# INSTALLATION AND OPERATING INSTRUCTIONS
**FOR**

# THE HYPROTHERM FRONT LOADING FORCED AIR FURNACE

***Manufactured by***
**Hyprotherm LLC**

05/20/2021

# INTRODUCTION

**Thank-You** and congratulations on the purchase of your new HyProTherm, Front Loading, Forced Air, (Coal or Wood) Outdoor Furnace. With the purchase of this HyProTherm Furnace, you can now appreciate the high degree of craftsmanship and reliability that are a result of every furnace being carefully hand-built.
Your choice shows the recognition you have for high quality products.

You are now a member of the large international family of HyProTherm customers, who have enjoyed the elegance, efficiency and reliability of our furnaces for many years.

The HyProTherm Furnace was the first and is the leader in the Outside Wood Burning Furnace field. We sell furnaces as far away as Canada, the UK, Ireland, the Ukraine and Spain!

We deem it important to provide you with this user's and maintenance manual: to allow you to use your equipment under the best possible conditions and in the most optimal manner, and furthermore to increase its operating life. **We strongly advise you to read it twice, carefully and keep it handy.**

Again, ***Thank-You*** for purchasing the original HyProTherm Outdoor Wood Burning Furnace

**THIS MANUAL INCLUDES IMPORTANT SAFETY INFORMATION.**

***We are always here to help!***

*"When in Doubt – Make it Stout"*

**Table of Contents**

**Prior to connecting the duct work to the furnace, it is important to start a fire and bring the furnace up to its operating temperature. Run the furnace for 3 – 4 hours at temperature to burn off any residue left over from the manufacturing process.**

**Specifications**

Type of fuel – Wood only
For outdoor use only
Electrical Rating 115 VAC/ 60 HZ / 1PH
30 AMP Breaker for FLFA-4000
20 AMP Breaker for FLFA-1000 - 3000
FURNACE DIMENSIONS

HyProTherm FLFA -1,000
Heats; up to 4,375 sq ft.
64"L x 48"W x 89"H
1,720 lb shipping weight

HyProTherm FLFA -2,000
Heats; up to 6,575 sq ft.
77"L x 48"W x 89"H
2,220 lb shipping weight

HyProTherm FLFA -3,000
Heats; up to 8,600 sq ft.
87"L x 48"W x 89"H
2,340 lb shipping weight

HyProTherm FLFA -4,000
Heats; up to 10,700 sq ft.
76"L x 76"W x 89"H
3,380 lb shipping weight

Clearance to Combustibles

Top, Rear, Sides: 5 feet
Chimney Connector: 18"
Always use a double or triple-wall pipe when going through any kind of roof with at least 6” to 2 feet of clearance from any combustibles (depending on the type of flu pipe). Check with the manufacturer for their recommendations! We suggest using Metalbestos® stove pipe for the flue, which is insulated to prevent fires (available at most hardware stores).
Front: 10 feet, with the door facing away from the structure.
Flooring: Non-Combustible

# SAFETY PRECAUTIONS
# WARNING

Do not operate this equipment for other than its intended purpose nor other than in accordance with the instructions contained in this manual and all other instructions accompanying the furnace.

For furnaces covered by this instruction book, it is important to observe safety precautions to protect yourself from possible injury. Among the many considerations, you are advised to:

Observe all safety stickers on the furnace.
**This furnace must be wired by a qualified electrician in accordance with local and/or National Electrical Codes.**
Never use any type of petroleum product, petroleum-based product, charcoal starter, lighter fluid, lantern fuel, kerosene or any other flammable accelerant to start your furnace.
KEEP ALL SUCH LIQUIDS WELL AWAY FROM FIREPLACE WHEN IT IS IN USE.
Keep antifreeze, which is flammable, well away from the furnace.
The use of treated wood (painted, treated, etc.) driftwood and any other salvaged material that can emit noxious gases for the environment and is corrosive towards the components of the appliance is NOT ALLOWED and eliminates the rights of guarantee.
DO NOT BURN GARBAGE, HOUSEHOLD WASTE, STRAW, HAY OR YARD WASTE. In most areas this is illegal. The furnace is designed to burn seasoned cordwood and coal. Burning other materials can reduce the life of the furnace and will void your warranty.
**Open Loading door – pausing momentarily between the first latch and the safety latch to allow any combustion gases to burn off.**
DO NOT OPERATE THE FURNACE WITH THE DOOR OR ASH RECEPTACLE DOOR OPEN. Always latch the doors securely. If the ash door open for any extended period of time, other than for cleaning - it will cause over-firing of the furnace.
Always use proper care when installing, operating and maintaining the furnace.
**Always wear protective gloves and glasses and be aware that hanging and loose clothing can catch fire!**
The fire's heat can burn your eyes!
Do not modify the furnace. Do not substitute repairs that can be provided by your dealer, distributor, or Manufacturing Company (Hyprotherm Furnace).
Failure to heed these warning or any additional warnings on the furnace may result in an accident-causing personal injury and damage.

**CALL BEFORE YOU DIG THAT TRENCH!**

## Disposal of ashes

OPEN THE ASH DOOR FOR THE DISPOSAL OF ASHES. ASHES SHOULD BE PLACED IN A METAL CONTAINER WITH A TIGHT-FITTING LID. THE CLOSED CONTAINER OF ASHES SHOULD BE PLACED ON A NON-COMBUSTIBLE FLOOR OR ON THE GROUND. ALL COMBUSTIBLE MATERIALS SHOULD BE DISPOSED OF BY BURIAL IN SOIL OR OTHERWISE DISPERSED, THEY SHOULD BE RETAINED IN THE CLOSED CONTAINER UNTIL ALL CINDERS HAVE THOROUGHLY COOLED.

