

Section 3 - Temp-Cast Fireplaces

The Fire

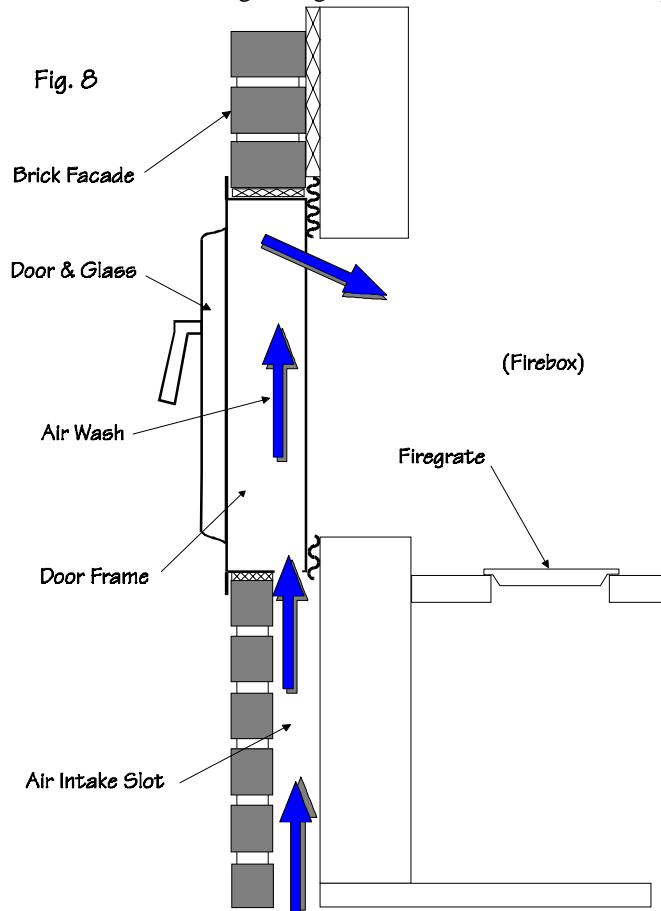
Fire has always fascinated man and been central to his life. Our ancestors simultaneously worshipped, revered, and feared fire, and were bound by rituals and myths concerning its use. Modern man is still dependent on fire in many forms.

"In our economy of abundance, fire is at the heart of the magic - in industrial plants, in automobiles, in our homes. A fuel cutoff sends shocks through the entire world economy. Whole societies become uneasy, and there is a search for relief, for new ways to feed the flame and keep it burning." (Ref. David Lyle, The Book of Masonry Stoves)

One of the most distinctive features of a Temp-Cast fireplace is the outstanding fire-viewing. When the fire is lit, it catches quickly and burns fiercely, creating a spectacular show. If a bake oven is incorporated, you can see the burning gases accelerating through the gas slot, creating an exciting "spark shower" and adding to your enjoyment of the fire.

An air-wash system feeds the combustion air across the

glass of the firedoors to maintain a clear view of the fire. (See Fig. 8) This unique system also pre-heats the combustion air for increased efficiency, which is especially important when an outside air supply is required to bring in frigid exterior air.



The Modular Contraflow Design

Temp-Cast fireplaces were created from early Finnish and Swedish designs in which the fire burns up through a central firebox and secondary combustion chamber. At the top, the fire

is split into two streams, which travel down inside the heat exchange channels built into either side. This opposing flow of fire and gases up the centre and down the sides is usually described as the "contraflow" action of the fireplace.

The contraflow or "Finnish fireplace" design is generally accepted as the simplest and most efficient of all masonry heater designs.

Finnish fireplaces and other masonry heaters can be hand-built by specially trained "heater" masons. However, each custom built unit may be slightly different than the last, and relies completely on the skill of the mason and his attention to numerous critical details. If the fireplace is incorrectly or carelessly built it may not work

properly and worse still, it may be unsafe. Temp-Cast fireplaces were carefully designed and tested for optimum efficiency, ease of assembly and maximum safety. Once the design was proven and tested in the field, it was modularized to simplify the assembly and

allow it to be reproduced in a controlled factory setting.

The modules are manufactured from a castable refractory material, specially designed to withstand the high combustion temperatures. They have a unique interlocking feature, so that one piece is precisely keyed to fit the next one. This allows them to be quickly and accurately erected and ensures that the completed core is structurally stable and independent of the facing material. This special keying prevents any leakage of air through the parts, and guarantees that the hot gases travel in the direction designed, not out through gaps or spaces in the modules. The interlocking feature also ensures that when the modules expand and contract, no part can be displaced and cause a safety or operating problem.

