

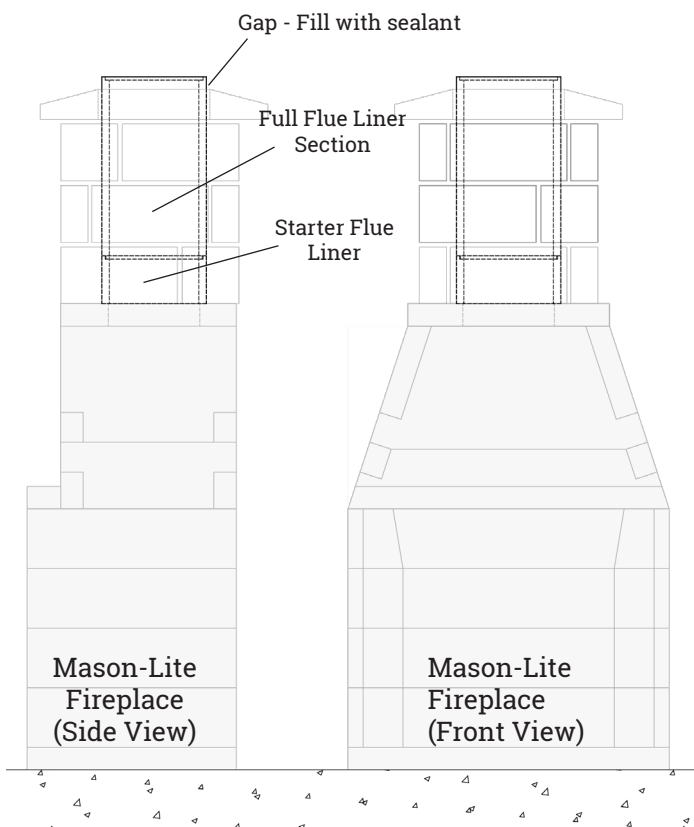
# MASONRY CHIMNEY CONSTRUCTION

## WITH ROUND CLAY FLUE LINERS ON MASON-LITE

(for use with MFP33, MFP39, MFP44 MFP49<sup>1</sup> & MFP63<sup>1</sup>)

**Read this entire publication before beginning installation of a masonry flue on a Mason-Lite fireplace. It is the installers responsibility to understand and abide by all building code requirements for masonry chimneys.**

Recommended Materials List for MFP33, MFP39 and MFP44:  
12" Round clay flues with male/female end joints (ASTM C315)  
12" x 6" Round starter flue with female end  
4x8x16 Light weight concrete masonry units (ASTM C90)  
4x8x8 Light weight concrete masonry units  
Refractory mortar non-water soluble (ASTM C24 Cone 10)  
Standard mortar (ASTM C270)  
Polysulfide, butyl or urethane rubber caulking other non-oil based sealant/caulking  
Brick ties (if applicable)  
Precast concrete cap  
Facing material  
Block sealant (if applicable)  
Chimney pot and rain guard (option)



<sup>1</sup>Please note MFP49 and MFP63 comes with a 14" top outlet and requires a 15" Round Clay Flue Liner which when surrounded by 4" CMUs will not fit on the top of the fireplace without additional surrounding structure.

<sup>2</sup>If using Mason-Lite brick panels, damper block are not needed.

A standard masonry flue/chimney system constructed for a Mason-Lite fireplace (Sizes MFP33, MFP39, MFP44, MFP49 and MFP63) should follow these recommended guidelines. A standard masonry chimney may be used on indoor and outdoor installations. **It is the responsibility of the installer to understand and follow all building code requirements when constructing a masonry chimney.**

1. Install the Mason-Lite fireplace according to instructions.

In order for a masonry chimney to be installed with a Mason-Lite fireplace, the unit must be supported by an adequate noncombustible foundation capable of carrying the total weight of the Mason-Lite fireplace, the masonry chimney and facing materials. It is your responsibility to design and provide appropriate foundations and structural reinforcements to insure that the fireplace and foundation can support the weight of the fireplace, chimney and facing materials.

