Things you should examine before purchasing an outdoor furnace:

LENGTH OF CHIMNEY

If the furnace has an electric or manual damper, pipe length is important. In these furnaces a long chimney is needed to draw air over the fire in order to keep it burning. If the furnace has a forced air draft, then extra chimney length is a liability as it causes creosote.
Nature's Comfort Boilers have 145CFM Draft blower and 48" long chimney.

CHIMNEY LOCATION

Furnaces with outside chimneys will have far more creosote than those that have chimneys going out the top. The answer is simple. Unburned gases when exiting into the chimney cool off condense and form creosote. Outside chimneys run much cooler and may result in massive creosote buildup.
Nature's Comfort Boilers have their chimney going out the top.

CHIMNEY CAPS

Most manufacturers don't supply chimney caps and yet they are needed. In the off-season they are needed to keep out rain that could rust out the firebox. In season they are a good idea to prevent wayward sparks from exiting. There are some caps such as the cloverleaf design that do all of the above but also prevent downdraft. Downdraft makes for a slower fire and causes creosote.
Nature's Comfort Boilers have chimney caps (optional). You don't need to worry about downdraft. Our boiler has a Draft blower.

FURNACE DOOR INSULATION

The furnace door is the Achilles heel. It must be very well insulated to a minimum of 4". Some furnaces have an inner water-jacketed door with a very thin outer door; others only have about 2" of insulation. Both of these doors will allow severe heat loss. Simply stated, this means more firewood is burned to get the heat you need. Look for a thick door of about 4" for best results. Watch out for hollow doors with little insulation.
Nature's Comfort Boilers have a very well insulated heavy door that is 4" thick. And the inside of the door is 3" from the burn box.

DOOR ANTI-BLOWBACK CATCH

Does the door have an anti-blowback safety catch to avoid flash burns? This catch releases the door very slowly, allowing for the gases to escape which otherwise could result in severe burns. Don't consider a furnace without this feature.
Nature's Comfort Boilers have a double catch for a safe operation.

WATER EXPANSION

When water becomes warm it expands. On the average outdoor furnace the water simply pours out an overflow pipe while on others it goes into a rubber or steel expansion tank. Avoid the rubber bladder types due to their short life expectancy that may not be covered under warranty. On those having steel tanks the furnace must be slightly pressurized - avoid these units. On the overflow models simply add water once or twice a year and don't worry about pressure or bladder problems.
Nature's Comfort Boilers have overflows on all models.

HOUSING

While all furnaces are housed in steel there are major differences in design and materials. Look for models with solid steel roof and not corrugated steel. Corner moldings should be steel and not tin for strength. Corrugation of metal siding should be vertical and not horizontal. If the housing comes in contact with the ground it will rust.
Nature's Comfort Boilers have 16 Gauge steel roof, with molded corners and with 12" legs so no rust.

DRAFT CONTROL – MANUAL, ELECTRIC OR FORCED AIR

Manual draft controls work on outdoor furnaces but they are not efficient. All drafts other than forced air burn cooler, which means wet wood won't burn as well and creosote is harder to burn off. The best way to compare the difference between type of draft units available is to think of a blacksmith working with steel; without a bellows blowing air into the fire, the heat is not hot enough to bend or shape the metal. Hot fires give more choice of wood conditions, they burn creosote and above all they reach total combustion. If you don't like to empty ashes, buy a forced air unit. Forced air units heat approximately 40% more square footage, based on size of firebox and water contact square footage. Manual draft dealers will try to con you into believing that air injection furnaces simply blow out all the hot air and are inefficient. Watch the smoke exiting from both - the velocity is about the same.
Nature's Comfort Boilers have: draft blowers with a solenoid that opens and closes to shutoff air flow.

STRENGTH

The strongest structural design is round and the weakest is square or rectangular. This pertains to boilers as well. For longevity and strength choose a round boiler design. Round designs have fewer welds and this is very important. Avoid designs with many welds and faceted corners.
Nature's Comfort Boilers have: round burn box. Test show 40% stronger.

