

INSTALLATION MANUAL

FOR THE
ACUCRAFT MASONRY FIREPLACE SYSTEM

MODEL NUMBER 050



Acucraft
Fireplace Systems
"Built by Acucraft, Inc."



Listed to:
U.L. 127 and
U.L.C. S610

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CHECK BUILDING CODES

Installation of the Acucraft Fireplace System must comply with all applicable codes and may require an individual permit from the city, county building inspector and/or fire marshal prior to installation. The completed installation should be inspected by a local building inspector and/or fire marshal before operation.

The installation instructions contained herein are for reference only. This manual contains information from sources believed to be reliable. However, the contents are of a general nature and all construction (foundation, electrical, masonry, chimney, etc.) should be designed and installed only by qualified personnel familiar with state and local codes.

This fireplace system is intended to be used in conjunction with a tile-lined masonry chimney, installed in compliance with all state and local codes. All building materials, block, brick, mortar, clay flues, concrete, insulation, etc. used in the construction of this fireplace system must meet or exceed all state and local code requirements and should be inspected prior to installation for cracks or other damage that may contribute to a faulty installation.

IMPORTANT

The chimney flue used for this system must not be used by or connected to any other appliance.

LOCATION CONSIDERATION

Consideration should be given as to the proper location of the fireplace, such as heat circulation throughout the home, inlet combustion air vent, obstructions from the chimney, clearances to combustibles, access to wood supply, etc.

FOUNDATION

Masonry fireplaces should be supported with an adequately designed foundation. A typical foundation is illustrated in Figure 1. This foundation may consist of footings which may support either foundation walls or a structural slab.

A. BASE CONSTRUCTION

The base assembly consists of the foundation and hearth support, as depicted in Figure 1-A, 1-B, and 1-C. It is not necessary that all of these components be present. For slab-on-grade construction, the slab may act as both the foundation and the base support.

The structural slab must be properly designed to support the weight of the total fireplace structure. When the fireplace is constructed on a slab-on-grade, it is usually necessary to thicken the slab under the fireplace to support the loads from the fireplace and chimney.

Support for the hearth can be provided in a number of ways. These include the use of corbeled brick work, structural slab or cantilevered reinforced brick masonry.

The maximum horizontal, overall and individual projections may be limited, depending on local code requirements and the design of the foundation.

B. FOOTINGS

Footings should be of concrete, at least 12 inches thick and extend at least 6 inches beyond the fireplace walls on all sides. (See Figure 1-B.) The footings should penetrate below the frost line unless they are located within a space kept above freezing. Footings should be placed on undisturbed or properly prepared soil. Local building codes may differ as to permissible soil pressures for foundations. (See also Figure 9.)

C. FOUNDATION WALLS

Foundation walls should be constructed of masonry or concrete. Most building codes require a minimum thickness of 8 inches. (See Figure 1-C.)

D. HEAT CHAMBER WALLS

Use concrete block at least 4 inches wide for the construction of the heat chamber. The front ends of the sides of the heat chamber should be flush with the intended inside surface of the masonry front. (See Figure 1-D.)

E. CONVECTION AREA

The heat chamber walls should be built 4 inches from the sides and back of the system. This will allow for the heated room air to flow freely through the heat chamber. (See Figure 1-E.)

