the chimney chase flashing.

The FTF-13-CTD Round Termination is the recommended termination. (See page 52)

Installation:

- Step 1. Hold the FTF-13-CTD over top of last chimney section.
- Step 2. Center inner slip section in inner flue pipe and slip down.
- Step 3. Center outer locking section over outer flue pipe. Push down until locking tabs are firmly engaged.
- Step 4. Pull up slightly on CTD to ensure locking joint has firmly engaged.

Note: It is recommended that all exterior exposed metal chimney components - such as terminations, flashings, and flue - be painted with a premium quality, high temperature, rust preventative paint designed for metal. This is especially important when installations are made in abnormally adverse or corrosive environments such as near lakes and oceans or, in areas with consistently high humidity conditions. Consult the paint manufacturer's instructions for proper preparation and application.

Chimney Height Requirements:

Refer to page 39 of this manual.

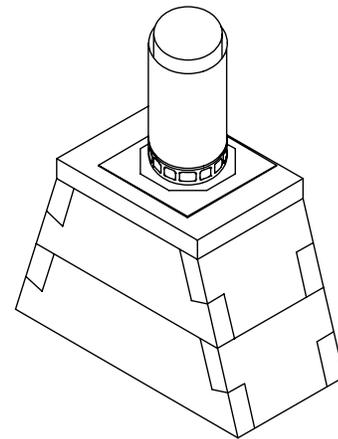


FIGURE 88

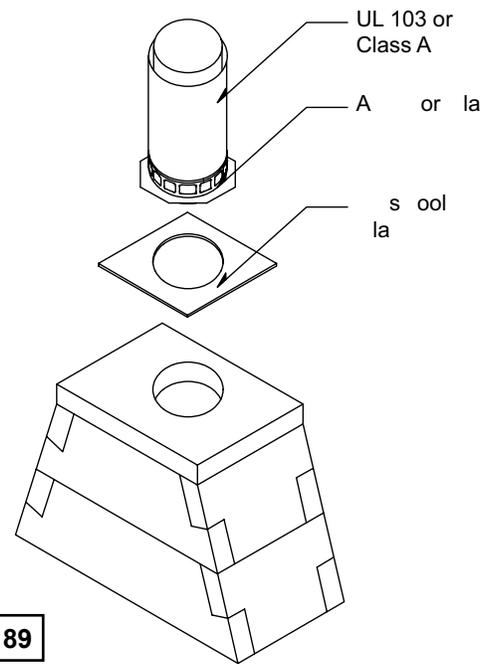


FIGURE 89

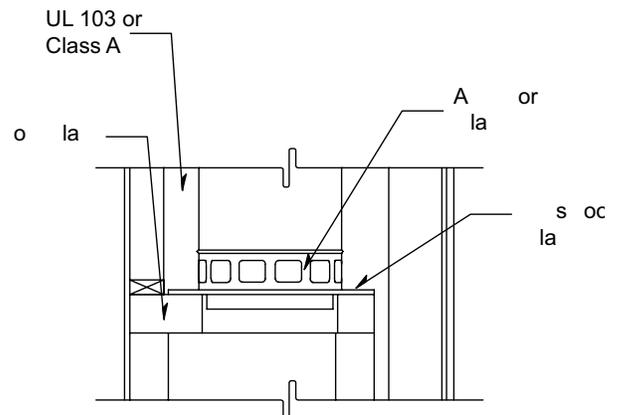


FIGURE 90

FTF-13 Installation Components



36" CHIMNEY SECTION



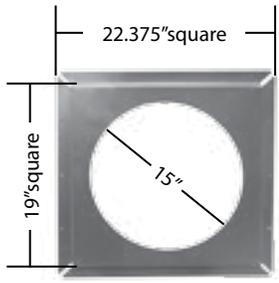
18" CHIMNEY SECTION



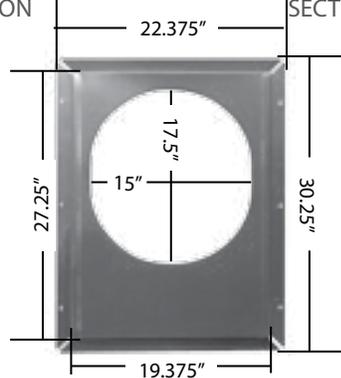
12" CHIMNEY SECTION



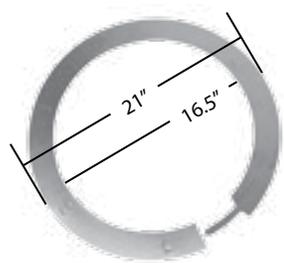
CTD ROUND TERMINATION



FIRESTOP



30 DEGREE FIRESTOP



STORM COLLAR



30 DEGREE OFFSET



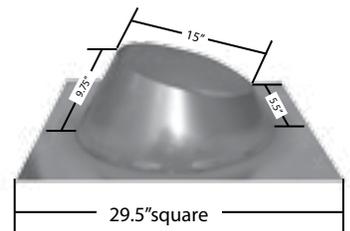
15 DEGREE OFFSET



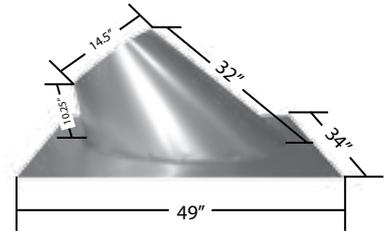
