

# OWNER'S MANUAL

*Forced Air Models*



Earth Manufacturing, LLC, 6867 Cherokee Road Norwood, MO 65717  
417.926.4136 - [www.EarthOutdoor.com](http://www.EarthOutdoor.com)

LETTER FROM EARTH OUTDOOR FURNACES:

Thank You for purchasing an Earth Outdoor Furnace!

We know how exciting this moment is. You may have looked forward to having an outdoor furnace for days, weeks or years. Our staff has worked hard to provide you with a quality product that you should enjoy for many years. Please take time to read over the information in this manual and follow the recommendations contained in it to have the joy of operating your furnace for years to come. **Improper use and/or installation** may void warranties. Always follow local code requirements and seek the help of qualified craftsmen when installing the furnace or systems associated with your furnace.

We take pride in providing a quality product and friendly service.

Thank you for your business!!!

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## **FURNACE SPECIFICATIONS**

<b>BEAR CUB 305-FA</b>	<b>Rancher 365-FA</b>
<b>OUTSIDE DIMENSIONS AND WEIGHT</b>	
<ul style="list-style-type: none"> <li>• 38" in length</li> <li>• 53" in height</li> <li>• 38" in width</li> <li>• 700 lbs - dry weight</li> </ul>	<ul style="list-style-type: none"> <li>• 60" in length</li> <li>• 92" in height</li> <li>• 21" in width</li> <li>• 1830 lbs – dry weight</li> </ul>
<b>AIR CHAMBER SPECIFICATIONS</b>	
<ul style="list-style-type: none"> <li>• 34" w. x 36" h. x 36" l</li> <li>• 14 ga. Plate Metal</li> </ul>	<ul style="list-style-type: none"> <li>• 34" w. x 36" h. x 36" l</li> <li>• 14 ga Plate Metal</li> </ul>
<b>CYLINDER FIRE BOX SPECIFICATIONS</b>	
<ul style="list-style-type: none"> <li>• 30" in diameter</li> <li>• 3/8" thick cylinder firewall</li> <li>• 30" in length</li> <li>• 30" x 30" Burn area</li> <li>• NO ash pan</li> <li>• Auto damper</li> </ul>	<ul style="list-style-type: none"> <li>• 36" in diameter</li> <li>• 3/8" thick cylinder firewall</li> <li>• 36" in length</li> <li>• 36" x 36" Burn area</li> <li>• NO ash pan</li> <li>• Auto damper</li> </ul>
<b>AREA TO HEAT</b>	
<ul style="list-style-type: none"> <li>• Up to 1500 Sq ft</li> <li>• Approx BTU - 140,000</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 3000 Sq ft</li> <li>• Approx BTU – 300,000</li> </ul>
<b>CHIMNEY</b>	
<ul style="list-style-type: none"> <li>• Bear Cub 305 FA</li> <li>• 3/16" heavy wall steel</li> <li>• 5 1/8" round chimney</li> <li>• Rancher 365 FA</li> <li>• 6" x 24" Class A Double Vent Pipe</li> <li>• Sets near the back of the firebox, causing burn off of rising gases before air exits the fire area</li> <li>• Easy straight up/down cleaning</li> <li>• No "elbows" or angle areas to clean or collect condensation or rust out</li> </ul>	
<b>INCLUDED WITH FURNACE</b>	
<ul style="list-style-type: none"> <li>• Automatic Damper system</li> <li>• Snap Disc &amp; High Limit Switch</li> <li>• Completely wired</li> <li>• Unit MUST BE grounded</li> </ul>	
<b>DOORS – ALWAYS KEEP DOORS AND HINGES ORDERED</b>	
<ul style="list-style-type: none"> <li>• Bear Cub 305FA Access Door – 20" x 20", easy open, double latch safety, heat plate</li> <li>• Rancher 365FA Access Door – 25" x 25", easy open, double latch safety, heat plate</li> </ul>	
<b>INSULATION</b>	
<ul style="list-style-type: none"> <li>• 1,200 degree Insulation</li> </ul>	
<b>COLORS – ANY COLOR COMBINATION AVAILABLE</b>	
<ul style="list-style-type: none"> <li>• We can custom color furnaces per order.</li> </ul>	
<b>BLOWER – 463 CFM* *860 CFM BLOWER OPTIONAL</b>	