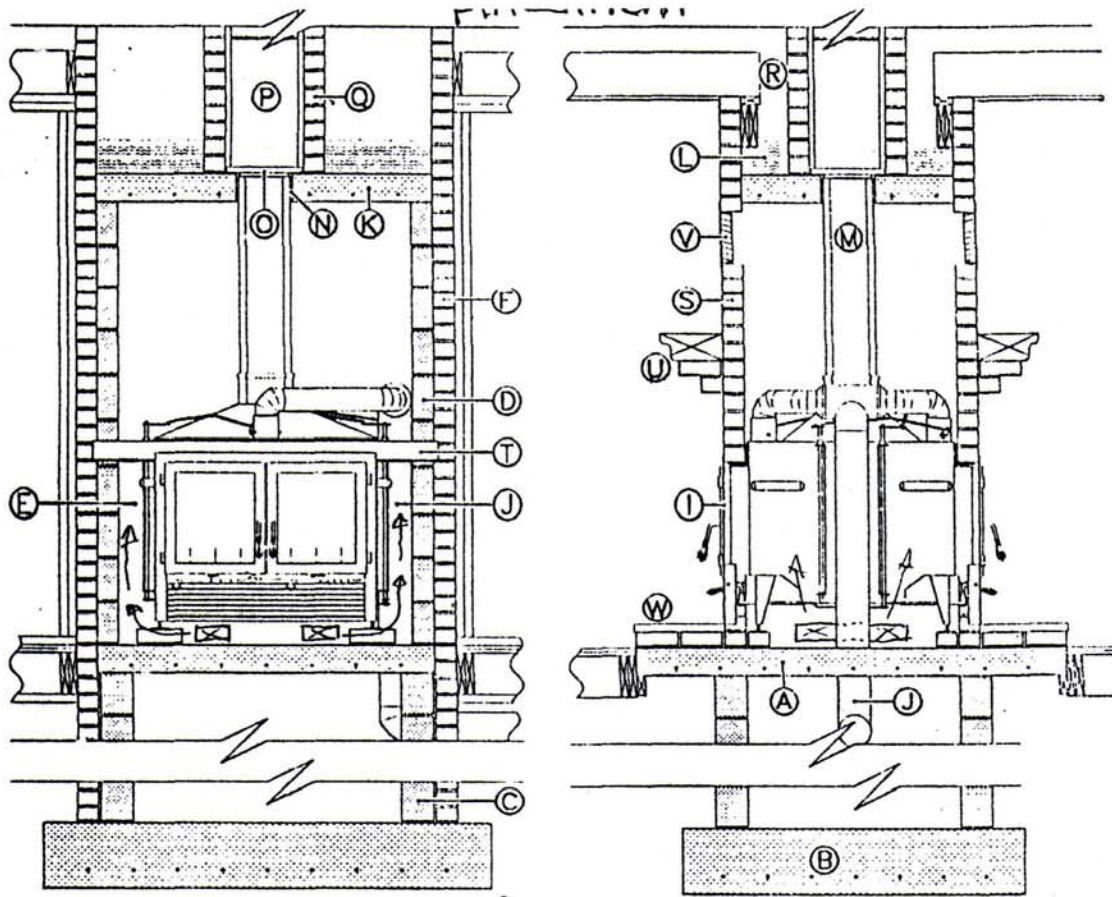
F. EXTERIOR WALLS

The exterior face brick masonry walls should be constructed at the same time as the heat chamber. The front ends of the sides of these exterior walls should also be flush with the intended inside surface of the masonry front. (See Figure 1-F.) An exterior installation is an exception, where the exterior wall should not be tied into the masonry front. (See Figure 2-B.)

G. INSULATION BARRIER

Any masonry walls that are exposed on the outside of the building should have at least a 2 inch space (4 inches recommended) between the heat chamber walls and the walls of the exterior masonry. This air space should be filled with non-combustible fiberglass insulation. (See Figure 1-G.)

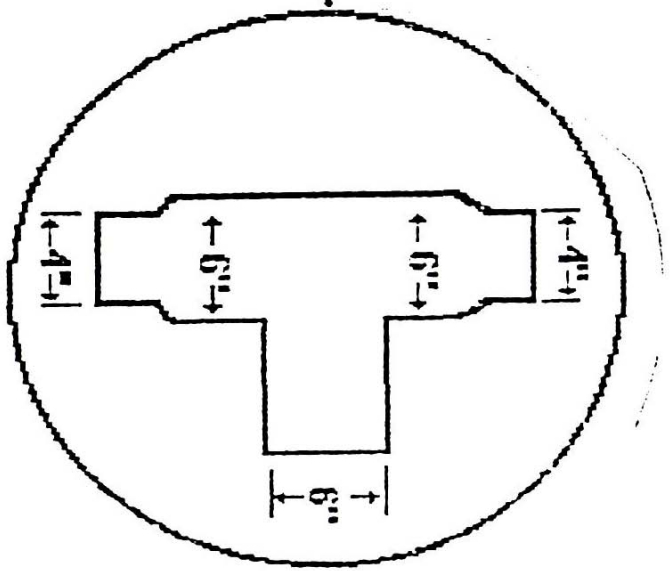
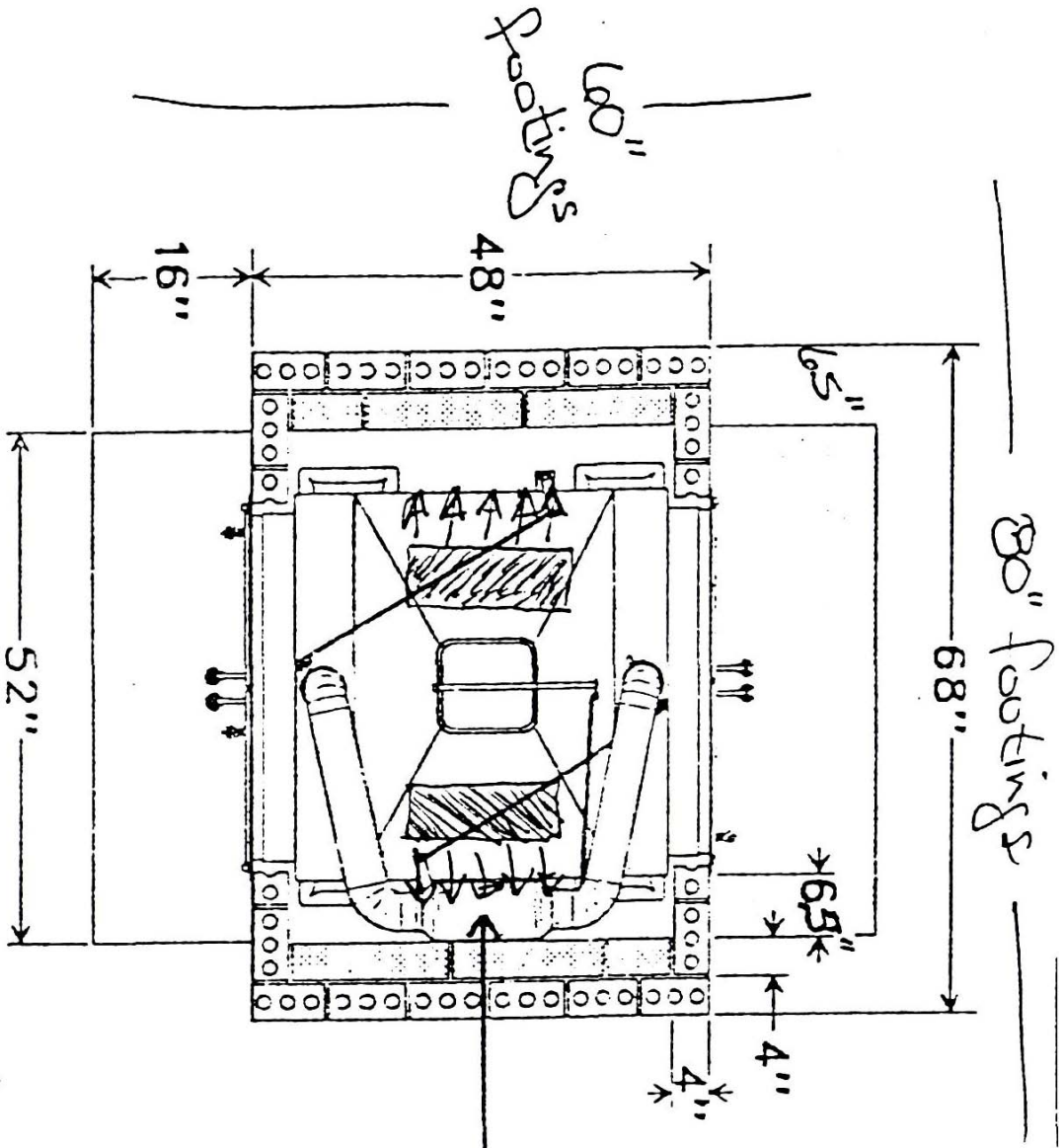
Masonry Installation – Front & Side View