**All installation and operation must follow Federal, Provincial, State and Local Codes**

# OUTDOOR FURNACE BEST BURN PRACTICES

1. Read and follow all operating instructions supplied by the manufacturer.

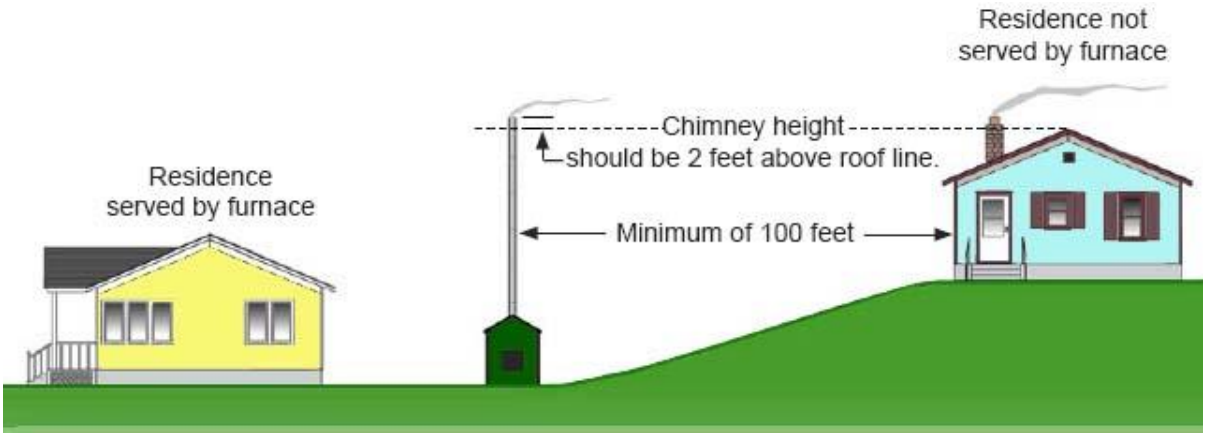
2. FUEL USED: You may burn any hardwood (or softwood), as well as pallets that have been split up and coal but NEVER burn driftwood, painted, stained or pressure or/and chemically treated wood. Never use the following: trash, plastics, gasoline, rubber, naphtha, household garbage, material treated with petroleum products (particle board, railroad ties and pressure treated wood), leaves, paper products, and cardboard. If you burn softwood, the wood will burn faster and you will have to clean the creosote and chimney more often.

3. LOADING FUEL: For a more efficient burn, always add wood before the wood has burned out. Most often it can be loaded in the morning and at night.

4. STARTERS: Do not use lighter fluids, naphtha, gasoline, or chemicals.

5. LOCATION: It is recommended that the furnace be located with due consideration to the prevailing wind direction. Chimney height can be easily extended with 5.5" Stovepipe. You can get downdrafts if the furnace is too close to a building. See Page 8 for additional information.

- We recommend a distance of at least 100 feet if prevailing winds blow towards any other residence not served by the furnace, it is recommended that the stack be at least 2 feet higher than the eave line of that residence.
- If located more than 100 feet but no more than 150 feet to any residence, it is recommended that the stack be at least 50% of the eave line of that residence, plus an additional 2 feet.
- If located more than 150 feet but no more than 200 feet to any residence, it is recommended that the stack be at least 25% of the height of the eave line of that residence, plus an additional 2 feet.




## Chimney height relative to nearest downwind neighbor

The chimney can easily be extended with our chimney adaptor (optional) or 5.5" stove pipe, to any height necessary, with zero adverse effect on performance. In fact, it may even draft better. Always use at least a double-wall pipe when extending the flue. The flue should extend at least 2 feet higher than any portion of a building within a horizontal distance of 10 feet. You can get downdrafts if the furnace is too close to a building.

6. **Always remember to comply with all applicable federal, state and local codes and laws.**

## Wood Recommendations

Burn only cordwood that has been seasoned for 12-18 months. Burning unseasoned wood is wasteful and inefficient, using much of the combustion energy to boil off the excess moisture. It also puts a lot of moisture into the ash "pan" which makes it corrosive. The wood *can* be split to aid in seasoning if it's real wet and should be approx. 25% moisture content by weight. **However, whole rounds burn longer and are cheaper but will have to be dried longer.**

The following are general guidelines for wood selection:

- Hardwoods burn better than softwoods (mix them if you need to burn softwood).
- Larger pieces (whole rounds) are best and burn better and longer than small pieces.
- 25% moisture content is optimum. Drier is ALWAYS better!

Higher moisture content wastes energy boiling off water. Wood with a lot of moisture can cause more smoke than the chimney can dispose of. It also puts a lot of moisture into the ash "pan", which makes an extremely corrosive mixture. **Ash corrosion is NOT covered by the warranty.**

Lower moisture content (very dry, old wood) burns rapidly and inefficiently.

**How does an outdoor furnace heat my home?**

The HyProTherm outdoor wood furnace is designed to save the most energy and provide the most comfortable heating available. It heats your home by heating a firebox surrounded by a steel air chamber. When this air chamber reaches a preset temperature a fan controller turns on the main circulation blower. This blower forces the air into your existing central duct system.

**How do the Thermostat Controls work?**

The only visible addition to the heating system inside your home is a 2nd thermostat, which is located near the existing thermostat, if possible. This thermostat actuates the combustion blower of your outdoor furnace. It does not control the big blower that blows the air into the area being heated. This blower is controlled by a Honeywell Fan Limit Controller located on the side of the forced air furnace. When the air inside the air chamber reaches the temperature of the **ON** setting of the Fan Controller turns on the main circulation blower. This blower forces the air into your existing central duct system. It will continue to run until the internal furnace temperature drops to the **OFF** setting. By setting the thermostat of your original heat system (if applicable)lower than that of your wood furnace it will act as a backup. The original wall thermostat turns on your original furnace, if the outside wood furnace is not in operation. Your existing furnace will automatically take over to maintain your household temperature.

**Location of Furnace** **SOME STATES HAVE THEIR OWN LAWS!**

The outdoor furnace should be located at least 10 feet from your home (according to most insurance companies), with the door facing away from the house, so that all fire danger is removed from your home. We recommend 30 feet or more. The furnace may be installed as much 30 feet away from your indoor furnace. The chimney should extend at least 2 feet higher than any portion of a building within a horizontal distance of 100 feet but MAY need to extend to your roof ridge line.

The furnace should be installed on a 4" thick concrete pad or you can use solid concrete pavers.

A) It is recommended that the furnace be located with due consideration to any neighboring residences and to the prevailing wind direction.
B) Do not locate an Outdoor Wood Burning Appliance within 100 ft of a residence not served by the furnace. **Follow local and state laws concerning setbacks.** Please be considerate of neighboring residences, properties, parks, etc.
C) Review the recommended stack heights on page 9.
D) Do not locate near any combustible materials, gasoline or other flammable liquids or gases.
E) Locate away from dry grassy areas, dry leaves, brush and trees.
F) Place far enough away from any building to minimize fire danger.
G) Check with your insurance company and local codes or ordinances.
H) Do not install in an area where nearby structures or trees might cause downdrafts or fires.
I) Typically, Outdoor Wood Burning Force Air Furnaces are located 5 - 20 ft downwind from the served structure.
J) Locate the furnace to allow easy access to wood supply.
K) To aid in smoke dispersal, extra chimney lengths may be required depending on the distance to surrounding structures.
L) The furnace requires 115 V, 30 Amp electrical service to operate.

