### ISOKERN VENT-FREE FIREPLACE A PRODUCT OF EARTHCORE INDUSTRIES, LLC. INSTALLATION, OPERATION, MAINTENANCE and OWNER'S MANUAL ISOKERN MODELS VF- 36, VF- 42, VF- 46

**IMPORTANT:** This manual contains assembly rules, installation steps and guidelines, and use and maintenance instructions for the Isokern Vent-Free fireplace system (Vent-Free Series). 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 distributor, general contractor and the installer of this product that the instructions in this manual are followed exactly and, further that the allowed gas log appliance used in this product be installed in strict accordance with the gas log manufacturer's listing and explicit installation and operation instructions.

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.

# FOR USE ONLY WITH DECORATIVE TYPE UNVENTED ROOM HEATERS DO NOT BUILD A WOOD FIRE

Carefully review the instructions supplied with the decorative type unvented room heater for the minimum firebox size requirement.

# DO NOT INSTALL THE APPLIANCE IN THIS FIREBOX UNLESS THIS FIREBOX MEETS THE MINIMUM DIMENSIONS REQUIRED FOR THE INSTALLATION

**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

C Harnock Hersen US

Revised: December 17, 2009 Revision 001

**INTERTEK TESTING SERVICES REPORT NO. 13001A-764** 

HIS MANUAL CAN ONLY BE REPRODUCED IN ITS ENTIRETY

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Note: Illustrations shown 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. However, always maintain minimum clearances to combustible materials and do not violate any specific installation requirements.

### General Information

#### **Intended Use Statement:**

The Vent-Free fireplace is a modular refractory masonry unit designed for field assembly. The unit consists of interlocking precast parts which are glued together using Earthcore Mortar supplied with the unit. The parts of the system are cast using a proprietary mixture of volcanic pumice aggregate and aluminate cement. Each piece is intended for a specific part of the enclosure and is designed such that only one means of assembly is possible. The system includes all the parts necessary for the assembly of a complete masonry unvented decorative gas log enclosure.

In addition to the basic enclosure, a standard one and one-eighth inch (1-1/8") thick, high temperature refractory brick is required to line the interior of the firebox.

Vent free decorative gas log sets are supplied by others and are limited to any listed unvented gas-fired log sets with heat input ratings up to 40,000 BTU/hr.

#### **Product Description:**

The Vent-Free fireplace has been evaluated and listed by Intertek Testing Services (Warnock Hersey International) in accordance with ANSI Z21.91-07 and is intended for use as a "zero clearance" rated enclosure when used with any listed unvented or dual listed gas log heater that has a maximum input rating of 40,000 Btu/hr. The vent free decorative gas log heater chosen must meet the appliance manufacturer's minimum size dimension requirements for installations in this enclosure. **WARNING:** Any application other than the 'intended use' stated herein is in violation of the manufacturer's instructions and is hereby prohibited. Such violation may cause immediate hazard, property damage or loss of life and will void all liabilities to the manufacturer and will void all warranties explicit or implied.

#### **Clearance to Combustibles:**

The Vent-Free fireplace may be installed at "zero clearance" to plywood sheathing and to un-insulated wood framing members at the unit bottom, sides, rear and top when used for enclosing any listed unvented gas-fired log set with maximum heat input ratings up to 40,000 Btu/hr. (Reference Intertek Testing Services Report No. 13001A-764.)

However when a Vent-Free fireplace is to be installed on carpeting, tile, or any combustible material other than wood flooring or concrete, the Vent-Free fireplace shall then be installed on a metal or wood panel extending the full width and depth of the Vent-Free fireplace.

**Note:** Keep all insulation material to a minimum of three inches (3") away from the outside surfaces of the Vent-Free fireplace.

#### **Clearance to Combustible Trim:**

The Vent-Free fireplace is designed to be custom finished with facing trim and mantle to be at owner option.

However, all such trim material must meet standard fireplace code requirements: non-combustible facing material must be

applied to a minimum of eight inches (8") beyond the sides of the finished opening of the Vent-Free fireplace and non-combustible facing material must cover a minimum of twelve inches (12") above the finished opening of the installed unit. (Reference Intertek Testing Services Report No. 13001A-764.)