**IMPORTANT** - During fire box construction of the Mason-Lite fireplace, the steel lintel (provided with fireplace as p/n MFP33-6b, MFP39-6b, MFP44-6b, MFP49-b, MFP63-b) that reinforces the upper dome **must** be installed.

For **Indoor** installations - a cast iron damper with Mason-Lite damper support blocks (not included with standard firebox kit) must be installed during construction of the firebox<sup>2</sup>. Please refer to the Mason-Lite Damper installation instructions for the damper and damper blocks required. [http://www.mason-Lite.com/wp-content/uploads/2014/03/Mason-Lite-Damper-Install-Guide .pdf](http://www.mason-Lite.com/wp-content/uploads/2014/03/Mason-Lite-Damper-Install-Guide.pdf)

2. Place and position starter flue liner, centering it directly over the outlet on top of the fireplace with the straight cut end down. **Note starter flue only available for 12" Ø not 15"**. Adhere starting flue liner to fireplace dome with refractory mortar.

3. Place the next full 2' section of flue. Neatly mortar flues together with refractory mortar cleaning up all excess. The male end will be down. Do not use excessive amounts of refractory mortar.

4. Build up the surround with light weight concrete masonry unit (cmu) or other suitable material using standard masonry mortar. Include weep holes as appropriate. Weep holes are important for outdoor installations because of constant weather/moisture exposure.

5. Continue to stack and mortar flue liners and cmu's to the desired height. Always use refractory mortar for the flue liners and standard mortar for the block.

6. Carefully place and mortar a pre-cast concrete cap to the cmu being sure to center flue liner with the precast cap opening. There must be a uniform gap between the flue liner and cap to allow for expansion. **DO NOT MORTAR FLUE LINER TO CHIMNEY CAP (TERMINATION).**

The masonry chimney may also be terminated with a poured in place cap. Be sure to leave expansion gap between the clay flue liner and the cap material.

7. Fill gap between flue liner and cap with a polysulfide, butyl or urethane rubber caulking (avoid silicones). Oil based sealants are not recommended. If the gap is large, nonflammable packing may be used to fill the space and then caulk the top to prevent water infiltration.

## General Instructions

When using refractory mortar, do not apply a full mortar joint. Refractory mortar is designed to be used sparingly; merely sealing and adhering masonry materials together like a gasket. Code requires refractory mortar be used for all masonry joints that come in contact with heat and combustion by-products.

12" round flue liners have male/female ends which interlock one into the other. The male end always should be installed down. This keeps creosote and other combustion by-products inside the chase preventing stains leaching into facings.

When installing flue liners, be sure to remove all excess mortar. The inside surface of the flue must be smooth and obstruction free. Mortar from the materials surrounding the flue liners must not contact the flue liner.

It is important an airspace of about the thickness of the flue wall be maintained between the flue liner and the surrounding material. The flue liner must be allowed to freely expand and contract and not be bonded to the surrounding masonry.

Any exposed light weight concrete cmu must be sealed with an appropriate medium like ThoroSeal®. Please contact your masonry supplier for further information.

Masonry chimneys may be used in seismic zones provided they are constructed and properly reinforced according to building code.

Be aware of structural support and foundation requirements. Masonry materials can be very heavy and must be supported appropriately. If in doubt, consult a licensed professional.

The higher the chimney, the better the draw. Patio fireplaces especially, can have insufficient draw even when constructed correctly. Numerous factors contribute to smoking situations. "Smoke free" operation is not guaranteed. The manufacturer or materials supplier(s) is not 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.



Male/Female End Joints on Round Clay Flue Liners. Male end is always installed down.

## Indoor Installations - Special Considerations

All chimney installations must comply with building code I.R.C. Chapter 10 - Fireplaces and Chimneys.

Be aware and understand all of the code requirements concerning clearance to combustibles. This information can be found at <https://codes.iccsafe.org/content/IRC2015/chapter-10-chimneys-and-fireplaces>

A cast iron damper must be installed during assembly of the firebox.