## **SAFETY PRECAUTIONS**

### **WARNING!**

- Make sure you read this manual and follow the recommendations contained in it to have the joy of operating your furnace for years to come. **Improper use and/or installation may void warranties.** Always follow local code requirements and seek the help of qualified craftsmen when installing the furnace or systems associated with your furnace.
- 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. **Do not modify the furnace in any manner! Any modification without express written consent of manufacturer will void warranty.**
- 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 Electric Codes and must have a power ground.
  - 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 FURNACE WHEN IN USE**
  - Keep antifreeze, which is flammable, well away from the furnace.
  - The use of treated wood (painted, treated, etc) and any other salvaged material that can emit toxic gases into the environment and may be corrosive toward the components of the appliance is **NOT ALLOWED** and eliminates the rights of the warranty.
  - **DO NOT BURN GARBAGE, HOUSEHOLD WASTE OR YARD WASTE IN THE FURNACE.** In most areas, this is illegal. The furnace is designed to burn seasoned cordwood and coal. **Burning non-approved materials can reduce the life of the furnace and will void your warranty.**
  - Open-loading door – when opening the door, pause momentarily between the first latch and the safety latch to allow any combustion gases to burn off.
  - Earth Manufacturing strongly recommends using a spark arrestor with your furnace.

- DO NOT OPERATE THE FURNACE WITH THE DOOR OPEN. Always latch the doors securely. If the door is open for any extended period of time, it will cause over-firing of the fire. Always remember to keep your hinges oiled.
- Always use proper care when installing, operating and maintaining the furnace.
- Always wear protective gloves and glasses and be aware that loose or hanging clothing can catch fire!
- Be careful when loading your furnace. Surface areas inside the furnace are hot. Creosote build up in the furnace can ignite suddenly or cause burns if dripped onto the skin.
- Do not modify the furnace. Do not substitute repairs that can be provided by your dealer, distributor or manufacturing company. **Any such action will void your warranty.**
- **Failure to heed these warnings or any additional warnings on the furnace may result in an accident causing personal injury and damage.**
- **!! CALL LOCAL UTILITIES BEFORE YOU DIG THE TRENCH !!**
- Disposal of ashes:  
OPEN THE 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. ASHES SHOULD BE RETAINED IN THE CLOSED CONTAINER UNTIL ALL CINDERS HAVE THOROUGHLY COOLED.
- Installation, to include wiring and plumbing, and operation must follow Federal, Provincial, State and Local Codes, electrical, plumbing, fire and building codes.
- The Earth furnace is not intended to be the only source of heat. However, a back-up system should always be in place and ready for use.
- The manufacturer is not liable for damages or property in the case of misuse, improper installation of equipment or for knowing local installation codes. Product owner assumes all responsibility for this. **This document is a general manual to aid in installation. We cannot know all applicable codes in your area!**
- Remember to give the furnace a “Once Over” regularly.
  - “Once” a week clean the ashes out (or often if needed)
  - “Once” a month clean the chimney
- BE SAFE:
  - Never leave the door open or unattended.
  - Keep children away – the door will be hot.
  - Never endanger your dwelling or buildings by putting the furnace too close or where the flu-chimney could endanger.

- Use spark arrestor.
- Know your local codes before purchasing.
- Follow all local, state, building, fire and electrical codes.

## **GETTING TO KNOW YOUR FURNACE**

### **COMMON QUESTIONS**

#### **IS IT SAFE?**

Having the furnace outside eliminates the possibility of causing a fire in your home. Also the over size door makes loading easier.

#### **WHAT CAN I SIT THE FURNACE ON?**

A 4 to 6 inch concrete pad is recommended, whether preformed or poured.

#### **HOW FAR AWAY CAN IT BE?**

1. Safety First! 2. Check with your insurance company to make sure you are in compliance with your policy. Normally you should visit your furnace twice a day to check the fire and fill with wood. You will want to have easy access to this location with a truck or tractor to replenish the wood when needed.

#### **WHAT IF THE ELECTRICITY GOES OUT?**

The Earth Outdoor Furnace uses very little electricity which can be supported by a small generator. You can run a regular inexpensive extension cord to the unit and unplug the furnace from the outlet on the back of the furnace and plug into a small generator. Problem solved. However, when most homes lose electricity they have no way to power the indoor blower for their duct work. Either way you will need something to back up your existing home as well as the furnace. Another option would be to use an extension cord on a box style fan and place the fan so that it would blow into the return vent of your duct work. Then close off the vents to rooms you can afford to let go cold. Otherwise you will need to look into a system that will power your indoor blower. Consult electrical contractors for most of that type of work.