- A. Reinforced Concrete Base Support
- B. Reinforced Concrete Footings
- C. Concrete Block Foundation Wall
- D. Concrete Block Heat Chamber Wall
- E. Convection Air Space
- F. Masonry Exterior Wall
- G. Side Wall Insulation Barrier
- I. Door/Vent Frame Assembly
- J. Combustion Air Inlet
- K. Reinforced Concrete Top Cap
- L. Top Cap Insulation Barrier

- M. Steel Flue Extension
- N. Flue Insulation Barrier
- O. Stainless Steel Flue Adaptor
- P. Clay Flue Liners (12" x 12" Modular)
- Q. Masonry Chimney Wall
- R. 2" Minimum Combustible Clearance
- S. Masonry Front Wall
- T. Angle Iron Lintels
- U. Mantel
- V. Heated Room Air Outlet Vent
- W. Non-Combustible Hearth

Top View Blowers Placement (under unit)



(2) 4" air ducts adapted with a 6" "T" fitting to a 6" air duct.

H. ELECTRICAL

Follow all local electrical and safety codes as well as the National Electrical Code (NEC).

If an electrical blower is used with this system, consideration should be given as to the location of the blower and the electrical service so that it will not be affected by heat. Also, access to this blower for servicing must be provided for.

Electrical service to this system, within the heat chamber, should be brought in at the base of the slab from either side and properly secured and placed as low as possible to avoid damage from heat.

Any electrical service to this system should be on a separate circuit breaker.

IMPORTANT

Any electrical service to this system must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system or by using a separate ground wire properly connected to the blower unit.

I. POSITIONING THE SYSTEM

The door/vent frame assembly of this system has a 3/4 inch adjustment to accommodate various masonry widths. This also allows the flange of the frame to fit uniformly to the masonry front. It can be moved in or out by loosening the 12 bolts around the inside perimeter of the door frame. In most installations this frame should be adjusted to its centered position (approximately 5 inches from the flange to the face of the system).

Center the Acucraft Fireplace System on the base of the slab with the flange of the door/vent frame assembly in line with the outside surface of the masonry front. (See Figure 1-I.)

The front door/vent frame assembly is designed to allow a hearth height of approximately 1 inch. If a higher hearth is desired, the complete system must be raised accordingly. (See Figure 1-W.)

Level this system using the adjustable legs. Place a level horizontally across the top of the door/vent frame and vertically across the back of the system. At the same time, make sure that the bottom surface of the door/vent frame assembly will be at the correct height for the hearth.

Recheck and make sure the system is correctly positioned and level, then anchor. Anchoring can be accomplished by placing mortar around the leveling foot pads.

J. INSTALLING COMBUSTION AIR DUCT

The combustion air ducting should be properly laid out prior to construction of the fireplace, taking into consideration the location of the inlet source and ducting through the walls of the fireplace. (See Figure 1-J.)

Install the combustion air duct using 4 inch round, at least 28 ga. galvanized pipe and elbows. This ducting should not exceed 10 feet in vertical height above the fireplace system. If the length of the run exceeds 10 feet and/or has more than one 90 degree elbow, a 6 inch vent pipe should be used to insure adequate combustion. This 6 inch ducting should then be reduced to 4 inch at the system.