Minimum chimney height is 14'-0" and maximum chimney height is 40'-0" as measured from the bottom of the firebox.

To minimize problems with chimney draw due to wind effects caused by nearby structures and roofs, code requires that the chimney be 2 ft higher than the nearest portion of structure that is 10 ft away. Code also requires that the chimney be 3 ft (minimum) above the point of roof penetration. See graphic below.

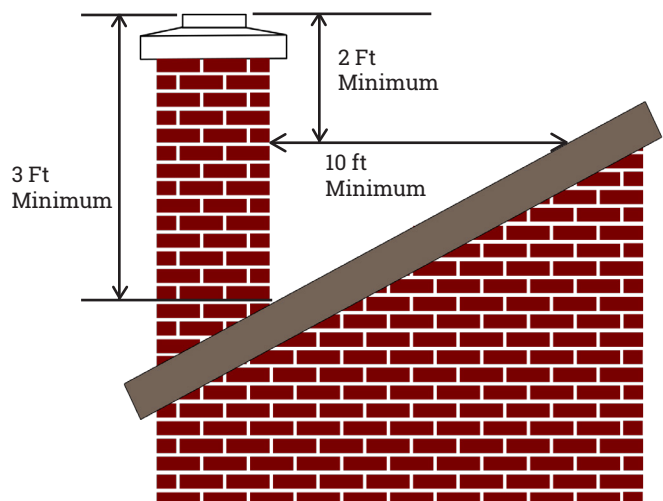
Stacked masonry fireplaces with 2 flue liners in a single chase may be constructed according to building code.

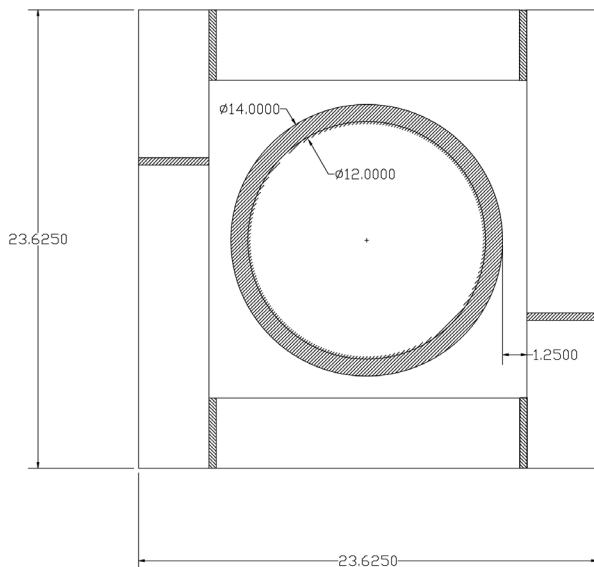
## Outdoor Installations - Special Considerations

Chimney Pots may be added to the top of outdoor fireplaces. However, there must be a **minimum of 6' of flue** in order to use a chimney pot.

Be sure to include weep holes between the block at the bottom of the chimney and the top of the fireplace that extend out through the facing. This ensures that any condensation and absorbed moisture can drain away and escape without causing damage to the fireplace, chase or facings.

Following a period of extended disuse or wet weather, be sure to repeat initial start up procedures by building small low heat fires as explained in the Mason-Lite installation manual to slowly eliminate entrained moisture.





Layout using 4x8x16 and 4x8x8 Light Weight Concrete Masonry Units to surround a 12" Ø clay flue. By definition (box below), CMU's used to construct a chimney chase may be up to 25% void and do not have to be grouted.

Code requires "Masonry chimney walls shall be constructed of solid masonry units or hollow masonry units grouted solid with not less than 4-inch nominal thickness". However, based on the definition of "solid masonry unit" an ungrouted CMU with not more than 25% void is acceptable.

International Residential Code Definition:

MASONRY UNIT: Brick, tile, stone, glass block or concrete block conforming to the requirements specified in Section 2103 of the International Building Code.