STABILIZER



ANCHOR PLATE



0 TO 6/12 FLASHING



6/12 TO 12/12 FLASHING

FTF-13 Offset Elevation Chart

A Offset Inches	B Height Inches	FTF-13-ES30 Offset/Return Elbow Set	FTF-13-S4 Stabilizer	Number of FTF-13 Chimney Section		
				12"	18"	36"
4	15 3/4	1	0	0	0	0
9	24 1/2	1	0	1	0	0
12	29 3/4	1	0	0	1	0
14 1/4	33 1/2	1	0	2	0	0
17 1/4	38 1/2	1	0	1	1	0
20 1/4	43 3/4	1	0	0	2	0
21	45 1/4	1	0	0	0	1
22 1/4	47 1/2	1	0	2	1	0
25 1/4	52 1/2	1	0	1	2	0
26 1/4	54 1/4	1	0	1	0	1
28 1/4	57 3/4	1	0	0	3	0
29 1/4	59 1/4	1	0	0	1	1
31 1/4	63	1	0	2	0	1
21 1/2	65	1	0	4	1	0
34 1/4	68 1/4	1	0	1	1	1
36 1/4	71 3/4	1	0	3	0	1
37 1/4	73 1/4	1	0	0	2	1
38 1/4	75	1	0	0	0	2
39 1/4	77	1	0	2	1	1
41 1/2	80 1/2	1	0	1	4	0
43 1/4	83 3/4	1	0	1	0	2
44 1/2	85 3/4	1	0	3	1	1
45 1/4	87 1/2	1	0	0	3	1
46 1/4	89	1	0	0	1	2
48 1/4	91 1/2	1	0	2	0	2
49 1/2	94 1/2	1	0	1	5	0
51 1/4	97 3/4	1	0	1	1	2
54 1/4	103	1	0	0	2	2
55 1/4	104 1/2	1	0	0	0	3
56 1/2	106 1/2	1	0	2	1	2
59 1/2	111 3/4	1	0	1	2	2
61 3/4	116	1	1	1	0	3
64 3/4	121 1/4	1	1	0	1	3
67	124 3/4	1	1	2	0	3
69	127 3/4	1	1	1	3	2
70	130	1	1	1	1	3
73	135 1/4	1	1	0	2	3
75	138 3/4	1	1	2	1	3
79	145 1/2	1	1	1	0	4
80 1/4	147 1/2	1	1	3	1	3
82	150 3/4	1	1	0	1	4
87	159 1/2	1	1	1	1	4

Summary

1. WARNING: Fireplace and chimney systems will only draft properly when they are installed according to the instructions, in an appropriate location and with the proper chimney height. Installing the fireplace according to the manufacturers instructions, choosing an appropriate location, and choosing an appropriate chimney height are the responsibility of the designer and the building contractor.