All junctions must be adequately secured to each other with proper screws or rivets. A positive connection must be made to the outside of the house. We recommend using a dryer vent on the outside for neat appearance. If a dryer vent is used, be sure to remove the door from this vent and cover with a screen to prevent any unwanted entry. Do not use a vent with louvers, as this will restrict air flow.

Any ducting that is outside of the heat chamber, but inside the house, should be wrapped with 1 inch of insulation to prevent condensation or frost build-up. The combustion air inlet ducts shall not terminate in attic spaces.

WARNING

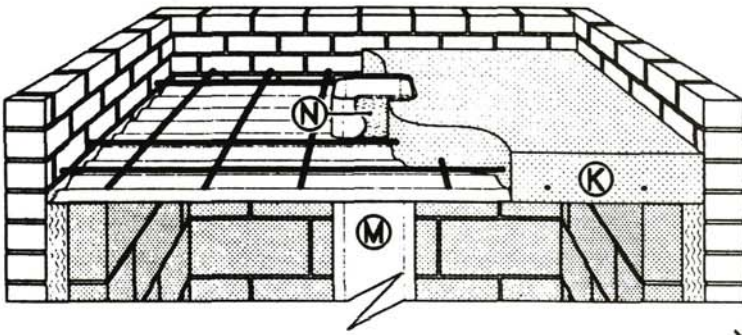
The combustion air ducting must be kept away from combustible material because a reverse air flow of hot gases may result while the unit is in certain operations such as burning with the doors open. Ducting that protrudes through combustible material can be protected by using double insulated pipe at these locations.

K. TOP CAP

The top cap of the heat chamber should be poured concrete, at least 4 inches thick, with properly installed reinforcement rod with all ends bent and anchored to the walls where applicable. (See Figure 4-K.)

Construct proper side and bottom forms for pouring the top cap. The base form should be constructed around the flue extension and support the poured concrete until it has cured. The exterior brick walls may serve as the back and side forms. A temporary form will have to be constructed for the front form.

Figure 4 - Top Cap



- K. Reinforced Concrete Top Cap
- M. Steel Flue Extension
- N. Flue Insulation Barrier
- O. Stainless Steel Flue Adaptor
- P. Clay Flue Liners (12" x 12" Modular)
- Q. Masonry Chimney Wall

WARNING

Remember that all combustible material used in the construction of the forms must be removed after the top cap has cured.

For ease of construction the base form may be of corrugated steel (such as steel siding) or similar non-combustible material. This can be left in place to be part of the construction.

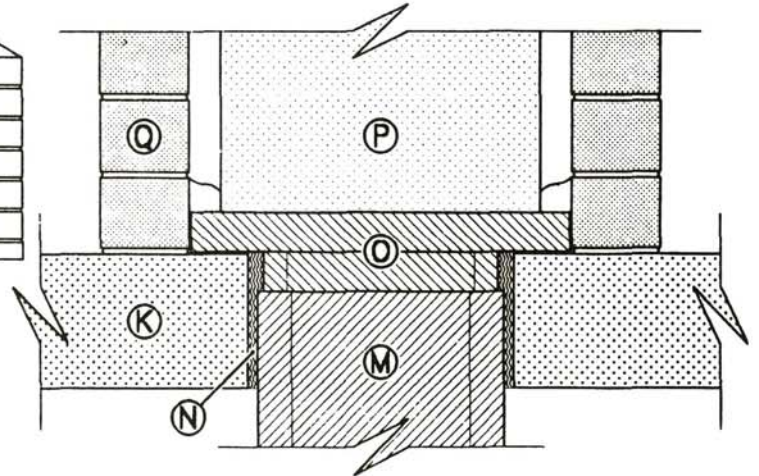
L. TOP CAP CLEARANCE

The maximum height of the chamber is determined by the ceiling height. A minimum distance of 4 inches must be maintained between the top surface of the concrete top cap area and any combustible material. This area should be filled with non-combustible fiberglass insulation. (See Figure 1-L.)

M. FLUE EXTENSION

The flue extension shall extend into the top cap, terminating approximately 1 inch below the top surface of the top cap. (see Figures 1-M and 5-M) A special 30 degree, 12 inch flue extension offset is available where installation does not allow the fireplace unit to be centered under the chimney. Consult your dealer for more information.

Figure 5 - Flue Adaptor



N. FLUE INSULATION BARRIER

Wrap the portion of the steel flue extension that will be surrounded by the top cap with non-combustible fiberglass insulation about 1/2 inch thick. This insulation barrier will protect the top cap from heat expansion. (See Figure 4-N.)

O. FLUE ADAPTOR

The flue adaptor joins the steel flue extension to the clay flue liners and gives the system a positive seal so that any creosote will not be allowed to collect or run to the outside of the steel flue extension. (See Figures 5-O and 1-O.)

IMPORTANT

The flue adaptor slides inside the flue extension and must rest firmly on the top surface of the top cap, leaving vertical clearance for the steel flue extension so that the weight of the chimney will not rest on the flue extension. The steel flue extension may have to be shortened to accomplish this.

CHIMNEY

Building code requirements for chimneys may vary. Be sure to follow all state and local code requirements as to the construction methods and materials used when installing the chimney system.

Construction of the chimney should not begin until the top cap has thoroughly cured.