#### **WHAT COMES WITH THE FURNACE?**

- Fan Control Center comes wired and ready for your connection.
- 460 cfm Fan Blower
- Front door forced air damper assembly, wired and ready.
- Snap-disc thermostat on out-going duct; wired to 460 cfm fan.

#### **WHAT DOES NOT COMES WITH THE FURNACE?**

- Chimney extension and spark arrestor/chimney cap
- Rear fan duct box and all duct work.
- In home thermostat and thermostat wire. You will need enough thermostat wire to run from your thermostat to the fan control center on the back of your furnace.
- 110 electric wire from your power source to the back of the furnace.

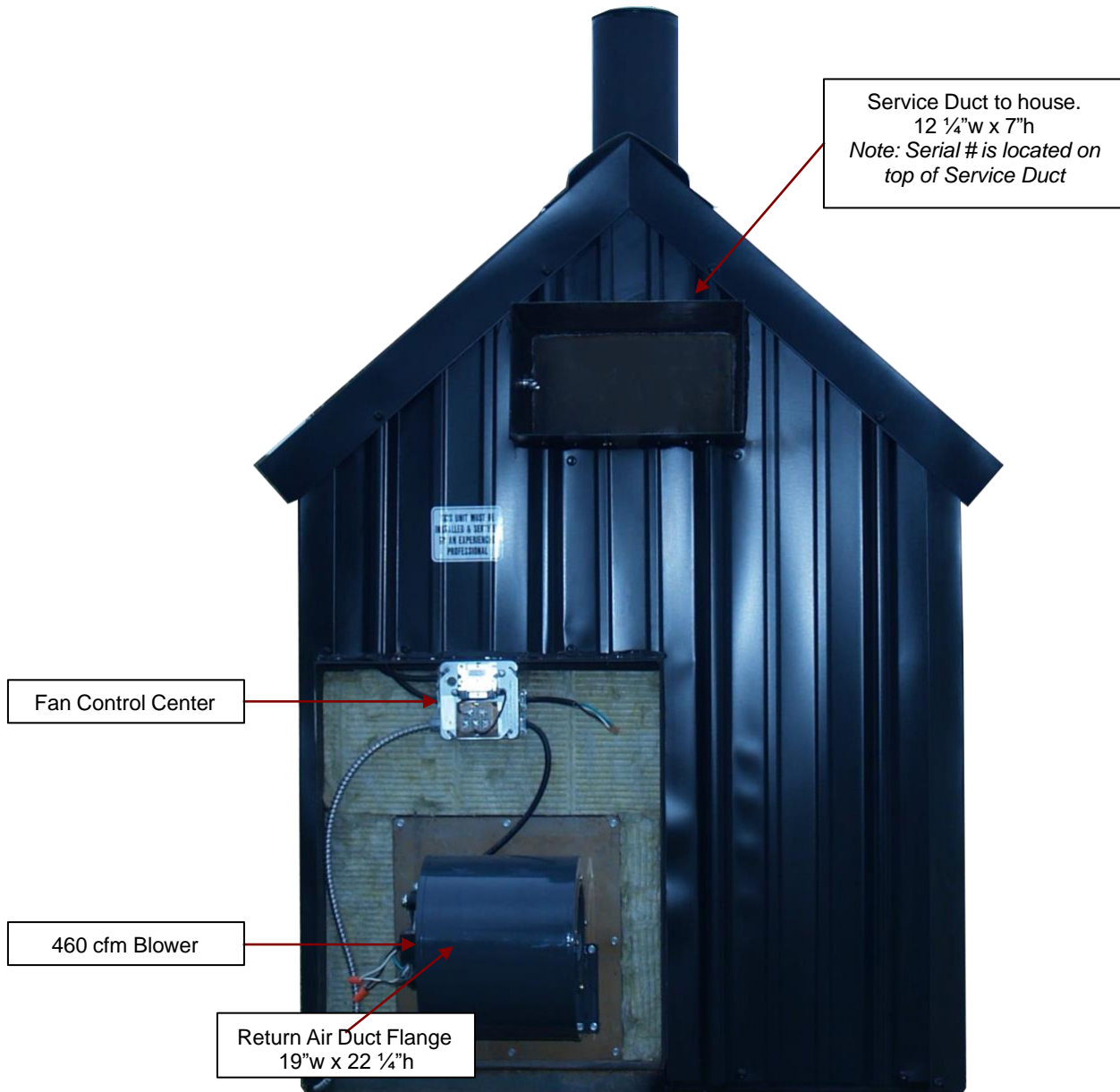
## FURNACE OVERVIEW - FRONT



1. The fill door: Model 305-FA has a 20" x 20" door with double latch safety.
2. The automatic forced air fan/damper system is on the wood door. It is activated by the indoor thermostat. Your thermostat can be adjusted to various temperature settings.  
The damper unit is actually a double damper system, in that the inside damper drops shut when the fan is off.



## FURNACE OVERVIEW – BACK



## **HOW DOES IT WORK?**

With a fire in the firebox, a simple inexpensive thermostat in your house connected to the fan control center. When your house temperature drops below the temperature set, the in-house thermostat activates the front door fan and damper system, blowing air into your fire and “firing it up”. When the heated air in the heat chamber reaches a certain level, the snap-disc thermostat located on your out-going duct work activates your air chamber fan, and begins to push the hot/ warm air into your home. Note: Should you fail to refill your furnace some day and the firebox temp goes down, the snap disc thermostat will deactivate the air chamber fan so cool air will not enter your home.

