



CLASSIC EDGE™

TITANIUM HD SERIES

OUTDOOR WOOD FURNACE



OWNER'S MANUAL

CLASSIC EDGE 350

TITANIUM HD SERIES

CLASSIC EDGE 550

TITANIUM HD SERIES

CLASSIC EDGE 750

TITANIUM HD SERIES

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

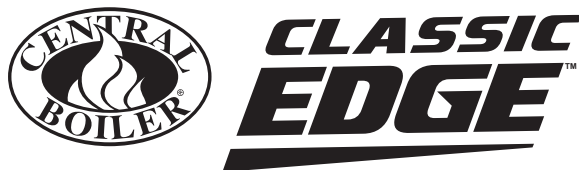
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - Do not try to light any appliance.
 - Do not touch any electrical switch.
 - Immediately call your gas supplier. Follow the supplier's instructions.
 - If you cannot reach your gas supplier, call the fire department.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Tested &
Listed By  **OTL**  **US**
Portland
Oregon USA
OMNI-Test Laboratories, Inc.
0117WB036S (12/2014)



**SAVE THESE
INSTRUCTIONS**

(p/n 9000551 - REV. A) - 12-FEB-2018



Central Boiler, Inc. • 20502 160th Street • Greenbush, MN 56726

www.CentralBoiler.com

The Classic Edge outdoor hydronic heater by Central Boiler is listed by OMNI-Test Laboratories to the applicable portions of the following standards: EPA Method 28 WHH, UL 2523-13 Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters and Boilers, CSA-B366.1-11 (R2015) Solid-Fuel-Fired Central Heating Appliance.

The Classic Edge includes two 4-foot stainless steel insulated chimney sections (6" in diameter, p/n 6500004 - Edge 350 and 550, 8" in diameter, p/n 10508 - Edge 750). Use only stainless steel solid fuel chimneys specified by Central Boiler. Maximum draft is marked on nameplate.

French Owner's Manual is available at CentralBoiler.com/explore/owner-resources or upon request from your dealer
(Manuel d'installation en français disponible sur demande auprès de votre revendeur)

CLASSIC EDGE 350 Annual Efficiency Rating*: 85% (lower heating value), 79% (higher heating value)
Manufacturer's Rated Heat Output Capacity: 170,000 Btu/hr | Range**: 0 to 177,802 Btu/hr.
Water Capacity: 150 gal. | Weight: 1,365 lbs

CLASSIC EDGE 550 Annual Efficiency Rating*: 76% (lower heating value), 70% (higher heating value)
Manufacturer's Rated Heat Output Capacity: 178,000 Btu/hr | Range**: 0 to 162,170 Btu/hr.
Water Capacity: 205 gal. | Weight: 1,668 lbs

CLASSIC EDGE 750 Annual Efficiency Rating*: 78% (lower heating value), 72% (higher heating value)
Manufacturer's Rated Heat Output Capacity: 240,000 Btu/hr | Range**: 0 to 240,362 Btu/hr.
Water Capacity: 330 gal. | Weight: 2,036 lbs

*Performance is a product of the combustion rate, combustion efficiency and heat exchange efficiency with a single fuel load without refueling. Results vary based on wood species, wood quality, wood quantity and moisture content. Efficiencies are determined under the same test conditions using higher heating value, lower heating value and annual fuel utilization efficiency (AFUE).

- This heater meets the 2015 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters sold after May 15, 2015. Under specific test conditions this heater has been shown to deliver heat at rates shown for the respective model above**.
- This wood heater has a manufacturer-set minimum low burn rate that must not be altered. This wood heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual.
- DO NOT OVERFIRE THIS HEATER. Attempts to achieve heat output rates that exceed heater design specifications can result in permanent damage to the heater.
- Any person(s) operating a hydronic heater must comply with all applicable laws, including but not limited to local ordinances.
- Improper use or failure to maintain the hydronic heater may cause nuisance conditions. The person(s) operating a hydronic heater is/are responsible for operation in a manner that does not create a nuisance condition. Meeting the setback distance and stack height recommendations from the manufacturer and requirements in applicable State and local regulations may not always be adequate to prevent nuisance conditions in some areas due to terrain or other factors.
- Operating an outdoor furnace may not be suitable to some individuals' abilities or lifestyles. Be sure to review the Owner's Manual for the appliance with your dealer.