P. FLUE LINER

This system is designed to use 12" x 12" Modular clay flue liners. The first flue liner shall rest inside the flue adaptor, distributing its weight to the top cap. (see Figure 5-P.)

The next sections of flue liner should be bedded in mortar with the joints cut flush and smoothed on the interior and the exterior joint area purged. The flue liners should be set one section ahead of the brickwork.

Q. CHIMNEY WALLS

The masonry chimney walls shall begin from the top cap around the flue adaptor. Chimney wall thickness should be a nominal 4 inches and constructed so that a nominal 1 inch air space is maintained between the flue liner and the surrounding brick masonry. (see Figure 5-Q). The base of the first flue liner should be firmly mortared in place.

NOTE

The joints of the flue liners should not line up with the joints of the surrounding brick masonry.

R. CHIMNEY CLEARANCE

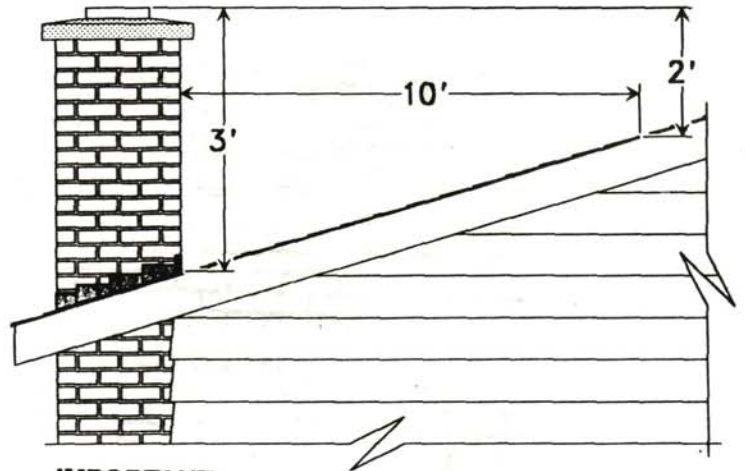
Chimney clearance from combustible material should be a minimum of 2 inches, except where the chimney is located entirely outside the structure, in which case 1 inch may be acceptable. (See Figure 1-R.)

All spaces between a chimney and combustible materials should be firestopped, using a minimum of 1 inch thick non-combustible material. Exterior spaces between the chimney and adjacent components should be sealed. This is most commonly accomplished by flashing and caulking.

The minimum chimney height for fire safety is the greater of 3 feet above the highest point where the chimney penetrates the roof line or 2 feet higher than any portion of the structure or adjoining structures within 10 feet of the chimney. (See Figure 6)

Chimney height shall be 11 feet, 6 inches or greater

Figure 6 - Chimney Clearance



IMPORTANT

Installation of a properly designed chimney cap to prevent any water or other foreign objects from entering the fireplace structure and/or fireplace system is a must. The warranty will not cover this system if a properly designed cap is not installed and maintained.

S. MASONRY FRONT

The masonry front should be properly constructed as to be part of the same structure, tied in and sealed against the end surfaces of the heat chamber walls, top cap and exterior walls. (see Figure 1-S). An exterior installation is an exception, where the exterior walls should not be tied into the masonry front. (See Figure 2-B.)

T. LINTELS

The masonry above the fireplace system opening should be adequately supported using steel angle (3-1/2" x 1/4") or reinforced masonry lintels and constructed so that the masonry above the opening is not resting on the system. Non-combustible fiberglass insulation should be placed between the flanged opening of the fireplace system and the lintel for protection against sudden thermal expansion. A lintel shall also be placed above the top vent. (See Figure 1-T.)