Clearance to combustible trim are those distances required to ensure that combustible mantle and facing material will not be exposed to excessive heat while the unit is operating. These clearances should be adequate to prevent discoloration or warping of trim facings due to heat. However, circumstances unique to each installation create variables that may be beyond the scope of this manual. Therefore be sure to follow gas log appliance manufacturer's explicit installation instructions regarding all minimum trim facing, mantle height and side wall clearance requirements.

**Note:**Mantle height clearance requirements may vary among gas log manufacturers.

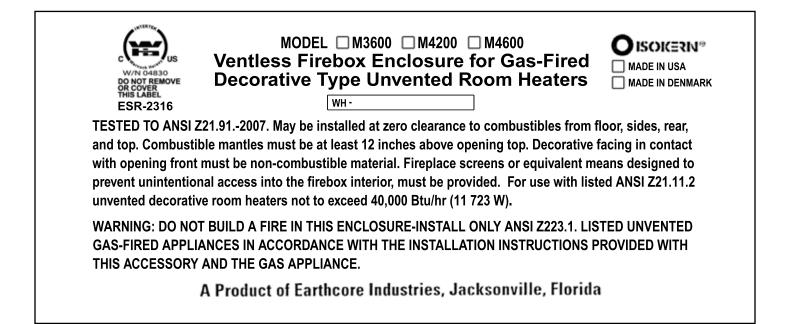
**Before Beginning the Installation:** Read these instructions carefully before beginning the installation of this Vent-Free fireplace. Also read the gas log appliance manufacturer's literature regarding sizing and suitability for installation into this enclosure prior to installation. (Look for gas log appliance manufacturer's label "A.G.A. Certified Vent-Free Gas Log.")

Since it is not possible to adequately define all installation and use circumstances in this manual be sure to check with and strictly adhere to local building codes and ordinances governing installation, inspection and use of gas fired equipment. In the absence of local codes the installation and use of this Vent-Free fireplace - and the certified unvented gas log appliance placed in it - must be in accordance with each manufacturer's explicit installation instructions and must conform with National Fuel Gas Code, ANSI Z21.11.2, NFPA 54.

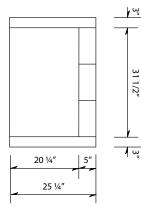
Local building and safety codes shall govern issues relating to the suitability of the use of unvented appliances as well as to room size requirements. Prior to purchase and installation it should be determined if unvented gas log heaters are suitable to the proposed application where health matters are concerned.

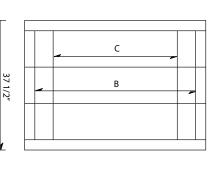
**Note:** You may need to provide combustion and ventilation air from an outside source to adequately satisfy local codes. Non-combustible hearth extensions are not required in front of the Vent-Free fireplace. However it is the responsibility of the installer to refer to the vent free gas log manufacturer's explicit installation instructions regarding their requirements for non-combustible hearth extensions. Requirements may vary among vent free gas log manufacturers.

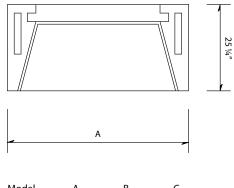
Refer to local codes governing the need for hearth extensions for vent free gas log enclosures.



Assembled Firebox & Smoke Dome Dimensions

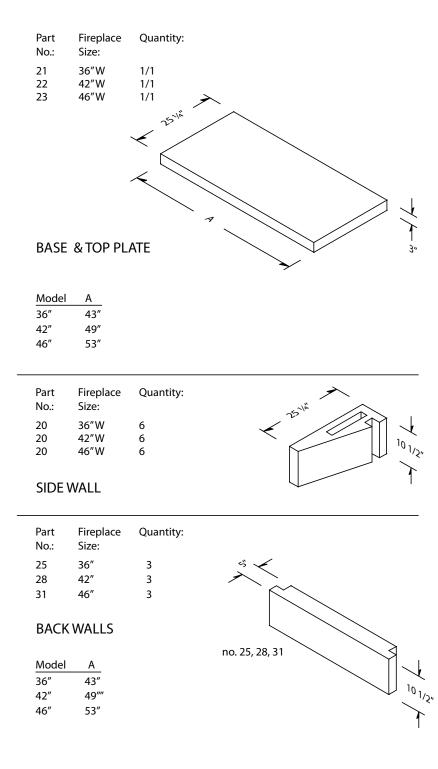






Model	А	В	С
36″	43″	36 1/8″	27 1/4″
42″	49″	43 1/8″	33 1/4″
46″	53″	47 1/8″	37 1/4"