- Register at time of purchase for FREE 25 Year Limited Warranty -

Verify your warranty and check status of water samples at: CentralBoiler.com/w25

For parts and accessories, service or repairs, call your authorized Central Boiler dealer or heating contractor. Record the information below for future reference.

Model	Serial Number	Installation Date
Dealership Name		Phone Number
Owner Name		

Contents

How to Use This Guide

The guide is divided into sections to help with the operation and maintenance of the outdoor furnace. If questions arise that are not answered with this manual, consult with your authorized Central Boiler dealer.

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CENTRAL BOILER ONLINE RESOURCES

Enter **CentralBoiler.com** in your browser or scan the code using any QR code reader app on your smartphone to access Central Boiler's library of information to help with installation, operation and maintenance of your Central Boiler outdoor furnace.

Detailed Furnace Installation Variations - <http://www.CentralBoiler.com> - go to Explore > Furnace Installation

View and/or download PDFs to assist in installation of your outdoor furnace. Information and examples regarding pumps, foundations, chimneys and support structures, ThermoPEX piping, and example configurations for a variety of heating configurations.

Product Service Videos - <http://www.CentralBoiler.com> - go to Explore > Videos



Push-fit Fittings

Central Boiler's push-fit fittings make configuring and connecting your heating system easy and quick.



Performing a Water Test

Testing and maintaining the water in your system is critical for the operation and longevity of your heating system.



Videos to supplement the Owner's Manual are available at
www.youtube.com/centralboilerinc

Watch tips on initial startup, testing system water and more.

EPA RESOURCES

EPA's Burnwise Program - <http://www.epa.gov/burnwise>

How to Use a Moisture Meter Video - <http://www.youtube.com/watch?v=jM2WGgRcnm0>

EPA offers tips on how to properly use a moisture meter to test firewood before using in a wood-burning stove or fireplace. Wet wood can create excessive smoke which is wasted fuel.

Split, Stack, Cover and Store Video - <http://www.youtube.com/watch?v=yo1--Zrh11s>

EPA offers four simple steps to properly dry firewood before using in a wood-burning stove or fireplace. Wet wood can create excessive smoke which is wasted fuel. Burning dry, seasoned firewood with a moisture content of 20% or less can save money and help reduce harmful air pollution.

Wet Wood is a Waste brochure - <http://www.epa.gov/burnwise/pdfs/wetwoodwastebrochure.pdf>

This tri-fold brochure provides colorful illustrations of the four easy steps to dry firewood.

NOTE: The warranty can be voided by operating a residential hydronic heater in a manner inconsistent with the Owner's Manual.

INSTALLATIONS IN MASSACHUSETTS:

1. All installation components must be products approved in the Commonwealth of Massachusetts by the Gas and Plumbing Board.
2. The maximum run of tubing from the water heater to a fan coil is 50 linear feet.
3. Persons operating this hydronic heater are responsible for operation of the hydronic heater so as not to cause a condition of air pollution as defined in 310 CMR 7.01(1).

Labeling and Terminology

The outdoor furnace and this installation guide use the following terms and symbols to bring attention to the presence of hazards of various risk levels and important information concerning the use and maintenance of the outdoor furnace.

⚠ DANGER

This symbol and text indicate an imminently hazardous situation which, if ignored, will result in death or serious injury.