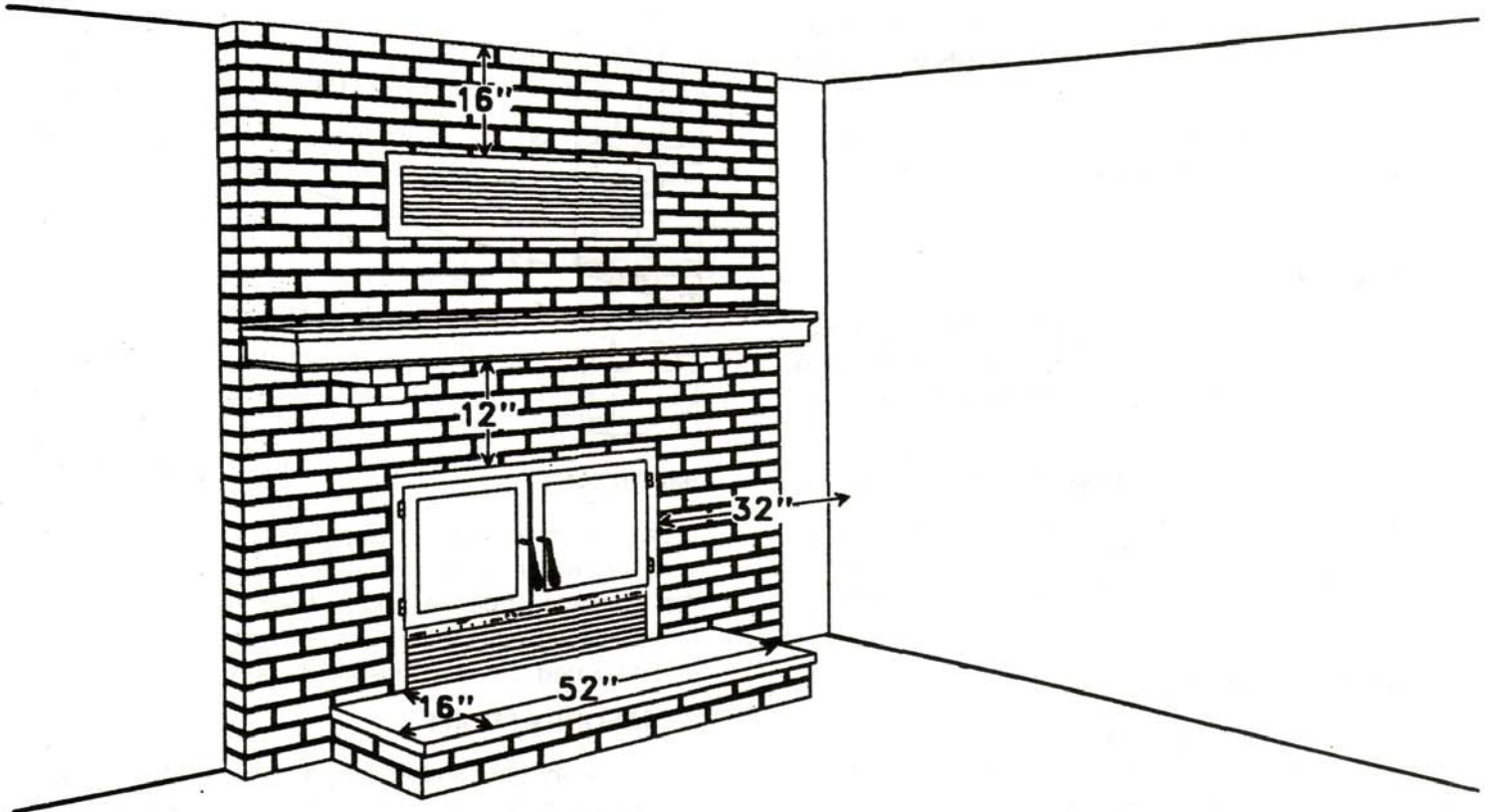
IMPORTANT

Non-combustible fiberglass insulation should be used around door/vent frame assembly on sides and top, so masonry and lintel are not in direct contact with door/vent frame assembly.

U. MANTEL

Do not use any combustible products in the construction of the masonry front. If a combustible mantel is desired, corbeling techniques should be employed for

Figure 7 - Masonry Front Clearances



All dimensions are minimum.

support of the mantel. The mantel should also be securely fastened to this projection and not the masonry front. (See Figure 1-U.)

WARNING

Combustible material such as a mantel must not be placed within 12 inches from the fireplace opening of the fireplace system. (See Figure 7.)

V. HEATED AIR OUTLET

The installation should be properly designed for adequate ventilation. The upper portion of the heat chamber must be vented using the manufacturer's top vent or by constructing a vent opening using masonry.

IMPORTANT

When air is heated it expands, acquiring a greater volume. Therefore, the vent or vents from which heated air exits the fireplace should have a greater area than the vent from which cool air enters the fireplace.

If the manufacturer's top vent is not used, ensure adequate cap vent area by creating an air space with masonry that consists of a minimum of 280 square inches of actual air exit space.

The top masonry vent and all vents on the surface of

the masonry must have proper clearances to combustibles. These are 16" to the ceiling or to any other combustible above the vent. (See Figure 7.)

Install the top vent with the louvers facing upward. This will allow heated air to exit faster, therefore making a cooler and more efficient fireplace. (See Figure 1-V.)