Clay. A building unit larger in size than a brick, composed of burned clay, shale, fire clay or mixtures thereof.

Concrete. A building unit or block larger in size than 12 inches by 4 inches by 4 inches (305 mm by 102 mm by 102 mm) made of cement and suitable aggregates.

Glass. Non load-bearing masonry composed of glass units bonded by mortar.

Hollow. A masonry unit whose net cross-sectional area in any plane parallel to the load bearing surface is less than 75 percent of its gross cross-sectional area measured in the same plane.

→ Solid. A masonry unit whose net cross-sectional area in every plane parallel to the load bearing surface is 75 percent or more of its cross-sectional area measured in the same plane.

### Masonry Chimney Construction Resources

[www.mason-lite.com](http://www.mason-lite.com)

• Damper Installation Instructions [http://www.mason-lite.com/?attachment\\_id=2564](http://www.mason-lite.com/?attachment_id=2564)

• Fireplace Installation Instructions [http://www.mason-lite.com/mfi-standard-wood-burn-manual\\_oct-2016/](http://www.mason-lite.com/mfi-standard-wood-burn-manual_oct-2016/)

[www.sandkuhl.com](http://www.sandkuhl.com)

• Masonry Chimney Construction Guidelines [http://www.sandkuhl.com/index.htm\\_files/Masonry\\_Chimney\\_Construction.pdf](http://www.sandkuhl.com/index.htm_files/Masonry_Chimney_Construction.pdf)

International Residential Code

• Masonry Fireplaces and Chimneys <https://codes.iccsafe.org/content/IRC2015/chapter-10-chimneys-and-fireplaces>

Brick Institute of America

• Technical Notes 19b <http://www.gobrick.com/docs/default-source/read-research-documents/technicalnotes/19b-residential-chimneys---design-and-construction.pdf>

### Operation and Maintenance.

Use only solid fuels, natural or LP gas log sets. Fire wood should be well seasoned. Do not use green wood. Do not use artificial wax based logs, chemical chimney cleaners or flame colorants in this fireplace.



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.

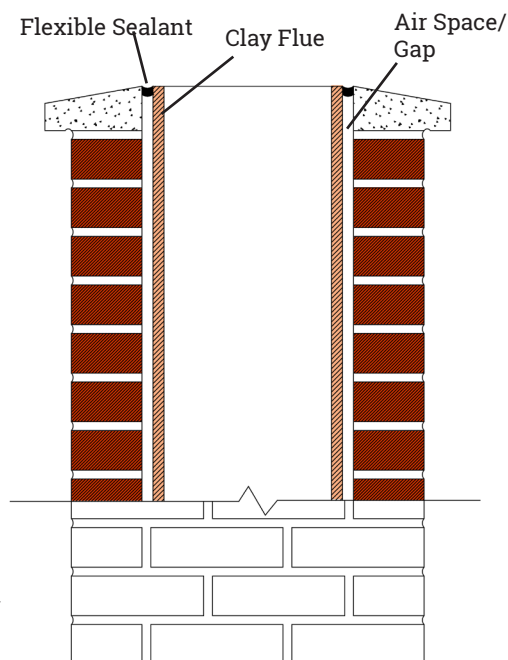
Never burn trash in your fireplace. Hot fast fires may cause severe damage to your fireplace and chimney systems.

After an extended idle period, repeat the initial startup instructions that can be found in the Mason-Lite installation document. Small low heat fires drive off excess moisture in a controlled manner to prevent damage to your fireplace/chimney system.

All masonry fireplace and chimney systems must cure for a minimum of 28 days before first use. DO NOT operate before this curing time is completed.

It is recommended that chimneys be inspected and cleaned two (2) times annually by a certified professional chimney sweep to insure safe operation and the longevity of the chimney/fireplace system.