**Failure to keep the HyProTherm Furnace area clear and free of combustible materials, gasoline and other flammable liquids and vapors can result in severe personal injury, death or substantial property damage.**

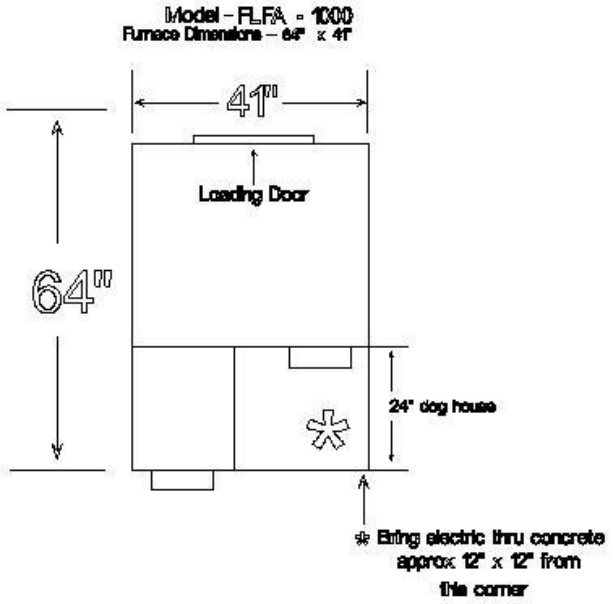
**CONCRETE PAD:** The concrete pad should have a ¾" PVC pipe placed through the concrete to run the power supply and thermostat wire (see below image). The furnace should be installed on the concrete pad with the rear of the furnace 2-3 inches from end of the pad, so that the pipe comes up in the space provided under the back access door.

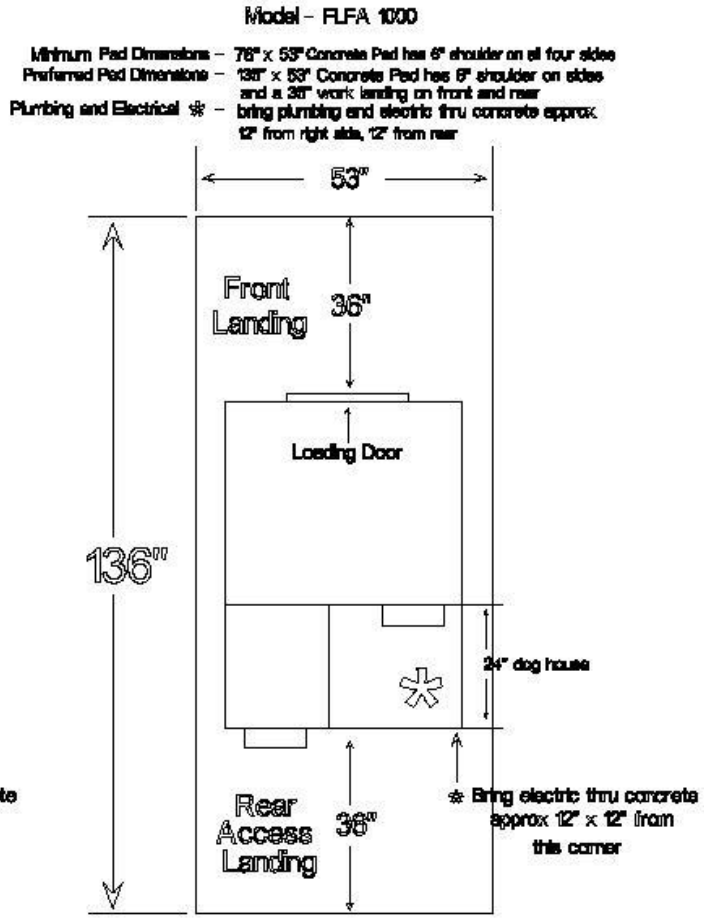
HyProTherm FLFA -1000 - 64" x 48" Suggested pad size 76" x 53"

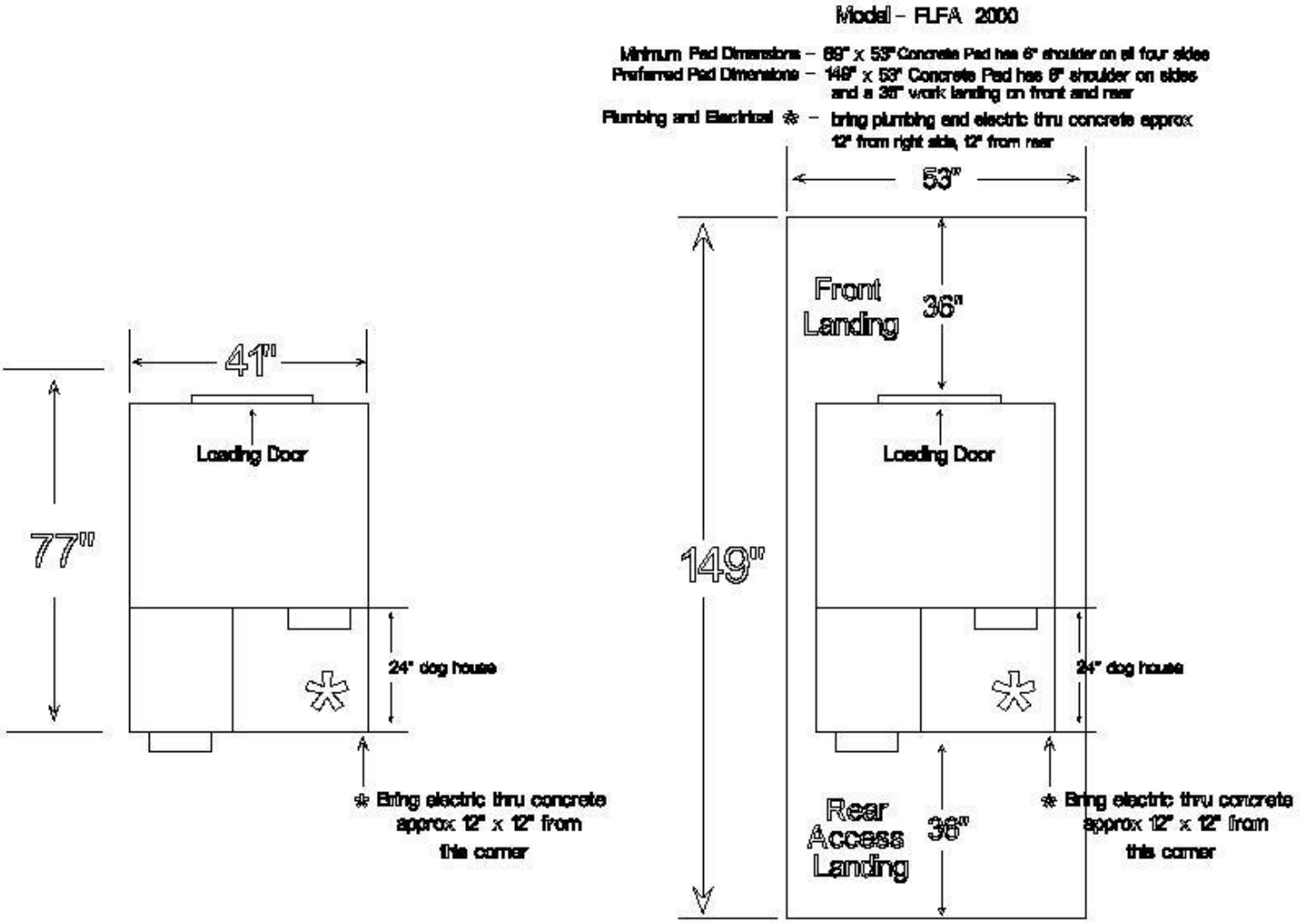
HyProTherm FLFA - 2000 – 77 x 48"" Suggested pad size 149" x 53"