Tightly insulated and sealed homes, two story interior spaces and high vaulted ceilings can cause negative air pressures within the house which can impair drafting performance. HVAC return air ducts near the fireplace opening will adversely affect the fireplace drafting performance.

It is the responsibility of the designer, the building contractor and their mechanical contractor to determine that the building's internal air pressures are conducive to positive fireplace drafting.

Avoid placing any fireplace in an area near tall trees, tall buildings, or high land masses. These structures can reduce ambient air flow pressure as well as produce down drafts, either of which can impair fireplace drafting performance.

Earthcore Industries L.L.C. does not warrant drafting and is not responsible for it.

2. Fireplace Curing Instructions:

It is critical that the refractory elements in the Isokern firebox and smoke dome components be dry before firing of the unit. Moisture left in the Isokern components from exposure during storage and shipping, as well as moisture from the installation phase, must be eliminated before the unit is put to its intended use.

The first step in reducing the ambient moisture is to be sure that the completed fireplace rest in a dried-in setting for a minimum of 28 days after construction of the unit is complete.

The next step in curing the fireplace is to be sure that the first five or six fires are of short duration.

The first fire of the unit can take place once the minimum twenty-eight day drying period has passed. This fire should be especially short.

Start the first fire slowly with a small amount of paper and kindling (small dry wood splits or twigs) and a maximum load of four to six pounds of dry firewood, estimated to be no more than two or three logs each of about three inches (3") to four inches (4") diameter.

The first fire should burn for no more than thirty to sixty minutes and then allowed to go out. Do not refuel the fireplace during the first lighting.

A cooling off period of twenty-four hours, at a minimum, should follow the first fire.

The second fire should be the same as the first fire.

A twenty-four hour cooling off period must be observed following second lighting.

After first and second fire, continue use of the unit with three or four small fires of short duration (sixty minutes or so) and small fuel loads.

After these first five or six small fires of short duration, normal use of the fireplace can proceed. For normal use the maximum recommended fuel load is twelve to sixteen pounds of dry firewood at a time. This fuel load is considered to be approximately three to five cured hardwood logs of about three inches (3") to six inches (6") in diameter. As the fire burns down, refueling should be only one or two logs added at a time.

Important: Do not burn construction debris or trash of any kind in the fireplace.

It is not uncommon for construction debris and refuse to be burned in a fireplace by site personnel on a project that is under construction, this activity must be avoided.

It is the responsibility of the building contractor to insure that the required dry-in period is met and that the required lighting sequence is performed by the owner or by the owner's agent.

3. Log grates are required for burning solid fuel in the Isokern fireplace. Grates allow for easy air flow up through the burning logs thus creating a more complete and efficient burning of the fuel.

4. How to Build a Fire:

First set the fireplace damper in the full open position. Begin laying the fire by placing several pieces of wadded up paper directly on the log grate. Place kindling (small splits of dry pine or other dry softwood) on top of the paper, enough to loosely cover the paper. Next arrange several small, dry hardwood or softwood logs or log splits on top of the kindling layer.

Finally, arrange two or three larger hardwood logs (oak, hickory, etc.) or log splits on top of the stack. Ignite the paper at the bottom of the stack. The burning paper will ignite the kindling which will, in turn, set the remaining fuel on fire.

Be sure to stack all firewood in such a way that it will settle into the log grate as the paper and kindling layers are burned away. Additional logs can be set onto the fire as each fueling burns down.

Ideally, fuel logs should be of a hardwood species that have been air dried for one year or longer. Use of cured or uncured pine logs and uncured hardwood logs for fuel should be avoided. Pine logs and uncured hardwood logs will tend to smolder and burn at relatively low temperatures producing high levels of soot and creosote.