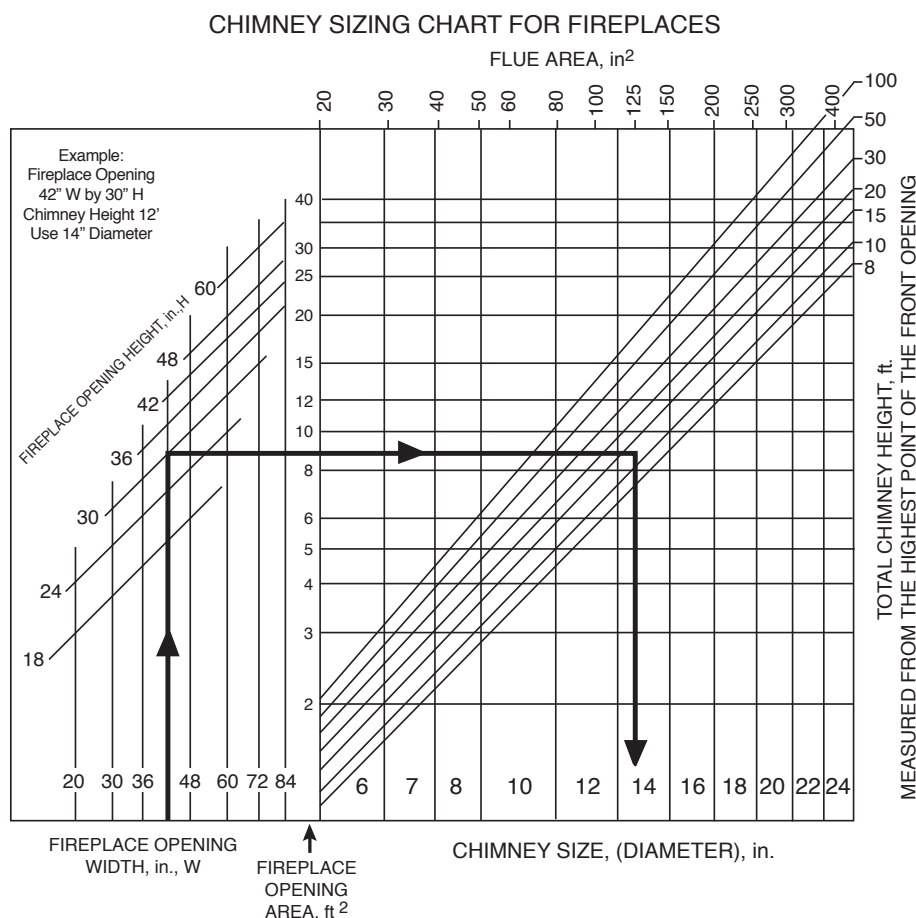
Refer to Mason-Lite owner's manual for complete detailed operation instructions, precautions and maintenance of your fireplace and chimney. This document can be found at [http://www.mason-lite.com/mfi-standard-woodburn-manual\\_oct-2016/](http://www.mason-lite.com/mfi-standard-woodburn-manual_oct-2016/)



## Chimney Pot (option) Installation

Please note that chimney pots cannot be installed on air cooled metal pipe chimney systems. Please consult the pipe manufacturer regarding the applicability of chimney pots on Class A flue systems.

1. Cut the protruding portion of the flue liner flush or not more than 2 inches above the chimney cap.
2. Place the decorative pot over the flue liner so the base rests securely on the chimney cap (not the flue liner). The flue liner may telescope slightly into the base of the decorative pot. The flue liner must not prevent the decorative pot from resting firmly on the chimney cap.
3. Center the decorative pot over the flue liner and mortar securely to the chimney cap. Exterior construction adhesive may also be used to attach pot to chimney cap.
4. Be sure to include weep holes between the decorative pot and the chimney cap to drain away any water that may enter.
5. Assemble/stack sections of chimney pot (if applicable). If your chimney pot is manufactured in sections, use Exterior Liquid Nails or other appropriate exterior adhesive to attach the sections.
6. Install a rain guard on top of the chimney pot. A rain guard is recommended for all chimney pots. This reduces moisture intrusion.
7. Be sure any chimney pot installation conforms with all local building codes.



# MASON-LITE

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