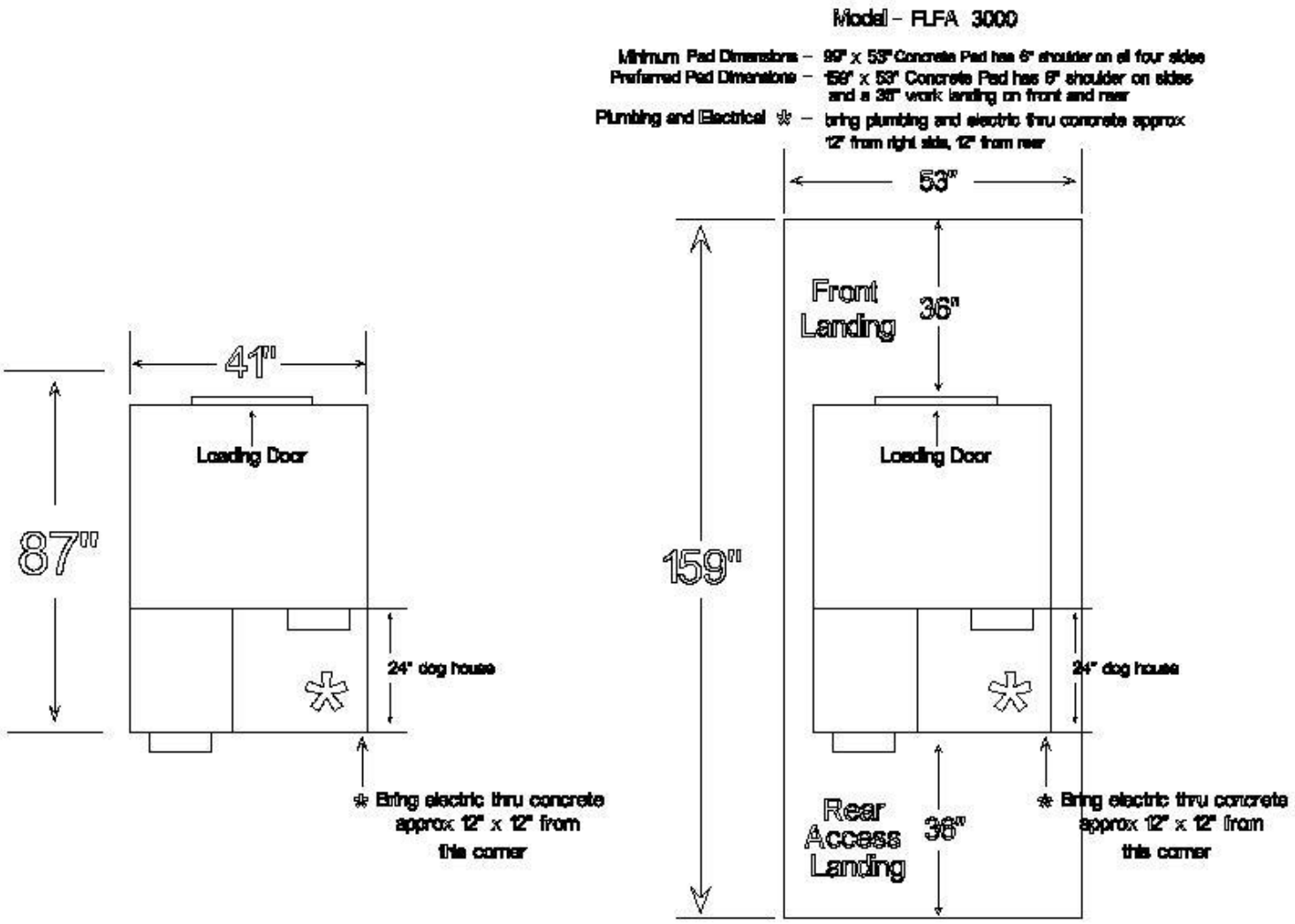
HyProTherm FLFA - 3000 - 87"  x 53" Suggested pad size 159" x 53"

HyProTherm FLFA - 4000 – 76 x 76" Suggested pad size 148" x 88"


Model - FLFA - 1000
Furnace Dimensions - 64" x 41"
41"
Loading Door
64"
24" dog house
* Bring electric thru concrete approx 12" x 12" from this corner

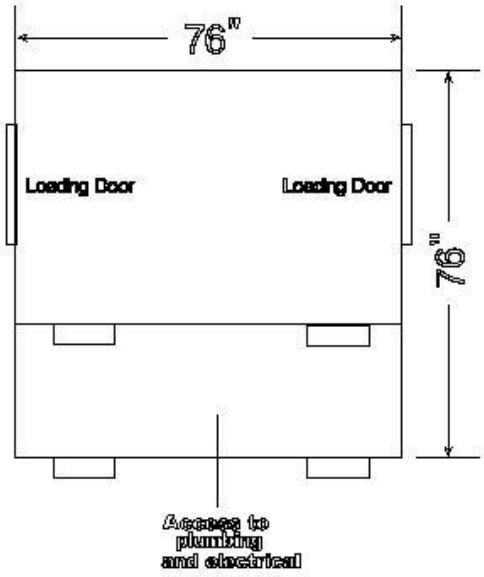

Model - FLFA 1000
Minimum Pad Dimensions - 76" x 53" Concrete Pad has 6" shoulder on all four sides
Preferred Pad Dimensions - 136" x 53" Concrete Pad has 6" shoulder on sides and a 36" work landing on front and rear
Plumbing and Electrical * - bring plumbing and electric thru concrete approx. 12" from right side, 12" from rear
53"
Front Landing
36"
Loading Door
136"
24" dog house
Rear Access Landing
36"
* Bring electric thru concrete approx 12" x 12" from this corner


Model - FLFA 2000
Minimum Pad Dimensions - 89" x 53" Concrete Pad has 6" shoulder on all four sides
Preferred Pad Dimensions - 149" x 53" Concrete Pad has 6" shoulder on sides and a 36" work landing on front and rear
Plumbing and Electrical * - bring plumbing and electric thru concrete approx 12" from right side, 12" from rear
53"
Front Landing
36"
Loading Door
149"
24" dog house
Rear Access Landing
36"
* Bring electric thru concrete approx 12" x 12" from this corner
41"
77"
Loading Door
24" dog house
* Bring electric thru concrete approx 12" x 12" from this corner