In addition, the modules themselves are precisely dimensioned, which will produce a level, plumb and square completed core. This will allow the mason to install the facing material quickly and accurately, and thereby produce a safe, effective and professional looking product.

Meticulous attention to quality control ensures that each fireplace shipped will perform to a predictable standard.

Core Assembly & Facing Materials

Temp-Cast fireplaces incorporate a "floating firebox" design, which isolates the heater core from

the external masonry facing. Considerable expansion and contraction takes place in the heater, and this design prevents the movement from affecting the finished exterior.

The fireplace core modules are assembled on a prepared concrete pad, supported on a suitable block foundation and footing. A flue connection is cut by the installer for the chosen chimney and location. A mason then erects the selected facade, which serves as the decorative finish and the additional thermal mass.

Suitable facades include solid or filled bricks, natural stone, fieldstone, soapstone, rocks and concrete blocks covered with tile, marble or stucco. Ideally, facades should be between 4" (100mm) and 6" (150mm) thick. Thicker facades tend to make the heater less responsive (slower to heat up and cool down) and heating needs must therefore be anticipated farther in advance.

The facade can be carried to the ceiling if desired, but provision must be made to allow the heat from the top of the fireplace to be vented. This is easily done by providing grillwork or air spaces just below ceiling level.

Design Flexibility

The final appearance of the heater is limited only by your imagination and the skill of your mason. Brickwork can extend into wood storage boxes, shelving, benches and nooks,

mantels, and cathedral arches. The heater can be freestanding in the middle of a space or designed to be part of one or more interior walls. Corner units extend this flexibility further, by forming part of an interior corner wall, or standing freely to suggest a corner divider between several rooms or areas. Chimneys can be attached on the sides or back of the fireplace, allowing additional design flexibility.

With planning and imagination, your Temp-Cast can be a unique piece of functional art.

Locating The Fireplace

Whether the fireplace is to be used as decorative fireplace, an occasional zone heater, or a primary heat source, its location must be carefully considered. The maximum benefit and enjoyment can be derived from the fireplace if it is fully integrated into the home and the family. Aesthetic appeal is important, but also give equal consideration to family traffic patterns and lifestyles.

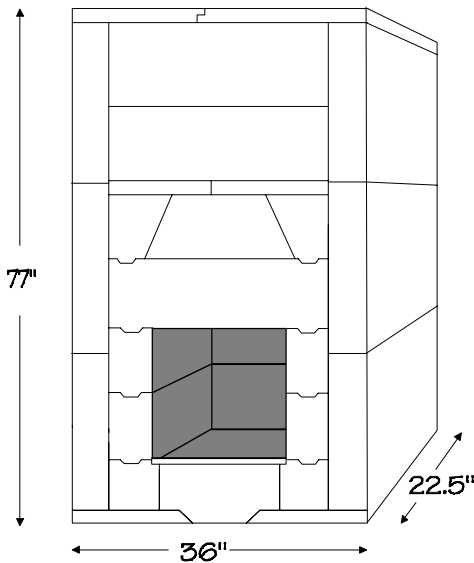
Place the fireplace so that it is visible from as many parts of the living area as possible. If it divides living room and kitchen, a bake oven on the kitchen side gives form and function to that side of the fireplace. Located in a corner, three or more can rooms be warmed by its exposed surfaces. The fireplace walls and the chimney can act as room dividers, providing walls and heat simultaneously.

Ideally, a masonry heater should be treated as a very important part of the home, with a view that it will be a part of the every day life of the family and provide a focus for daily routines. Hopefully, the family will gather around it each evening to talk or read or to just enjoy the fire. (Perhaps competing with the television?)

Standard Models

The Temp-Cast 2000 standard fireplace is 36" (914mm) wide by 22.5" (571mm) deep by 77" (1955mm) high, not including the masonry facing. Its rectangular

Fig. 12



Temp-Cast 2000 (Standard Fireplace) footprint makes it most suitable for installations along a wall or in the centre of a room. (See Fig. 12) The 2000 is also available as a corner model, bake oven

model or see-through fireplace.

Corner Models

A Corner Model Temp-Cast 2000 is 46" (1168mm) wide X 22.5" (571mm) deep X 77" (1955mm) high, without the facing material. (See Fig. 13). It is suitable for installation in an inside corner, or to form the walls of an inside corner, or free standing in the centre of a room. It can be oriented so that the fire is visible from various parts of the room, which may not be possible with a standard fireplace.