# Component List & Dimensions



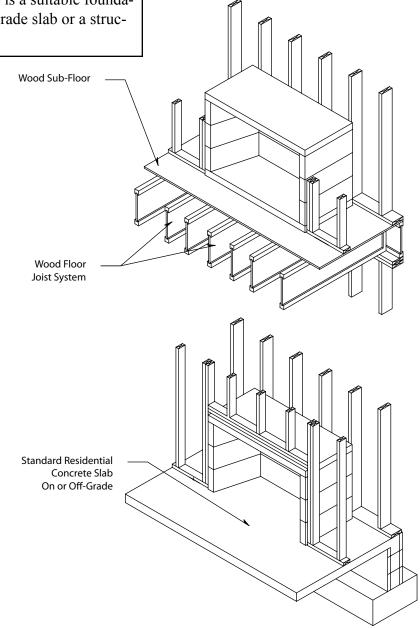
Isokern reserves the right to make changes at any time, without notice, in design, materials and specifications and also to discontinue styles and products. Please call 1-800-642-2920 for an Isokern dealer near you.

### Foundation Requirements

Wood floor framing systems are suitable foundations for the Vent-Free fireplace. Because the Vent-Free fireplace is listed for "zero clearance" at the unit bottom, sides, back and top it may sit directly upon wood sub-flooring.

The Vent-Free fireplace weighs approximately 750-900 lbs. (excluding gas log appliance and finish trim). Since this weight is spread over an area of seven and one-half square feet (7.5 sq. feet) to nine and one half square feet (9.5 sq. feet) depending on standard unit size chosen, it is necessary that any wood floor framing where this unit is placed be designed to carry concentrated loading of approximately 150 lbs/sq. foot.

Standard residential concrete slab is a suitable foundation. This may be either a structural off-grade slab or a structural slab-on-grade.



### **Rough Framing Dimensions**

Rough framing dimensions			
Model: A		В	С
36	36 1/8"	34 1/2"	25 1/4"
42	43 1/8"	34 1/2"	25 1/4"
46	47 1/8""	34 1/2"	25 1/4"
Notes:			
		es additional roug	

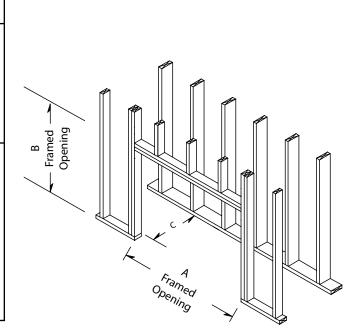
raised hearth detail.

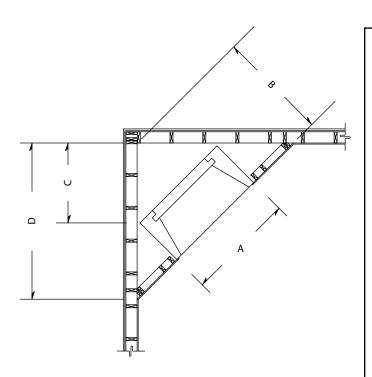
2. "Flush hearth" (non combustible floor only) requires three inches (3") less at "B".

3. Rough framing dimension for depth "C" allows for one and one-half inch (1-1/2") clearance at the back of the Vent-Free.

4. Keep all insulation and vapor barriers three

inches (3") away from all Vent-Free surfaces.





The following chart of dimensions is intended to aid in the positioning of a Vent-Free fireplace in a corner condition.