## **INSTALLATION**

*It is important that you have the furnace installed by a qualified installer. Earth Outdoor Furnaces will not be held responsible for complications due to improper installation and in some cases the warranty may be voided due to improper installation and start up.*

*There can be many variations in proper installation. Here are some general guidelines to follow.*

### 1. Basic Installation Directly Through the Wall: (see Diagram A)

Duct your out-going heat duct straight into your home through a window or a wall, as near the center of your home as possible, and into your largest room (family, living, dining, etc.). Put a register where the duct comes into your home. Now connect your return duct system to the bottom left back where the 460 cfm fan is (see diagram B). Important! Bring your return duct only from the furthest ends of your house away from where your incoming heat duct comes in (see diagram C). This “draws” the hot/ warm air throughout your home toward the return ducts, then drawing the air through the ducts, back to the furnaces making the cycle again.

### 2. Installation Incorporating Existing Duct System: (see Diagram B & C)

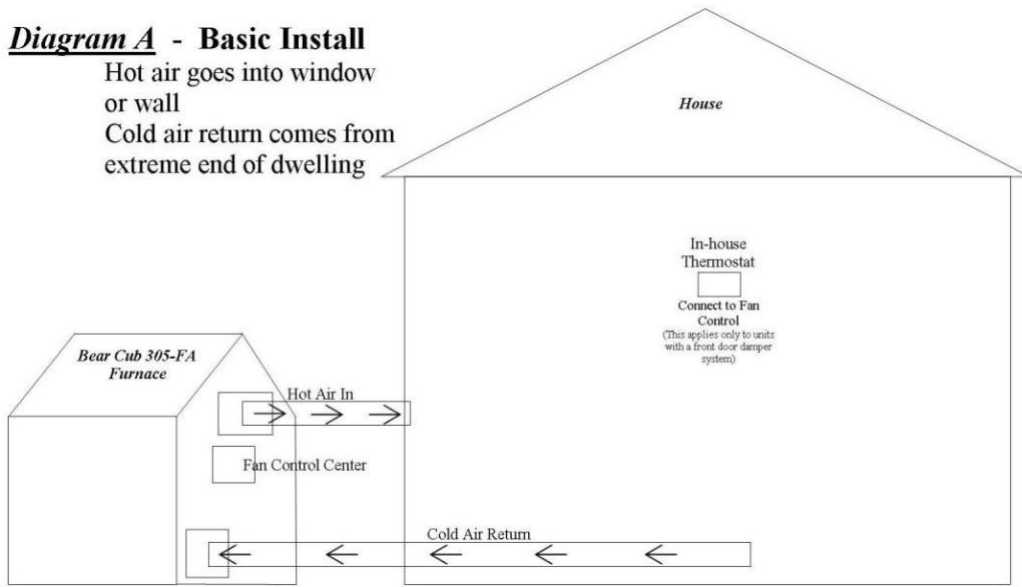
Connect your out-going heat duct to your existing duct work. Connect your return duct to the lower left fan box on the back. You are pushing hot air out, through your duct system, and then back to the furnace in a cycle. **Important!** You need/ must have all duct work, (in & back) insulated or you will lose massive amounts of heat, and will not get the performance you need.