Model - FLFA 3000
Minimum Pad Dimensions - 99" x 53" Concrete Pad has 6" shoulder on all four sides
Preferred Pad Dimensions - 159" x 53" Concrete Pad has 6" shoulder on sides and a 36" work landing on front and rear
Plumbing and Electrical * - bring plumbing and electric thru concrete approx 12" from right side, 12" from rear
53"
Front Landing
36"
Loading Door
159"
24" dog house
* Bring electric thru concrete approx 12" x 12" from this corner
Rear Access Landing
36"
41"
87"
Loading Door
24" dog house
* Bring electric thru concrete approx 12" x 12" from this corner

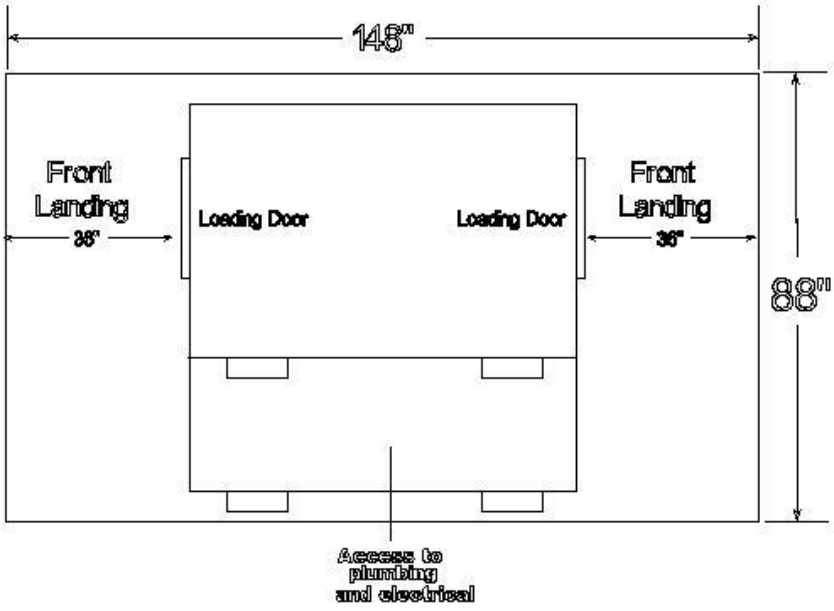
Model – FLFA -4000

Furnace Dimensions – 76" X 76"




Model – FLFA 4000

Minimum Pad Dimensions – 85" X 88" Concrete Pad has 6" shoulder on all four sides
Preferred Pad Dimensions – 148" X 88" Concrete Pad has 6" shoulder on sides and a 36" work landing on front and rear
Plumbing and Electrical ✲ – bring plumbing and electric thru concrete approx.
Center of furnace 12" from rear



# Initial Installation

Upon receiving your furnace and as part of the installation make these checks. Remove the doghouse cover from the back of the furnace. The doghouse is divided into two sections on the FLFA – 1000, 2000, and 3000 models. The combustion blower with auto damper, and the fan control center are housed on the right side. The left side is the air intake plenum which houses the big blower responsible for moving the air through the ductwork. The FLFA – 4000 and all of the forced air top loading furnaces have three sections. The center section holds the combustion blower and has two intake plenums one on each side of center. Your furnace has traveled many miles to reach you over some very rough roads and the vibration may have loosened bolts, nuts or seals. First inspect the combustion blower for loose wires and check its mounting bolts for tightness. Next inspect the intake plenum and enclosed blower following the steps out lined in the Furnace Blower Maintenance instructions below.

## Furnace Blower Maintenance

On the back of your furnace is a doghouse style intake plenum which houses a combustion blower on one side and a large blower on the other.
Your furnace will come to you with a cover over the large blower housed in this plenum. As part of your yearly maintenance schedule for the furnace and during the initial installation this plenum and the blowers inside it need to be inspected. The intake plenum interior can be insulated to reduce wood consumption. Care needs to be taken to ensure that any insulation material used be securely affixed to prevent it from coming loose and entering to duct system or burning up a blower. Prior to preforming any maintenance on the furnace first remove or disconnect all electric power supply to the furnace. Remove this blower cover by cutting the silicone seal around it and lifting the cover off. Remove the lid from the 2” x 4” electric junction box located on the top of the blower. Label and disconnect the wires connecting the blower. Remove the two nuts holding the blower to the furnace blower mount and remove the blower from the plenum. Clean and inspect the blower assembly. Spin the blower wheel by hand to ensure that it rotates freely and is free of debris. If the blower wheel contacts the housing during rotation it will need adjusted. This is done by loosening the blower wheel hub set screw and sliding the wheel on the motor shaft until it spins freely with no contact. Reapply thread lock to the set screw and retighten it in the blower wheel hub. If upon inspection the blower wheel spins freely, check the set screw in the blower wheel hub for tightness. Set the blower aside for later reinstall. Inspect the intake plenum which houses the blower for debris. Inspect the plenum joint seals visually for leaks. When the blower is in operation it creates a vacuum in the plenum to draw return air from the building being heated. Any leaks in the intake plenum can allow smoke, or cold outside air to be drawn into the plenum where it is blown thru the air jacket of the furnace and into the building being heated. Any leaks or suspected leak may be sealed with 100% rubber silicon caulk, and or metal foil HVAC tape. Once the inspection and any repairs have been made to the plenum replace the blower in the plenum. Replace the mounting hardware including any nuts and washers. Reattach the electrical connections matching the labels you made during the removal. Double check all of the wire connections and mounting bolts for proper tightness. Replace the plenum cover and reseal it with 100% rubber silicone ensuring there are no air leaks. Replace the doghouse cover and return electrical service to the furnace.

This furnace must be wired by a qualified electrician
In accordance with the National or/and County/State Electrical Code.

Install a ground rod, several feet deep and attach a 12 or 14 gauge wire, with a clamp and attach it to the frame of the furnace.

## Connecting power to your furnace

**The furnace requires 115 VAC, and connection will be made under the back access door of your HyProTherm Furnace, as will the thermostat wires.**


**Black (A) goes to 115 VAC 20 Amp circuit breaker (or 30 amp for 4000 models), and connects to the black wire on your outdoor furnace.**

**White (B) goes to circuit breaker box - common connections, and connects to the white wire on your outdoor furnace.**

**Ground wire (C) is grounded in circuit breaker box, and connects to bare copper ground wire on your outdoor furnace.**

Install a ground rod, several feet deep and attach a 12 or 14 gauge wire, with a clamp and attach it to the frame of the furnace.

## Wiring a house thermostat to the furnace

**Purchase a simple, 2-wire thermostat (a simple ON/OFF switch) use those 2 wires to connect to the 2 thermostat wires of your outdoor furnace. (D)**

## Wiring a replacement fan/blower

Remove fan from the flange by removing the three bolts and three nuts and the gasket.