Firebox	А	В	С	D
Model 36	43"	49"	35"	72"
Model 42	49"	52"	37"	75"
Model 46	53"	54"	39"	79"

#### Notes:

A. "A" reflects the Vent-Free Series base plate dimension.

B. "B" reflects the Vent-Free Series outside center of firebox base plate to inside corner of frame wall.

C. "C" dimension reflects the distance from the corner of the firebox positioned 1 1/2" from frame wall to inside corner of frame wall.

D. "D" dimension reflects the distance from the outside frame wall perpendicular to the firebox to the inside corner of the frame wall.

#### Earthcore Mortar:

Earthcore Mortar is to be applied to all joints between Vent-Free fireplace components during field assembly of the unit. Thoroughly mix the Earthcore Mortar with clean water. Be sure to eliminate any dry pockets or lumps in the mortar. The proper finished mixture should be of a "toothpaste" consistency, suitable for application by use of a standard mason's grout bag. If the mixture is too thin and runny then the mortar cannot reach its full strength. **Note:** When used to assemble the Vent-Free fireplace components Earthcore Mortar is to be mixed only with clean water.

#### Assembling the Vent-Free Fireplace Components:

Once the mortar is mixed and loaded into a grout bag it can easily be squeezed out and onto all contact surfaces of the Vent-Free fireplace components as they are fitted together.

A Vent-Free fireplace requires approximately twentyfive pounds (25 lbs.) of Earthcore Mortar for proper assembly. Typical grouting procedure is to lay a one half inch (1/2") bead of mortar approximately one half inch (1/2") in from all of the edges of the contact surface of one component. The next mating component is then set in place onto the already grouted contact surface of the first component.

Since some of the component contact surfaces are broader areas it is advisable to apply several additional half inch (1/2") beads of mortar onto these larger contact surfaces to assure proper sealing. Indication of proper sealing of two mating components is that some mortar is squeezed out all along the contact joint of the two components. The excess grout can be troweled over the face of the joint. **Note:** Do not float Earthcore Mortar over the entire face of any component.

#### Leveling and Aligning Components:

Be sure to assemble all Vent-Free fireplace components flush, level and square.

Since it is not intended that mortar be used to lay a mortar joint of any measurable thickness as is typical when laying brick or concrete block, adjustments in component height and level alignments are accomplished with the use of small plastic shims (supplied with the unit). These shims can be tapped into place to level and align components. Once the Earthcore Mortar has set the small leveling shims can be either nipped off flush at the insertion point or removed completely.

Be sure to re-grout any and all gaps where shims have been inserted and then removed or where contact surfaces have been separated by shim leveling.

#### **Broken Components:**

Components that are broken from faulty handling can be repaired using Earthcore Mortar. The component that is broken into two pieces and not fragmented along its break line can be glued together with Earthcore Mortar in the same way that two mating components are assembled. Face and Surface Cracks: Should a face crack appear after the unit is assembled the crack can be repaired in place. A crack can be "V" notched with a masonry chisel to a depth of approximately three-eighth inch (3/8"). Earthcore Mortar is then squeezed into the face crack and troweled smooth to the surface of the component.

**Note:** Badly fragmented components should be discarded and replaced.

**Step 1:** Begin assembly by setting the Vent-Free fireplace's three inch (3") thick base plate flat on a suitable level surface at zero clearance. This surface can be a concrete slab or a wood floor system capable of 150 psf loading. The base plate can also be set on a concrete block raised base or on a raised wood platform either of which can be built upon a structural slab or upon a structurally suitable wood floor system.

**Step 2:** Next set the first course of back wall and side walls into place. It may be convenient to scribe the location of the first layer of side walls and back wall on the base plate and then to apply Earthcore Mortar to these scribed areas on the base plate where the side walls and back wall will sit. In this way the first layer of walls can be set directly into grout already applied to the base plate. Be sure to grout the vertical joints where the side wall to back wall connect as

each component is joined to its mate. Look for mortar to squeeze out of all contact joints as a sign of proper and complete sealing of the joints.

Continue with the sequential assembly of the second and third courses of the side walls and back wall by first applying grout to the top of the previous layer, setting the next course above into grout already applied to the horizontal contact surface of the component below. Again be sure to grout the vertical joints of the side wall to back wall connection as each component is joined to its mate. Look for some mortar to squeeze out along all joints as a sign of proper sealing of the joint.