EFFICIENCY

The drier the wood the more seasoned it is, and the more seasoned it is the more efficient the burn is; in other words, it produces more useful heat. Burning wet wood produces moisture, which in turn creates creosote in addition to rusting the firebox. But to select, split and season quality wood that will give you optimum burning efficiency takes time and money. There is a trade-off here that should be considered: purchase a furnace that will give you a choice of type and quality of wood to burn. That choice only comes with a forced air draft unit. A forced air draft furnace will burn almost any quality of wood – wet, green or dry. The amount of useful heat will vary with wood quality, but it will burn. A short chimney with the forced air draft will reduce the possibility of creosote.
Nature's Comfort Boilers have: 48" chimney with the forced air draft both will help reduce creosote. And no need to split logs for a good fire. Also chimney comes half way down into burn box to make our boiler even more efficient.

WEIGHT OF STEEL

The weight of the steel is very important in keeping the unit from warping or being damaged by heavy logs thrown into the firebox. On units with no rust prevention, built-in heavy plate takes longer to corrode. Don't be misled by the total weight of the unit – the location of heavy steel plate is important too, not just its total weight. Some unscrupulous manufacturers use heavy plate on the bottom and then very light on the sides and top to reduce cost.

Life expectancy of light steel plates is very short. Tapping on the plates will help you to determine, by sound, if the manufacturer is cutting corners - 1/4" plate is the minimum thickness recommended for fireboxes.
Nature's Comfort Boilers have: 3/8 mild steel for firebox.

INSULATION TYPES

There are two basic types of insulation – glass and spray foam. Spray foam has a better R-value per inch; however, when subjected to great heat it tends to crystallize and break down. Furnaces sweat and foam insulation does not breathe. This makes a good formula for corrosion. The long-term winner is regular fiberglass batting. The use of aluminum foil insulation with air bubbles has not proven up and should be looked upon as a liability. Definitely avoid this insulation.
Nature's Comfort Boilers have: high heat fiberglass insulation.

WATER JACKET LOCATION

Some furnaces have water jackets not only on the sides and top but underneath the firebox as well. Heat only rises; it does not go down. However those with no circulation underneath are very prone to corrosion. A barrel design with a very small space at the bottom between barrels is an excellent design with little chance for corrosion. Avoid furnaces with ash-pans and no water underneath, since the heat loss into the ground is tremendous.
Nature's Comfort Boilers have: water around entire burn box.

OUTSIDE WATER JACKET

The outside water jacket is simply a container and structural strength is not usually a factor. Little corrosion occurs here. If it is made from high-grade stainless then it can be relatively thin. If it is made from low-grade stainless or mild steel the water jacket should be made from 3/16" material to give many years of service.
Nature's Comfort Boilers have: 3/16" thick water jacket on NCB-175 and NCB-250 on the NCB-325 we have ¼" thick water jacket.

SIZE OF DOOR

The correct door is large and should run from 20" to 30" in each direction. The bottom of the door needs to be high off the ground to make for ease of filling; 30" is ideal. Lifting heavy logs into the firebox is not easy and small, low doors add to the problem. **Nature's Comfort Boilers have: a large door, the bottom of the burn box opening is 25" the top is 43". The advantage with using footing blocks if you want your boiler higher put on another row of footing block and raise it 4" more.**

FREEZE PREVENTION

Unscrupulous dealers will tell you that the sole purpose of antifreeze is to keep the furnace from freezing up. Not true; the main reason is rust prevention. Rust is the no/no word in the outdoor furnace business. There are several other alternatives to prevent freezing and at far less cost. When the fire goes out in an outdoor furnace the alternative heating system kicks in; the continuously moving water now picks up the heat from the house. This alone should prevent freezing. An in-line electric heater can be installed on the return line and set at just above the freezing mark as an extra safeguard.

New oil-fired water heaters are available that will protect your furnace when used as a backup. These units can also be used as total heat systems when the outdoor furnace is not in use. If, however, the system is going to be shut down then antifreeze is a must.
Nature's Comfort Boilers have: boiler treatment for rust prevention plus lubrication, purchase a test kit from us or send in a Water sample. We set up our system to run the pump nonstop to eliminate freezing problems.