Be sure to use a clamp (shown below) to prevent fraying of the wires. I also used a piece of wire insulation to protect the two single wires running to the solenoid.

Use wire nuts to tie both wires together) power and common) - all three wires together (shown here) if using a solenoid activated damper.

Tighten the nut and screws on the wire clamp.

# Setting the Fan and Limit Controller

This controller is a thermostat turning the big blower on and off based on your settings and the furnace interior temperature. These settings are represented as “Fan On” and “Fan Off” on the dial of the controller. It also acts as a temperature Limit switch. In this capacity it will cut power to the combustion blower of the furnace to prevent overheating as well as over consumption of wood. The setting for this is represented as “Limit” on the dial of the controller.

In normal operation a thermostat placed in the area to be heated turns the combustion blower of the furnace on when the house needs heat. This builds the temperature in the furnace up, and when it reaches the “Fan On” setting of the Fan Limit Controller the big blower will come on moving hot air to the house. When either the house reaches its desired temperature or the furnace reaches the temperature of the Limit setting on the controller, the combustion blower will shut off. The big blower will continue to run until the “Fan Off” temperature of the fan limit controller is reached. The 3 settings on the Fan Limit Controller need to be adjusted per install to maximize heat transfer and minimize wood consumption. A good beginning setting for the Fan Limit Controller is to set the Fan On to 100, the Fan Off to 75, and the Limit to 150 see below



FORCED AIR FURNACE = Thermostat inside house does only one thing, it tells combustion blower to blow air till it reaches set example temp inside of house whether its 70 degrees or 85 degrees. FORCED AIR FURNACES Don't control like water furnaces their different water furnaces when you turn thermostat on inside of house the minute it reaches set temp the blower inside shuts off or comes on meaning whatever its set on because the water inside the furnace is set at desired temperature example from 130 degrees to 160 degrees just like you truck heater it's simply a big hot water storage tank that you get your BTUs off of

FORCED AIR FURNACES are an air storage furnace outside meaning, they have 3 basic parts 1, a combustion blower, 2 a big CFM Blower, and 3 a fan limit control. The fan limit control has 3 settings on automatic which are fan on, fan off, and limit (A=.Fan On) Which makes the BIG CFM Blower come on at approx. 100 degrees supplying warm air to your house it will stay on until it reacts the fan off position (B=Fan Off Setting) Which is approx. 75 degrees, (C=Limit Setting) Which makes the combustion blower shut off (combustion chamber blower) when it reaches limit stop setting at 150 degrees

Simpler version

FORCED AIR FURNACES Set your thermostat at desired temp in your house the blower or warm air coming into your house will go on and off often

These settings are just suggested beginning settings and may need to be adjusted to fit your needs. The Fan ON and Fan Off settings need to have around 20 degrees between them to prevent the big blower from constantly cycle ling or turning on and off. Allow at least one hour between setting changes and longer when the changes are small. This will allow both the furnace and the area being heated time to adjust to the new settings.

## SETTINGS AND ADJUSTMENTS

### ⚠ CAUTION

When adjusting the fan and limit set point levers (Fig. 10), hold the scalepale dial to keep it from turning and straining the sensing element.
Move each indicator lever to the control point recommended by the burner or furnace manufacturer. Use gentle finger pressure.

### FAN SETTING ADJUSTMENT

1. Move the FAN OFF lever to the temperature at which the fan is to stop to prevent circulation of cool air.
2. L4064B - Move the FAN ON lever to the temperature at which the fan is to come on.

### MANUAL FAN SWITCH

For constant fan operation, push the FAN switch button in. For fan to cycle automatically, pull button out.

### LIMIT SETTING ADJUSTMENT

These controllers have a limit stop which prevents the limit indicator lever from being adjusted beyond the equipment manufacturer's specifications.

1. Push the small end of Limit Adjust Tool (196722) through hole in scaleplate (located at caution marking) to depress the stop disc not more than 1/16 in. (1.6 mm) to release stop lock (Fig. 10). Stop disc is on back of scaleplate.
2. While depressing the stop disc, insert the long end of Limit Adjust Tool next to limit stop (Fig. 10) and move the stop to desired setting. *If the L4064 is a replacement control, high limit stop setting should be the same as that of the control being replaced.* (Move stop clockwise ↷ to lower the setting, counterclockwise ↶ to raise it.) Then remove the limit stop adjust tool.
3. Set the LIMIT OFF lever to the temperature at which the high limit switch is to open to stop the burner. If the high limit stop has been properly set, the LIMIT OFF lever should be as high as the stop permits.

**Automation and Control Solutions**
Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN, 55422
www.honeywell.com/building/components
07/06 RB

69-0117-3

## OPERATION

As the plenum temperature rises, the bimetal sensing element of the control wraps and mechanically makes

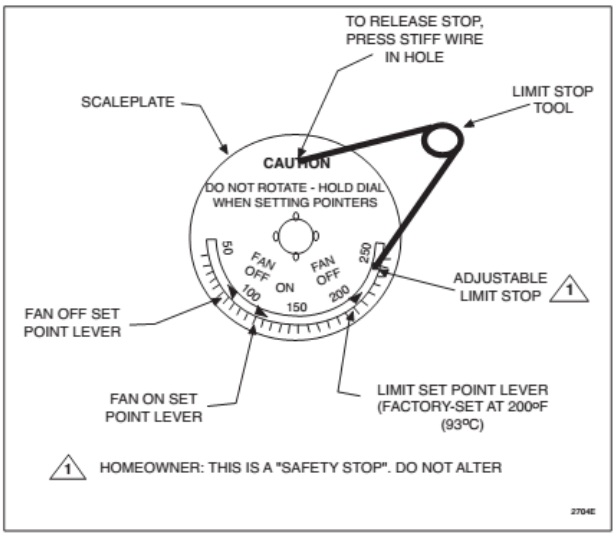



**Fig. 10 - Changing the high limit stop.**

the fan contacts (at the FAN ON temperature setting). During normal operation, the call for heat end before the LIMIT setting is reached, and the fan contacts break as the plenum temperature falls and the FAN OFF setting is reached.

If the call for heat continues until the temperature in the plenum rises to the LIMIT setting, the bimetal element will mechanically break the limit contacts and de-energize the gas control circuit.

### CHECKOUT

When installation is complete, disconnect the fan motor circuit at the L4064. Turn on power and set thermostat to call for heat. Burner should come on and limit controller should shut burner off when plenum temperature reaches the limit set point. Turn off power, recconnect the fan switch, turn on power and again set thermostat to call for heat. Fan should come on when plenum temperature has reached fan-on setting.