W. HEARTH

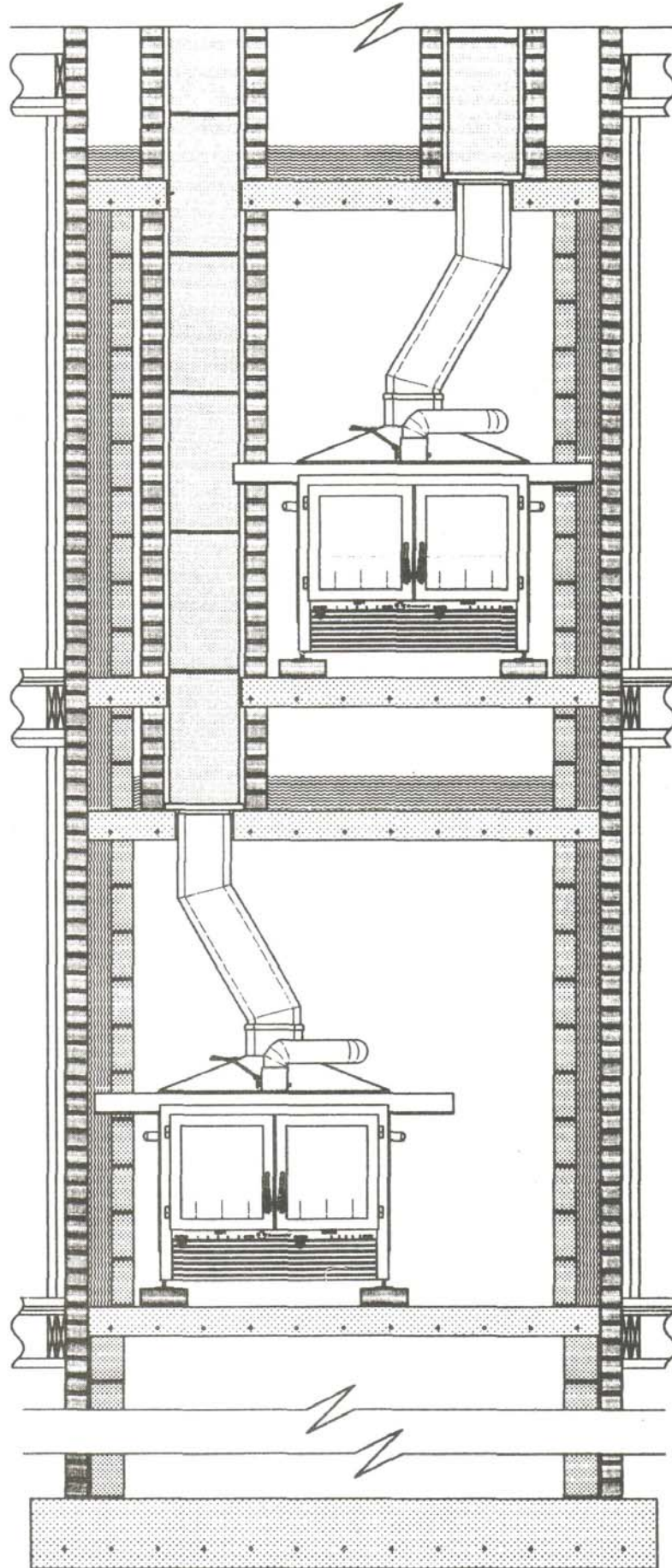
The hearth should be properly constructed as to be part of the same structure as the masonry front. The back surface of the hearth should be in line with the outside surface plane of the masonry front and not allowed to extend beyond the room air intake vent of the door/vent flange. This will allow clearance for removal of the door/vent flange to service the system. (See Figure 1-W.)

The hearth must be of non-combustible material. Minimum requirements contained in many building codes require it to extend 8 inches on either side of the fireplace opening and 16 inches in front. (see figure 7.)