**Step 3:** Once the third, or top course of side walls and back wall are set in place their top surfaces are to be grouted with mortar to receive the Vent-Free fireplace top plate. Set the top plate upon the completed side wall/back wall assembly seeing to it that the grouted contact surfaces are properly sealed. This completes the assembly of the Vent-Free fireplace rough box components.

**Step 4:** Make sure that the rough box assembly has been set level and square. Adjust to level and square, as necessary, while mortar is still wet. Make a final inspection of all contact joints to be sure they are properly sealed. Re-grout any and all gaps as necessary.

**Step 5:** The manufacturer requires a minimum one and one eighth inch (1-1/8") thick fire brick as a liner to the inside of the Vent-Free fireplace. Thicker rated fire brick may be used as an option. Also, the pattern for the fire brick interior lining is not specified and is to be at owner option.

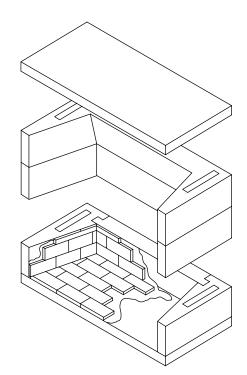
### Assembly Instructions (cont.)

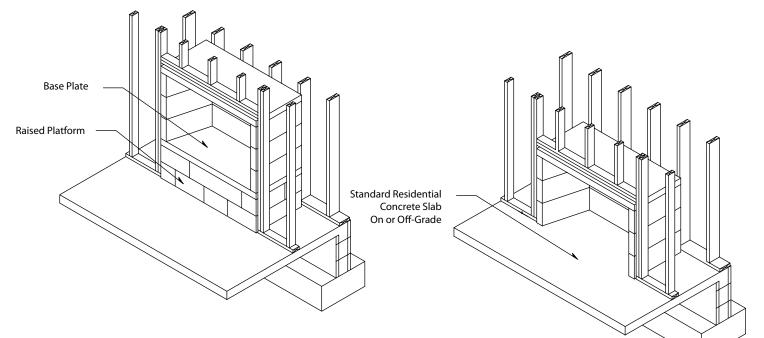
#### **Raised and Flush Hearth Application:**

For a raised hearth (floor of the fireplace elevated above the room's floor) then the Vent-Free base plate can be set on a concrete block platform that is built up to the desired raised hearth height on the concrete support slab. 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 concrete block platform.

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.

CMU used for base plate support should be rated ASTM 90.





### Assembly Instructions (cont.)

#### Through-Wall Accesses:

**Gas Line Feed:** The provision for installation of a gas pipe is only for connection to a decorative gas appliance or a gas log lighter. The decorative gas appliance must comply with standard for Decorative Gas Appliances for installation in Vented Fireplaces, ANSI Z21.60. The decorative gas appliance should be installed in accordance with the National Fuel Gas Code, ANSI Z223.1.

**Important:** If a gas burning decorative appliance is installed look for and only use an A.G.A. Certified Vent-Free Gas Log. Anytime a gas fired appliance is in use it is recommended a carbon monoxide detector be installed.

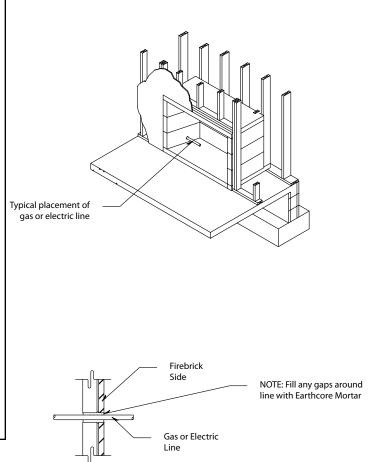
Gas line for gas log sets used in the Vent Free firebox can be routed through the side wall, back wall or floor of the firebox by drilling an appropriately sized hole using a masonry drill bit (Figure 18).

Electrical Line Feed can be routed through the firebox back wall, side walls or floor by drilling an appropriately sized hole using a masonry drill bit.