Honeywell

## Connecting the Air Ducts

**Prior to connecting the duct work to the furnace it is important to start a fire and bring the furnace up to its operating temperature. Run the furnace for 3 – 4 hours at normal temperature to burn off any residue left over from the manufacturing process.**

**All installation and operation must follow Federal, Provincial, State and Local Codes**

The furnace may be connected to an existing HVAC duct system or may be operated as a stand alone heat system. The furnace has a 12" round male connector on both the supply and return side at the furnace. Use only metal pipe to connect the supply side of the furnace to the area being heated, however Flex or other material may be used to connect the return line to the furnace.

## Starting a Fire

Use small pieces of split kindling together with crumbled newspaper or cardboard, and add larger pieces. Kiln dried lumber (as shown) works great!!
Remember: The smaller the better, the dryer the better.

If you have poor draft, heat up the chimney by twisting some newspaper into a torch and hold it up into the stove until the draft is reversed.

**If it is difficult to start the fire the reasons could be:**

**Not enough air:** Make sure that fan is on or open the ash door (approx. 1 cm gap).

**Bad/wet kindling:** Use small pieces of split kindling together with crumbled newspaper or cardboard, and add larger pieces. Remember: The smaller and drier the better.

**Down draft/cold chimney:** Heat up the chimney by twisting some newspaper into a torch and hold it up into the stove until the draft is reversed.

The fire should be blazing when the fan is on. It should be just smoldering if the fan is off.

Quickly crack open the firebox door to see what the fire is doing. (Leaving the door open any length of time will give you a blazing fire that could cause on over temp condition.)

# Maintenace

⚠

**Clean out ash!! Moisture combined with ash will eat through a furnace in short order and ash or/and coal corrosion IS NOT COVERED under warranty.**

Green wood can also cause a lot of water to get into the ash area as well, so keep a sharp eye on that.

With our grate and ash door, you can remove the ashes while the fire is still burning.

**Creosote** – Formation and 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.

The chimney should be inspected at least once a month during the heating season to determine when a creosote buildup has occurred. When creosote has accumulated, it needs to be removed to reduce the risk of a chimney fire.

All creosote and ash must be cleaned from firebox twice a year, preferably halfway through the heating season and immediately after the heating season.

**END OF SEASON:**

- Power: Turn off power supply at the appropriate circuit breaker
- Chimney: Clean and inspect chimney. **Cap the chimney to keep rain water out.**
- Firebox & Ash trough: Remove ashes, soot, and hardened deposits from the fire chamber by using putty knife or wire brush. Coat inside of firebox with a light coat of motor oil to protect the steel during the off-season.
- Doors: Oil door hinges and latches.

⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠⚠

**Moisture from rain or condensation must not be allowed to accumulate in the firebox or ash pan at any time, including the off-season. Failure to perform preventive maintenance may result in corrosion damaging the boiler resulting in possible severe property damage. This IS NOT COVERED under warranty.**

**Disclaimer**

All installation, wiring and operation must follow Federal, Provincial, State and local codes, ordinances and laws.

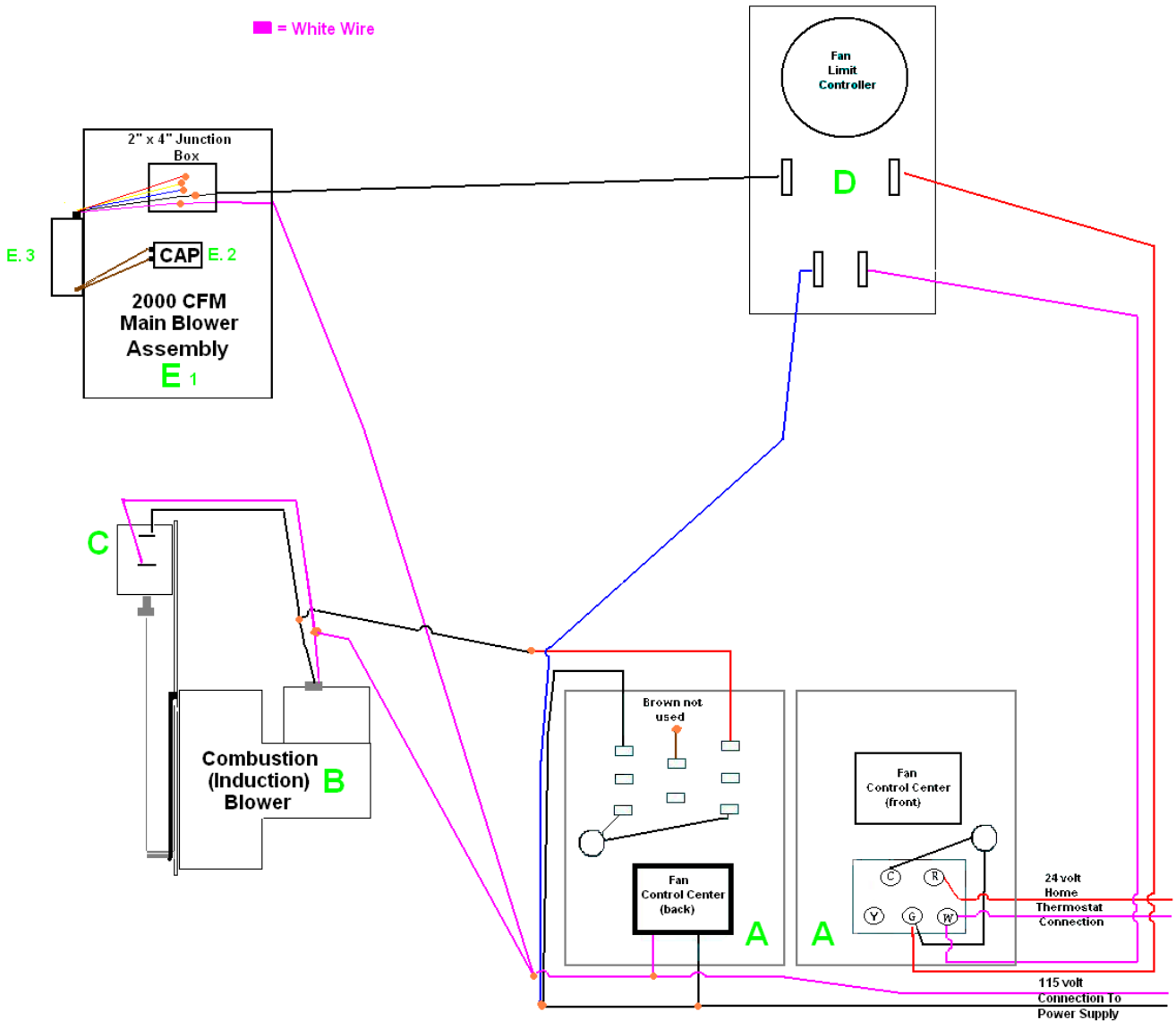
Do Not consider outdoor wood furnaces for built up urban areas.