**(Important!** Depending on distance of your duct system, you may need a booster fan to assist in moving the air through and back; or you may order a larger cfm fan for the back of your furnace, for which there will be the difference in cost you will pay.)

### 3. Connect/ Incorporate with Your Heat Pump System

**Diagram A - Basic Install**

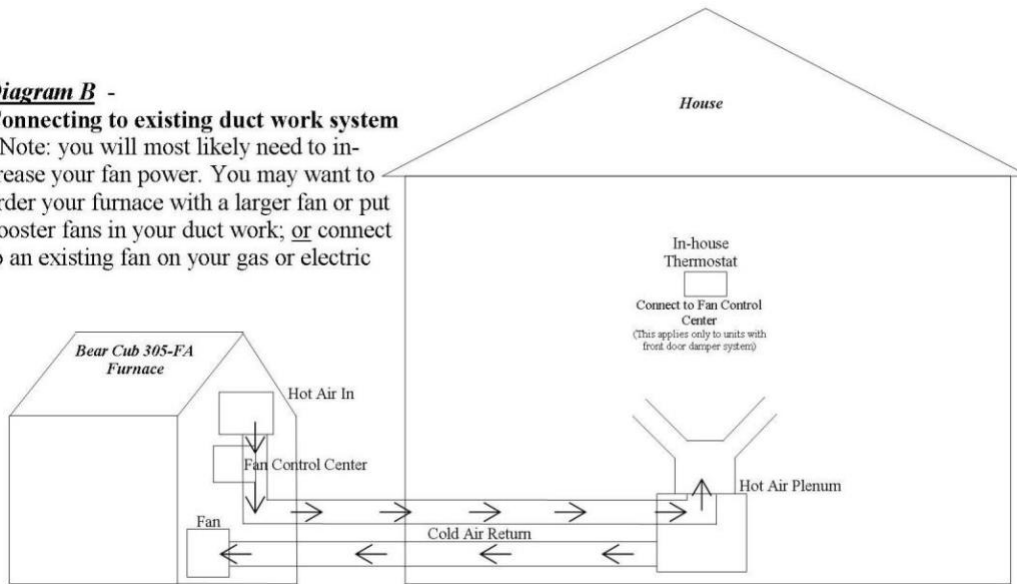
Hot air goes into window or wall  
Cold air return comes from extreme end of dwelling



**Diagram B -**

**Connecting to existing duct work system**

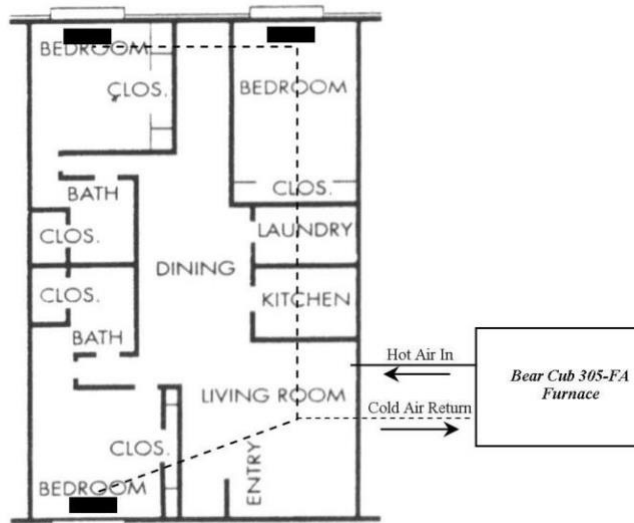
- Note: you will most likely need to increase your fan power. You may want to order your furnace with a larger fan or put booster fans in your duct work; or connect to an existing fan on your gas or electric



**Diagram C -**

NOTE: Use only cold air returns from the extreme outside areas so that the warm air is pulled through the home.