Important: Do not throw, toss, jam, kick or otherwise force logs into the fireplace.

Summary

WARNING: Never use gasoline, gasoline type lantern fuel, kerosene, charcoal lighter fluid or other similar liquids to start or “freshen up” the fire in this or any fireplace.

WARNING: If processed solid fuel firelogs are used, do not poke or stir the logs while they are burning. Use only firelogs that have been evaluated for the application in fireplace and refer to firelog warnings and caution markings on packaging prior to use.

5. Avoid over-firing. Some examples of over-firing are:

- a. Burning of scrap lumber, construction debris, pine branches and brush or cardboard boxes;
- b. Burning small diameter twigs, branches or any other small sized combustible materials in quantities which exceed the volume of the normal log fire;
- c. Use of artificial wax base logs, trash or other chemicals or chemically treated combustibles.

WARNING: Over-firing can permanently damage this fireplace system.

6. Fireplace Doors and Screens:

This fireplace has not been tested for use with doors. To reduce the risk of fire or injury, do not install doors. Operable doors are acceptable and if doors are required by the local authority having jurisdiction, then doors must be kept in the fully open position when the fireplace is in operation. Isokern does not limit the use of fireplace screens.

7. Disposal of Ashes:

It is recommended that the firebox be cleaned of excessive ashes before each use. It is necessary to remove ashes from the open front of the fireplace. To do so, proceed in the following manner:

Allow the fire to go out and the ashes to cool for at least six to eight hours.

After the cooling period, carefully pick up the ashes from the firebox with a small, metal fireplace shovel or other metal scoop and place them in a metal container with a tight fitting lid.

If possible do not sweep the ashes as this will stir them into the air and disperse them into the room.

The closed container of ashes should be placed on a noncombustible 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.

8. Inspection and Cleaning:

At least twice a year in warm climates or monthly during the heating season in colder climates, thoroughly inspect the fireplace and chimney system. Chimneys must be installed so that access is provided for inspection and cleaning. The chimney should be inspected monthly during the heating season.

Inspect the entire flue from the top down for obstructions such as birds' nests, leaves, etc. Such obstructions must be removed.

Check spark arrestor screens for clear flow of smoke every two to four weeks during the heating season. Inspect the flue periodically during the heating season for the presence of soot and creosote build up. If creosote or soot has accumulated, it should be removed to reduce the risk of chimney fire.

Have your chimney cleaned by a professional chimney sweep if you have doubts about your ability to do it. Use a plastic, wood or steel brush to clean the chimney. Scrub the spark arrestor/chimney cap with a wire brush. Remove any chimney cap for flue cleaning from the top. Open the damper in the firebox for cleaning access from below.

Clean the inner portion of the flue by using a flexible handled chimney cleaning brush.

For straight run flue the proper size brush can be pulled up through the flue from the firebox with the damper open.

If the chimney has an offset chimney section, brush cleaning from the chimney top down to the offset/return and then from the firebox up to the offset section is the proper method.

In either case, cover the fireplace opening with a damp sheet (sealed to the opening with masking tape) before brush cleaning. Do not remove sheet until the soot has settled. It is advised to vacuum loosened soot. Do not sweep loosened soot as sweeping will disperse soot into the air and about the room.

WARNING: Do not use chemical fireplace and chimney cleaners that are poured on a hot fire. These can be dangerous and generally work only on the flue section nearest the fire, leaving the rest of the flue unaffected.

9. Exterior Maintenance:

Annually, at a minimum, check all metal flashings and weather seals around the exterior chimney where it penetrates the roof surface; inspect any chimney top spark arrestors, metal cowlings and weather hoods to make sure they are secure and weather tight.