The HyProTherm furnace is not intended to be the only source of heat. Therefore a backup system should always be in place and be ready for use.

A backup generator is HIGHLY recommended so that you can have heat during power outages!

All electrical and plumbing should be done by qualified personnel and conform to national and local state/county building, electrical, plumbing, fire and building codes.

Manufacturer is not liable for damages to personnel or property for misuse, improper installation of equipment or for knowing local installation codes. Owner assumes all responsibility for this. This is just a general manual to aid in installation. We cannot know all applicable codes in your area!


= White Wire
Fan
Limit
Controller
D
2" x 4" Junction
Box
E. 3
CAP
E. 2
2000 CFM
Main Blower
Assembly
E 1
C
Combustion
(Induction) B
Blower
Brown not
used
Fan
Control Center
(back)
A
Fan
Control Center
(front)
A
C
R
Y
G
W
24 volt
Home
Thermostat
Connection
115 volt
Connection To
Power Supply

## Electrical Component List

A. White Rodgers #90-113 Fan Control Center

B. Dayton #1TDP3 75 CFM Blower or (#1TDP7 150 CFM or #1TDR3 273 CFM)

C. Dormeyer #4X240 Solenoid

D. Honeywell #L4064B2210 Combination Fan and Limit Control

E1. Dayton #7HL64 Blower Assembly

E2. Dayton Capacitor, # 2MDV9, 15MFD Oval, 370VAC

E3. DAYTON #3LU87 3/4 HP Direct Drive Blower Motor, Permanent Split Capacitor, 1075 Nameplate RPM, 115 Voltage

4 speeds

White = Common

Black = High - 2000 CFM

Blue = Med High - 1650 CFM

Yellow = Med Low - 1135 CFM

Red = Low – 975 CFM

# Hyprotherm Front Loading Forced Air Furnace Warranty

## 20 Year Limited Warranty

Hyprotherm, LLC of Salem Arkansas, 72576, herein known as Hyprotherm, warrants material and labor on any defects in workmanship on the fire box for a period of 20 years from the purchase date to the original owner only (see proration below) and on the air jacket for a period of 10 years from the purchase date to the original owner only (see proration below). If there is a leak in your properly delivered, installed and maintained forced air furnace, we will cover repair costs for the first 5 years and prorated after that (see below). Repair can be denied if the unit's air jacket has exceeded 220 degrees.

This warranty is limited to defective parts and excludes any incidental and consequential damages connected therewith. Hyprotherm does not warranty damage or malfunction to any interior portion of the furnace caused by ash corrosion or allowing the unit to overheat. All interior portions (especially corners) must have the ash stirred daily to prevent caking and be completely cleaned out of all ashes and creosote a minimum of 2 times per year, halfway through the heating season and at the end of heating season. The chimney must be covered or have a rain cap when the boiler is not in use. Caulk sealant and rope gaskets are not covered under this warranty. Damage caused by abuse, neglect, accidents, improper installation, customer or dealer modification, overheating will not be covered under warranty. Damage caused by burning flammable materials (i.e. petroleum products), wet (green) wood or anything other than dry coal or dry, seasoned cordwood will not be covered under warranty. Hyprotherm does not warranty furnaces against environmental conditions out of its control. Hyprotherm does not warranty or guarantee against your area's governing laws or changes in your area's governing laws that will affect the use or non-use of the unit.

On sight non-warranty parts and labor will be provided at the discretion of your dealer. Please contact your dealer for their current non-warranty rates. Labor is not covered for repairing or replacing electrical or other components not a part of the welded assembly that is under warranty.

Hyprotherm Forced Air furnaces are not meant to be your sole source of heat. It is the responsibility of the owner to have a backup system in place. If you do not have a backup source of heat you are at risk of damage due to lack of heat. Hyprotherm will not warranty or be responsible for any damage caused by lack of heat at your premises or for any cost incurred from using a backup heat system in the event of a furnace failure.

There is no written or implied performance warranty on the furnace as Hyprotherm has no control over the installation, structure insulation, maintenance, daily operation and heating demand on a unit or what is burned in the furnace. Hyprotherm will not cover or be held responsible for any cost of wood or coal burned in excess of what is expected or considered normal as installation, fuel being used, structure size and insulation conditions are out of its control.

**Hyprotherm Warranty Pro-ration:**

Hyprotherm will pay costs of warranty work based on the following pro-ration:

**Fire Box**: Years 1 – 5: 100%, Year 6 – 90%, Year 7 – 80%, Year 8 – 70%, Year 9 – 60%, Year 10 – 50%, Year 11 – 40%, Year's 12 – 14: 30%, Years 15-20: 20%

**Air Jacket**: Years 1 – 5: 100% Year 6 – 80%, Year 7- 60%, Year 8 – 40%, Year 9 – 20%, Year 10 – 10%

**1 Year Warranty on Other Components**

Hyprotherm warranties, to the original owner only, any component or part of the furnace that is defective during normal usage for a period of 1 year from customer's date of delivery. Shipping for returning defective parts is not included. Replacement/repaired parts are obtained from the dealer purchase was made through. Labor is not covered for repairing or replacing components that is under warranty. After one year, your dealer may charge you for any parts provided. **No warranty parts will be provided without first returning the defective part.** Replacement/repaired parts carry a 90-day warranty or the fulfillment of the 1-year warranty period, whichever comes later.

**Warranty Procedure**

All claims under this warranty must be made through Hyprotherm regardless of where it was purchased. If by inspection or photo observations Hyprotherm indicates that a warranty claim is justified and that all conditions of this warranty have been met, Hyprotherm will repair or replace the problem part according to the above proration. Proof of purchase and return of the defective part (if applicable) must be provided by the owner of the furnace before any warranty is given. All costs of removal, shipment to and from the dealer or Hyprotherm and losses during shipment and reinstallation and any other losses due to the stove being removed shall be covered by the owner of the furnace. Please contact Hyprotherm via email to proceed: **sales@hyprotherm**

## Please fill in the following information and mail this copy by mail to:

**Hillbilly Manufacturing LLC, POB 156, Salem, AR 72576**

**Your name and address:**

_____

_____

**Phone number(s):** _____

**HyProTherm Model:** **Date of Purchase:**

_____ _____/_____/____

**Serial Number: (Only applicable only if financed)**

_____

**Date of Installation and who installed (Proper self-installation, following the instructions. will not void the warranty):**

_____

**Dealer Purchased from (if purchased from the factory, put Hillbilly Manufacturing LLC):**

_____

**Dealer Address:**

_____

_____

**Dealer Phone Number:** _____

Please keep this manual with all other important papers. The information in this manual is necessary for the installation, operation and proper use of this furnace. If you should ever have a problem or question please refer to this manual or have it available when you call your HyProTherm dealer or Hillbilly Manufacturing LLC