Be sure to follow the gas log Appliance Manufacturer's explicit electrical line connection instructions for vented masonry fireplace installations.

**Note:** Gas Line and Electric Line must be fed through separate access holes.

**CAUTION:** All access holes must be grouted with mortar to seal any gaps or cracks.



# Fire Brick Installation

#### Fire Brick Installation:

The manufacturer requires that the Vent-Free firebox be lined with a minimum one and one-eighth (1-1/8") thick rated fire brick. The pattern for the fire brick lining is an owner option. Standard N-Type brick mortar is a suitable fire brick mortar for the Vent-Free.

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.

It takes a total of about five gallons of mortar mix (dry measure) to fire brick line a Vent-Free.

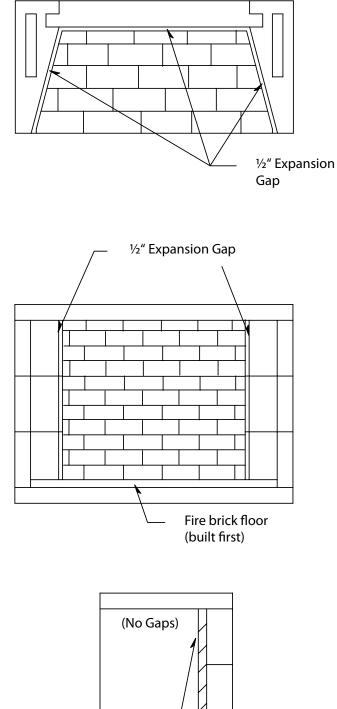
Face joints of one quarter inch (1/4") to threeeighths inch (3/8") give a good appearance to the finished rick-work. However, larger face joint dimensions are also acceptable.

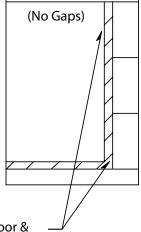
**Step 1**. Wet mop the inside of the Vent-Free with a damp sponge to remove dust and loose particles from the interior before installing fire brick.

**Step 2.** Start the fire brick at the front edge of the floor of the Isokern firebox, proceeding inward toward the back.

**Step 3.** Next, apply fire brick to the back wall of the unit starting at the bottom of the back wall and working upward to the top of the back wall.

**Step 4.** Finally, 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.





Firebrick Floor & Back Wall (built first)

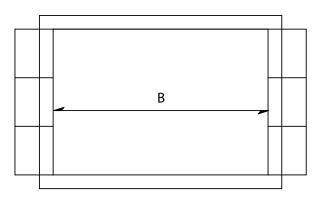
### Specialty Applications: See-Thru

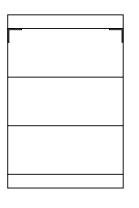
The firebox side walls must sit three inches (3") on the base plate. Since the side wall components flair from three inches (3") at the narrow end to eight inches (8") on the wide end, the side walls will overhang the base plate by approximately five inches (5") at their wide end. Support this overhang with masonry.

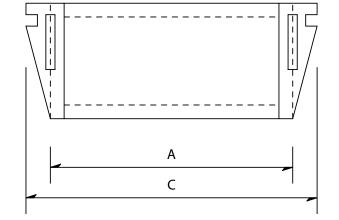
See-Thru or two-sided Vent-Free fireplace can be constructed from the standard one-sided unit components by eliminating the back wall assembly.

In this installation the standard side wall components are reversed so that the standard side wall taper sits to the outside of the box leaving the inside of the see-thru firebox with two straight and parallel interior walls.

Angle steel three inch by three inch by onequarter inch  $(3" \times 3" \times 1/4")$  should be set on top of the side wall assembly to span each of the openings of the see-thru before the top plate is set into place. The steel can be set with the angle leg either up or down.







25 ¼″

Model	А	В	С	
36″	43″	37″	53″	
42″	49″	43″	59″	
46″	53″	47″	63″	

## Noncombustible Finished Facing Requirements & Clearance to Combustibles

#### Interior Wall Materials:

Wall materials, such as drywall, should be set flush with the rough front face of the Vent-Free fireplace. This will allow for placement of required noncombustible surround material in such a way that the surround material can lay flat against the finished wall surface and also align with the leading edge of the fire brick interior of the Vent-Free fireplace.