⚠ WARNING

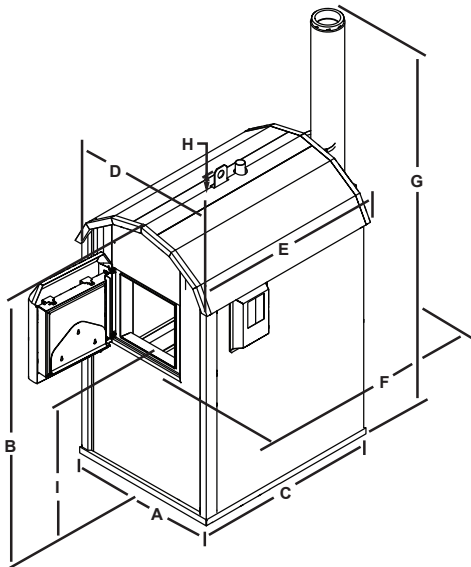
This symbol and text indicate the presence of a hazard which can cause severe personal injury or death to an operator or bystander, or substantial property damage if ignored.

⚠ CAUTION

This symbol and text indicate the presence of a hazard which can cause minor personal injury or property damage if ignored.

NOTE: Indicates supplementary information worthy of particular attention relating to installation, operation, or maintenance of the outdoor furnace but is not related to a hazardous condition.

Be sure to follow all instructions and related precautions as they are meant for your safety and protection. Store this manual in a readily accessible location for future reference.



Classic Edge 350 Measurements

	A	B	C	D	E	F	G	H	I
in.	40.5	72	50.75	43	51.5	69	150	5	38
cm	103	183	129	109	131	175	381	13	97

Classic Edge 550 Measurements

	A	B	C	D	E	F	G	H	I
in.	42.5	76	55.5	45	56	73.5	151	5	37.5
cm	108	193	141	114	142	187	384	13	95

Classic Edge 750 Measurements

	A	B	C	D	E	F	G	H	I
in.	51	84.75	59.75	53.5	60.5	79	164	5	39
cm	130	215	152	136	154	201	417	13	99

- Measurement (F) is from firebox door to chimney inspection cover.

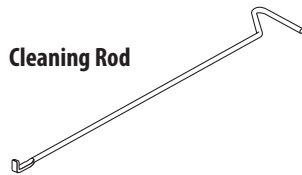
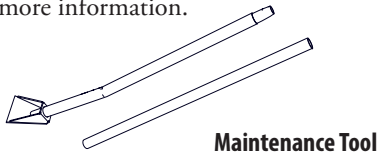
- Measurement (G) includes two 4 ft (1.2 m) chimney sections.

- All measurements are approximate

Tools

Included with each new furnace are tools that are invaluable for maintenance and cleaning. Use the **maintenance tool** to clean the firebox and to remove ash from the Reaction Chamber. The maintenance tool is also used for cleaning the firebox and door frame. The **cleaning rod** can be used to break up heavy or solidified ash in the firebox. It is also used to clean the heat exchangers and to cycle the optional heat exchanger cleaning system (if installed).

Refer to the Maintenance section for more information.



Foundation

The outdoor furnace may be installed directly on stable, level ground without the necessity of a foundation, although installing the outdoor furnace on a foundation offers many advantages. The outdoor furnace is less likely to move due to frost heaving. A foundation keeps the area directly around the outdoor furnace free of standing water and can help to keep unwanted pests out. It can also raise the furnace up to provide a more comfortable height of the firebox door opening.

If the ground is unstable, one option is to use patio blocks under the perimeter of the base. Another option is to pour a concrete foundation.