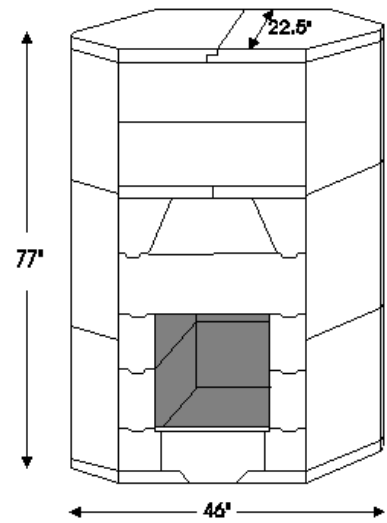
The chimney can be connected to the back of the core, or to any of the four angled corner surfaces, giving added flexibility.

Bake Ovens

Temp-Cast 2000 standard fireplaces and corner fireplaces are available with a bake oven option. The oven can be installed on the same side as the fireplace doors or on the back side, allowing the fireplace to be a divider between living room and kitchen.

The bake oven is installed in the secondary combustion chamber. After the fire is out, breads, pizza, and pastries can be baked in the remaining heat. If additional heat for baking is needed, a fire can first be set in the bake oven itself to increase the temperature.

Fig 13



Temp-Cast 2000 (Standard Corner Fireplace)

See-Through Fireplaces

Often, a fireplace will divide two areas of a living room or a dining room, when fire-viewing from both sides is desired. The Temp-Cast See-Through fireplace allows this by offering a second set of fire doors on the back of the unit. (Heat storage is slightly reduced by the extra doors, which radiate more of the heat from the fire directly into the room, instead of storing it in the masonry mass.)

Double-Stacked Fireplaces

Where heating on two floors is required, a Temp-Cast on each floor can be the solution. Using the same footing, one is stacked on top of the other, with separate chimney flues. The lower fireplace acts as the foundation for the upper one, and they work independently. (See Fig. 21, pg. 16).

Other Options & Accessories

Temp-Cast fireplaces are offered with several options to maximize efficiency and appearance.

"Hoyme" electric fresh air dampers increase efficiency by allowing fresh air into the home only during actual combustion.

Standard 2 piece rectangular doors can be replaced by a **single arched cast-iron door** with increased viewing area of 18" (457mm) X 16" (406mm), and with a 24k gold plating option.

"Thermotect" insulating boards under the fireplace core minimize heat loss through the concrete pad or basement floor, for increased overall efficiency.

Sliding chimney dampers and roof top dampers are also "efficiency" options that are worth considering.

Additional "soot" doors may be required to ensure inspection and cleaning access to the bottom of each heat exchange channel, depending on installation requirements.

Finally, an optional **air supply door** may be required in a basement installation *without* an exterior fresh air supply. This is installed just under the fire door, to direct air into the air intake slot under the door frame.

Warranty

Temp-Cast fireplace refractory parts carry a

limited three (3) year warranty. The warranty does not extend to removal or replacement of chimneys, facades or other masonry work.

Metal parts, including doors, are warranted for 1 year, except that damage to glass by impact is not covered.

Cost Comparisons

In considering the cost of your heating system, the maintenance and fuel costs are important considerations.

Your Temp-Cast will require little care beyond regular chimney inspections and rare chimney cleaning. Annual inspection and vacuuming of the base of the heat exchange channels, and periodic replacement of the door gaskets are typically all that is required.

The costs of fuel wood, even if it must be purchased, are traditionally the lowest of all fuels, and affected least by influences beyond the local area. Compare wood costs with costs of gas, oil,

propane and electricity in your area.

Energy Cost Calculations

(*Not adjusted for efficiency)

ELECTRICITY:

1 kw costs \$0.085

(1 kw = 3412 Btu)

OIL:

140,000 Btu/gal = 41 kw/gal

1 gal costs \$1.60

1 kw costs \$0.039

NATURAL GAS:

1MBtu /1000 cu/ft = 293

kw/1000 cu/ft

1 cu/ft costs \$0.73

1 kw costs \$0.025

WOOD:

27MBtu/cord = 7913

kw/cord

1 cord costs \$150.00

1 kw costs \$0.019

PROPANE:

110,000 BTU/gal = 32kw/gal

1 gal costs \$1.51

1kw costs \$0.047