#### **Trim Facings:**

Parts of the combustible mantle assembly located along the sides of the firebox opening, which project more than one and one-half inches (1-1/2") from the face of the fireplace, shall be kept at least eight inches (8") from the firebox opening.

#### **Adjoining Room Walls:**

Interior wall surfaces of adjoining room walls must be at a minimum horizontal measure of twenty four inches (24") away from the finished opening of the Vent-Free fireplace.

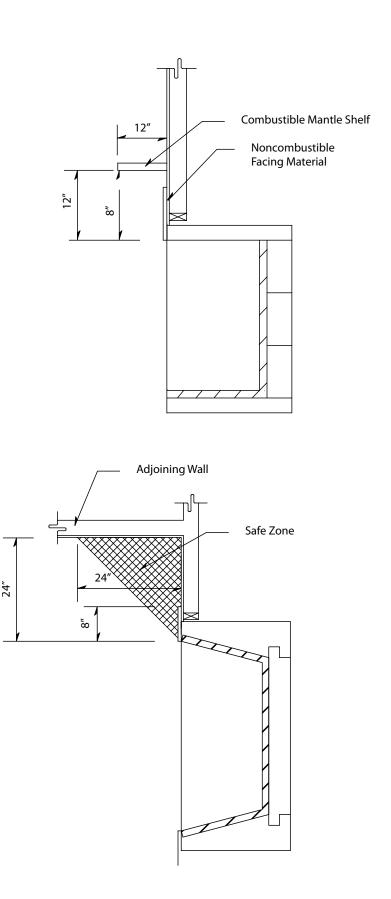
#### Mantle and Mantle Shelf Clearance:

Vent-Free fireplace are subject to the same building code safety clearances from the firebox opening as with any fireplace opening:

Parts of the combustible mantle assembly located above and projecting more than one and one-half inches (1-1/2") inches from the firebox opening shall be kept at least twelve inches (12") from the top of the opening.

Mantle shelves with horizontal projection of twelve inches (12") from the face of the fireplace must be held to a minimum vertical distance of twelve inches (12") from the top of the finished fireplace opening.

**Note:** Mantle height clearances may vary among gas log appliance manufacturers or with the use of firebox canopies. Be sure to follow the gas log appliance manufacturer's explicit installation instructions for mantle height clearance requirements.



### **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. 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. Follow screen manufacturer's explicit use instructions when using fireplace screens with a Standard fireplace.

### Maintenance:

The Vent-Free fireplace does not require any routine maintenance procedure. However, the owner must follow the gas log manufacturer's explicit instructions regarding burner limitations, burner adjustment, maintenance and cleaning. Any and all questions and concerns regarding the performance of gas log sets must be directed to the gas log appliance manufacturer or the appliance manufacturer's agent or supplier.

### **Dual Listed Appliance:**

The Vent-Free fireplace is certified with the use of dual-listed unvented gas log heaters with a maximum input of 40,000 Btu's. Do not burn any other type of vented gas log, fire wood, paper or refuse in the Vent-Free fireplace.

### Fuel:

Do not introduce any type of fuel into the Vent-Free fireplace other than the LP or Natural Gas listed for use in the vent free gas log appliance manufacturer's explicit installation instructions.

### **Electronic Equipment:**

Do not place electronic equipment such as television sets, DVD players, audio equipment or computer equipment directly above the Vent-Free fireplace.

### **Dead Loads:**

Do not bear structural members nor set structural loads on top of the Vent-Free fireplace. The Vent-Free fireplace is designed to carry none other than its own dead weight.

**CAUTION:** Do not touch hot surfaces surrounding this unit while it is in operation. Keep infants, toddlers and children away from the Vent-Free fireplace while it is in operation. Do not leave children unattended while it is in use.

# Notes

### Warranty & Disclaimer ISOKERN FIREPLACE

ISOKERN offers a lifetime warranty for all Isokern fireboxes, 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® INDUSTRIES, L.L.C.

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