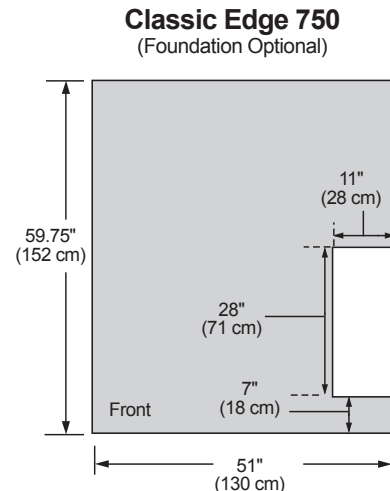
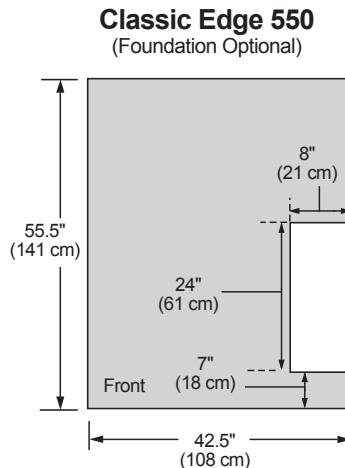
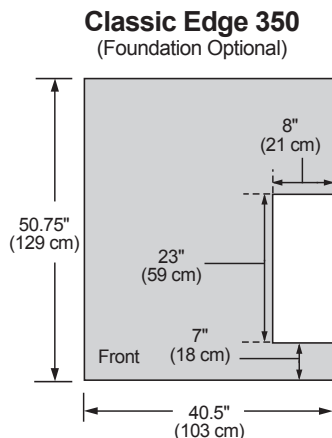
To install the outdoor furnace on a concrete foundation, refer to the illustration for dimensions and for the location of the hollowed-out area for each model. A 4" to 6" (10 to 15 cm) thick concrete slab works well; however, a thicker slab may be used to obtain the desired door opening height.

If the area for the concrete slab is unstable and/or affected by frost heaving, consider installing 2" closed-cell insulation beneath the front portion of the slab and under the area of the ground used for walking.

⚠ CAUTION

Do not use any combustible materials for the foundation.

NOTE: The installation surface or foundation must be noncombustible. The hot supply and return lines must also be protected from possible exposure to sunlight, fire or physical damage that may be caused by an occurrence outside the outdoor furnace enclosure. Foundations may consist of concrete, crushed rock or patio blocks.



⚠ CAUTION

Do not use any combustible materials for the foundation.

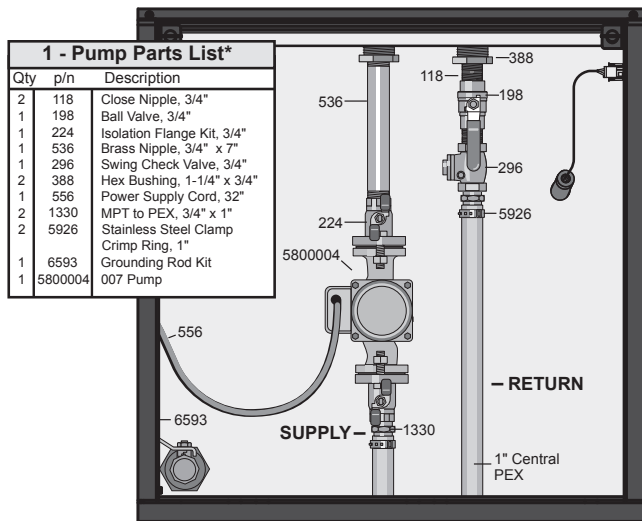
Outdoor furnace must be installed on a noncombustible surface or foundation that incorporates an enclosure that will prevent supply and return lines from possible exposure to sunlight, fire, or physical damage that may be caused by an occurrence outside the outdoor furnace enclosure. Foundation may consist of concrete, crushed rock, or patio blocks.

Access to Ports on Outdoor Furnace

Ports are provided that allow mounting circulation pumps on the outdoor furnace. Refer to the illustrations in this section for proper supply and return line and pump installations for your model.

NOTE: The Installation Guide provides more information on pump selection. For even more detailed information, see the Hydronic Component Selection Guide (p/n 2482), available from your Central Boiler dealer.