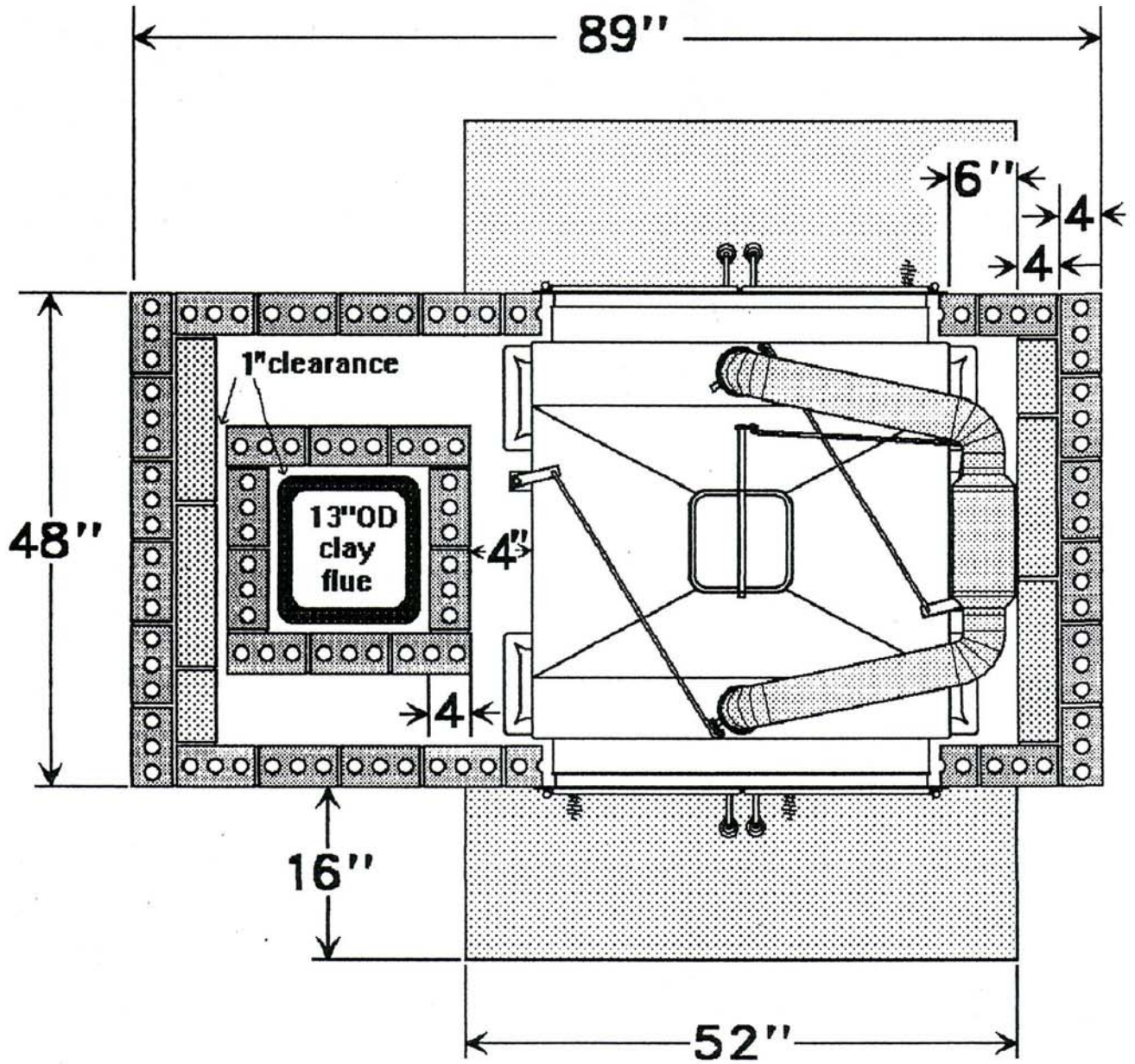
IMPORTANT

Allow a clearance from the top surface of the hearth to the bottom surface of the door/vent frame. This will allow the door/vent frame to be removed for future servicing of the system and/or blower.

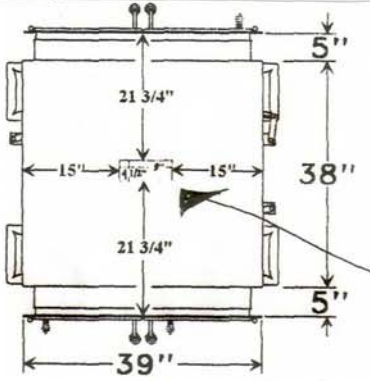
Figure 8 - Dual - Exterior Installation - Front View



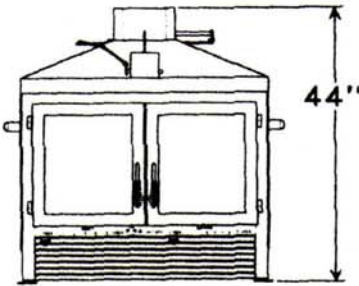
TOP VIEW DUAL INSTALLATION 50 SERIES



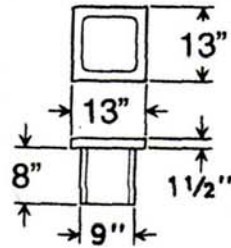
System Top View



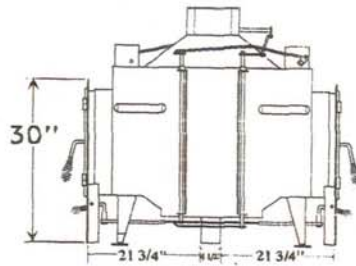
System Front View



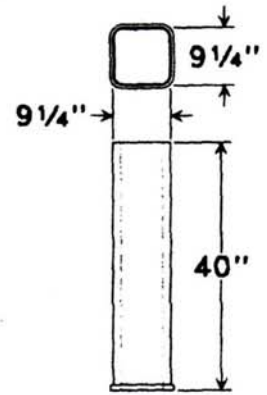
Flue Adaptor



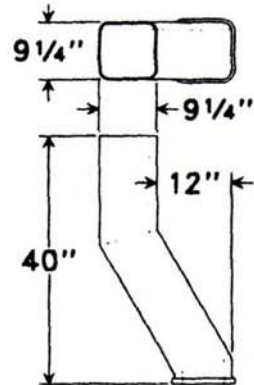
System Side View



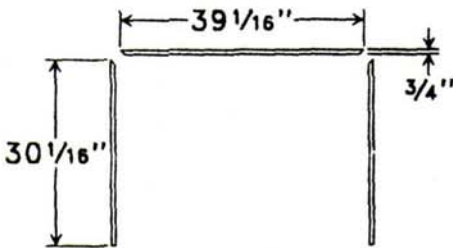
Flue Extension (Straight)



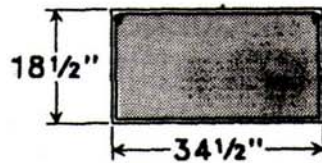
Flue Extension (12" Offset)



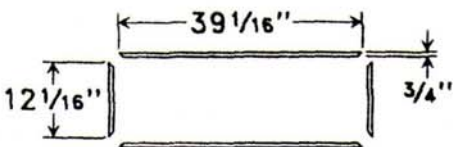
Door Frame Brass Trim Kit



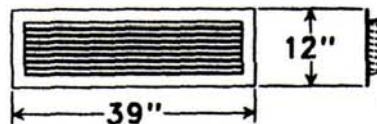
Fire Screen



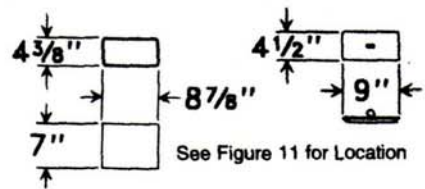
Top Vent Brass Trim Kit



Top Vent



Ash Disposal Kit
Drain Tube Cover





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