INSULATED, CAST or WATER-JACKETED DOORS

There are two reasons for wanting the best door available. The first is air tightness and the second is increased heating surface. Poorly designed insulated doors may warp and allow air to penetrate. Outdoor furnaces must be airtight or overheating and boiling result, which can wipe out poorly made stoves. The volume of water contact surface determines the BTU's of a furnace. Water-cooled doors, while more expensive, are the most efficient; however, they are extremely prone to corrosion. Broken hoses are also a problem. Water-jacketed doors must have at least 6" of insulation on the outside to be effective. Expensive cast iron doors with good insulation and door seals work well as does a well designed and insulated steel door.
Nature's Comfort Boilers have: a very well insulated steel door.

LEGS vs. SKIRTING

Neither one will affect the furnace performance; however, the models with legs have several advantages over the skirted-to-ground models. Some (not all) of the leg models can be lifted from underneath when loading and the legs are excellent for securing tie down.

When it comes to installing, leg models save on money and time since you can see the piping coming up from the ground when placing the furnace in position, and you do not require a full concrete base, only four sidewalk blocks. The skirting and frames on all furnaces, including stainless models, are made from mild steel and are subject to corrosion when sitting directly on the ground. On leg models you will be required to build a simple foam box around the pipes above ground level. Check to see that the sheeting underneath is a solid sheet and does not have large openings for critters to enter.
Nature's Comfort Boilers have: Have legs so only footing blocks are needed and the bottom is 3/16" thick.

SIZE OF WATER STORAGE

On furnaces without forced air draft this is a major consideration. Heating of the water takes a long time and it is important that a steady supply is always present. Small tanks in units without forced air draft just don't hold enough hot water between burn cycles. Extra in-house storage tanks can be added. In forced air models the replacement of hot water is very quick and efficient.

Unburned wood in a forced air system will instantly produce heat when the draft fan kicks on. These systems are more efficient and burn less wood. However there still needs to be sufficient water around the firebox to reduce the number of burn cycles. Even on small furnaces having forced air systems the absolute minimum for efficiency is 125 gallons capacity, increasing to 300 gallons on large furnaces.
Nature's Comfort Boilers have: 145 CFM Draft blower for quick and efficiently replacing the hot water. Our smallest boiler has 175 Gallons our largest has 325 gallon.

HEATING CAPACITY

The standard way to judge a heating appliance is to state the BTU's and match this against your needs. In outdoor furnaces this doesn't work very well. There are simply too many variables; green wood vs. dry, hardwood vs. softwood, filling variables, etc. Some manufacturers state an inflated BTU number based on the larger the lie, the higher the sales. If the manufacturer is stating BTU's then get a copy of the CSA test report to prove it. The most common way to rate a furnace is by the square foot heating capability based on an 8' ceiling. There are many variables: perimeter size, geographic location, insulation value, floor heat or forced air, exposure and heat demand.

The best consideration in buying is to cut the manufacturer's maximum square footage in half and then, if necessary, move up to the next model. Even if you don't need a larger unit there are benefits. On those cold January nights you won't have to go outside as often. Going away for a few days? Simply load the furnace to the maximum and reduce the thermostat setting. You can't do that with a small furnace.
Nature's Comfort has not over stated heat output; we use scientific method as seen below.

1 BTU = is the energy needed to heat (or cool) one pound of water 1 degree F.

One gallon of water weighs 9 pounds

9 BTU's to heat (or cool) one gallon of water one degree.

We need to transfer 1050 BTU's per gallon of water to produce the needed heat.
Or 116 BTU's per pound.

1 BTU = 1044 Joules, we are trying to transfer 1,096,200 Joules 'FROM' each gallon of water,
In order to get 1050 BTU's from each gallon of water.
Assuming that our boiler is 75% efficient, and the water to air coil is 85% efficient:
That would mean that for 1050 BTU we only get 669.375 BTU into the plenum.
Assuming this, we need to have 1700 BTU available from the water to reach 1083.75 BTU transferred to the Plenum.

(Assuming we are transferring the necessary 1700 BTUs INTO each gallon the below should be true)
(If we are getting 1050 BTU per gallon into the plenum we get A, if 1084 BTU per gallon then B.)

*NCB-175 holds 177 gallons or 1477 Lbs of water.
This translates to A = 171,332 BTU's B = 191,868 BTU

*NCB-250 holds 255gallons or 2128 Lbs of water
This translated to A = 246,848 BTU's B = 276,420 BTU

*NCB-325 holds 333gallons or 2780 Lbs of water
This translates to A = 322,480 BTU's B = 360,972 BTU