- Cold Air Return Register
- - Cold Air Return Duct



## **MAINTENANCE**

The front wood door has two “U” bolts that are adjustable. If you feel the door is not closing tightly or may be too tight, loosen the bolts with the door open and tighten or loosen the bolts as necessary.

You should clean your ashes out at least once a week. A flat shovel works well for this job. We recommend using a metal container of some kind to put the ashes in when removing them. At the end of the season, be sure to completely clean the ash box. Ashes combined with moisture are very corrosive and can eat through metal. Ash or coal corrosion is NOT covered under warranty.

Your chimney is a 5” heavy wall rolled steel that sticks straight down into the fire box. Do not worry about hitting it. It should be cleaned about once a month. A 5” round chimney brush will work for this job. You may use a chimney cap with the furnace to keep rain out. It is recommended that you at least cover the chimney during the summer months when the furnace is not in use to keep rain, birds and other insects from getting in the furnace.

The blower and damper blower can all be visually inspected and should only need replacing when they quit working. They should last for several years however conditions are different at every site and longevity may vary based on your climate and maintenance. Oil furnace door hinges and the fire box front and back on the inside at the end of the season.

# Earth Outdoor Furnaces™

## WARRANTY INFORMATION

1. “Earth” Furnaces have a 10 year limited warranty.
2. This warranty is on, and covers the furnace only, **NOT FANS, THERMOSTATS, PUMP, ETC. OR ANY PRODUCT OR WORK YOUR INSTALLER DOES OR SUPPLIES.**
3. The electrical components like the thermostat, fan, pump, have their manufacturer’s warranty (usually 1 year).
4. Doors & damper have a one year warranty.
5. We have a 3 year warranty against any leaks which covers parts and labor. If we cannot repair the leak, we will send you a new furnace!
6. Years 4-10 are pro-rated as follows for coverage of parts & labor\*:
  - Year 4 – 60%
  - Year 5 – 50 %
  - Year 6 – 40%
  - Year 7 – 35%
  - Year 8 – 25 %
  - Year 9 – 15 %
  - Year 10 – 10 %
7. The cost of a service call is not covered after 3 years. **(Service calls for installation related problems and not problems with the furnace itself will be charged to the owner)**
10. You must Power Ground your furnace. **Failure to do so will void your warranty.**
11. Warranty is non transferable.

<p>* We will give you the percentage discount on the repair or off a replacement furnace. Furnace will be repaired or replaced, whichever is less expensive. Shipping not included. No cash or surrender value.</p>
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# Earth Outdoor Furnaces™

## WARRANTY EXCLUSIONS

Burning any non-organic  
Any modifications or changes to the unit

Lack of maintenance including:  
Failure to clean out ashes, failure to clean the fire box after season.  
Allowing moisture to remain in the fire box & ash area off-season.

Faulty installation or connection.  
Disasters, such as wind storms, fires, etc.  
Failure to properly power ground furnace  
Insufficient and/or excessive draft  
Consumption that exceeds use limits  
Transportation and/or packaging costs

Warped doors

Damage to the unit due to over-heating from intensive and non-approved use (such as wood door left open, or the fan left off during high fires)  
Heat temperature shall not exceed 200 degrees  
Misuse or incorrect use

Insufficient or inadequate relation between the nominal power of the equipment and the heat requirements of the premise  
Failure to return the warranty sheet information form within 60 days  
Consequential or incidental damage  
Transportation and installation  
Deterioration due to non-use of the unit.  
All and any costs not previously agreed to and accepted by Earth Outdoor Wood Furnaces.  
Warranty starts on date of delivery, and is contingent upon receipt of full payment.

## Warranty Disclaimer

Dealers/Installers listed or recommended by Earth Outdoor Furnaces, are Independent Contractors and are not employed by Earth Outdoor Furnaces.  
Therefore, we cannot and will not warranty their work

# **WARRANTY DOCUMENTATION FORM**

Fill in the following information and mail a copy within 60 days of purchase.

**Earth Outdoor Furnaces**  
**6867 Cherokee Road Norwood, MO 65717**  
**417 -926 -4136**

Owner Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone Number: \_\_\_\_\_  
E-mail: \_\_\_\_\_  
Earth Model: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Date of Purchase: \_\_\_\_\_  
Date of Installation: \_\_\_\_\_  
Installer: \_\_\_\_\_  
Purchased from: \_\_\_\_\_

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.