Seal any cracks or gaps in chimney-to-roof flashings to prevent possible roof and chimney chase leaks. Inspect any cement chimney cap or clay chimney pot terminations to make sure they are not diverting water into the structure. Seal any suspected cracks or gaps in these masonry components.

Registration Card

Please tear out along dashed lines and send to:

Earthcore Industries
Attn: Technical Dept.
6899 Phillips Industrial Blvd.
Jacksonville, FL. 32256

Or register your Isokern online at: www.earthcore.co

WARRANTY CARD

Purchased From: _____

Date of Purchase: _____

Name: _____

Address: _____

City, State & Zip: _____

Phone No: _____

Gas Log Burner Size: (Circle One) 24" 30" Other _____

Fireplace Series/Size: Magnum _____ Isokern Standard _____ IBV _____ Vent-Free _____

 Green Tech _____ ISO'ven _____ Fire-Lite Stand? (Circle One) Yes No

Gas Control Valve Type: (Circle One) Remote Control Safety Pilot

Gas Type: (Circle One) Natural Gas Propane

Buyer:

Date of Installation: (Completed) _____

Name: _____

Address: _____

City, State & Zip: _____

Phone No: _____

Fireplace Serial Number: (Located on Rating Plate Inside Fireplace) _____

Installed By: _____

Address: _____

Phone Number _____

Notes

Warranty & Disclaimer

ISOKERN FIREPLACE

ISOKERN offers a lifetime warranty for all Isokern components, to be free from defects in materials that negatively affect system performance from the date of purchase, subject to the terms and conditions of this limited warranty.

This warranty covers only the above stated components, and NO WARRANTY, EXPRESS OR IMPLIED, EXTENDS TO ANY OF THE HARDWARE, FOOTING, VENTS, DUCTING, METAL FLUES, FIRE BRICK OR ACCESSORIES. THIS WARRANTY DOES NOT COVER DRAFTING, SMOKING OR PUFFING OF THE FIREPLACE SYSTEM. Factors beyond the manufacturer's control affect fireplace drafting, smoking, and puffing, and ISOKERN cannot guarantee these aspects of performance.

If a component is found to be defective under the terms of this warranty the party to whom this warranty is extended shall, notify ISOKERN, 6899 Philips Industrial Blvd, Jacksonville, Florida 32256, in writing, by registered mail, within thirty (30) days following the discovery of the defect within the lifetime warranty period. The notice shall contain (1) the date of purchase; (2) place of purchase; (3) address of installation; (4) name, address and phone number of the owner; and (5) a brief description of the defect.

ISOKERN, or any division thereof, is not responsible for any labor costs or indirect costs incurred for the replacement of defective components.

ISOKERN is not responsible for misuse or mishandling of components. Nothing in this warranty makes ISOKERN, or any division thereof, liable in any respect for any injury or damage to the building or structure in which the fireplace or chimney system has been installed or to persons or property therein arising out of the use, misuse, or installation of properly manufactured ISOKERN product.

ISOKERN, OR ANY DIVISION THEREOF, SHALL NOT BE HELD LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR EXPENSES ARISING OUT OF THE USE OF THE FIREPLACES OR CHIMNEY SYSTEMS. ALL SUCH DAMAGES AND EXPENSES ARE HEREBY EXCLUDED.

This warranty is null and void when the fireplace or chimney systems are not installed pursuant to the installation instructions provided by ISOKERN or local building codes have not been followed completely.

This warranty applies only to those fireplace and chimney systems installed in the continental United States, Alaska, and Canada. If any part of this warranty is found to be unenforceable, the remaining parts shall remain in force and effect.

ISOKERN HEREBY DISCLAIMS ALL GUARANTEES AND WARRANTIES, EXPRESS OR IMPLIED, BEYOND THE WARRANTIES SET FORTH HEREIN.

earthcore®

6899 PHILIPS INDUSTRIAL BLVD. • JACKSONVILLE, FLORIDA 32256
TEL (904) 363-3417 • TOLL 1 (800) 642-2920 • FAX (904) 363-3408