Classic Edge 350 / 550 Models – 1-Pump Configuration

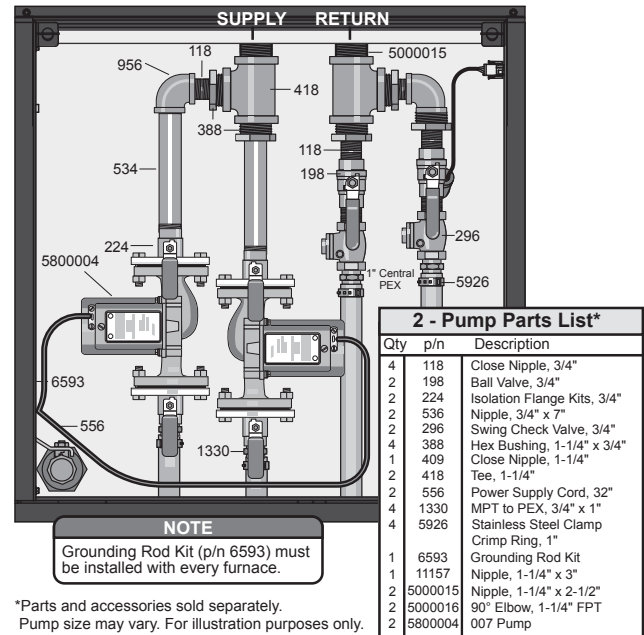


*Parts and accessories sold separately.
Pump size may vary.
For illustration purposes only.

NOTE

Grounding Rod Kit (p/n 6593) must be installed with every furnace.

Classic Edge 350 / 550 Models – 2-Pump Configuration*



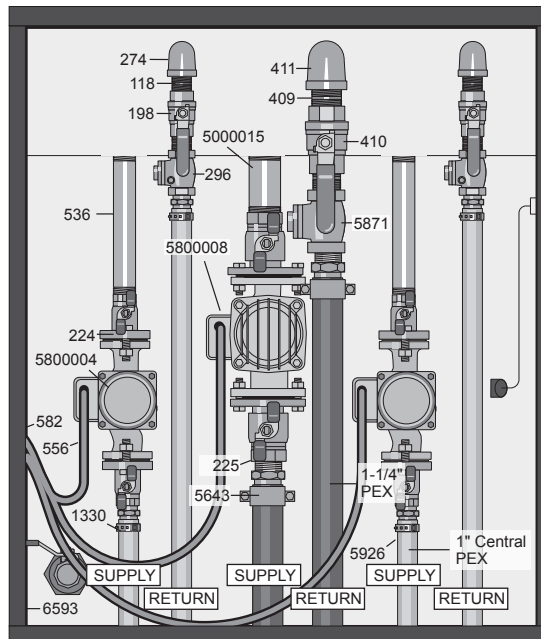
*Parts and accessories sold separately.
Pump size may vary. For illustration purposes only.

***Pump Extension Kit (p/n 2500164) required.**

Classic Edge 750 Model – 3-Pump Configuration

3 - Pump Parts List*		
Qty	p/n	Description
2	118	Close Nipple, 3/4"
2	198	Ball Valve, 3/4"
2	224	Isolation Flange Kits, 3/4"
1	225	Isolation Flange Kits, 1-1/4"
2	274	90° Street Elbow, 3/4"
2	296	Swing Check Valve, 3/4"
2	409	Close Nipple, 1-1/4"
1	410	Ball Valve, 1-1/4"
1	411	90° Street Elbow, 1-1/4"
2	536	Nipple, 3/4" x 7"
3	556	Power Supply Cord, 32"
1	582	6 Outlet Converter
4	1330	MPT to PEX, 3/4" x 1"
2	5643	Brass Clamp, 1-1/4"
1	5871	Swing Check Valve, 1-1/4"
4	5926	Stainless Steel Clamp Crimp Ring, 1"
1	6593	Grounding Rod Kit
1	5000015	Nipple, 1-1/4" x 2-1/2"
2	5800004	007 Pump
1	5800008	014 Pump

*Parts and accessories sold separately.
Pump size may vary.



NOTE

Grounding Rod Kit (p/n 6593) must be installed with every furnace.

For illustration purposes only.

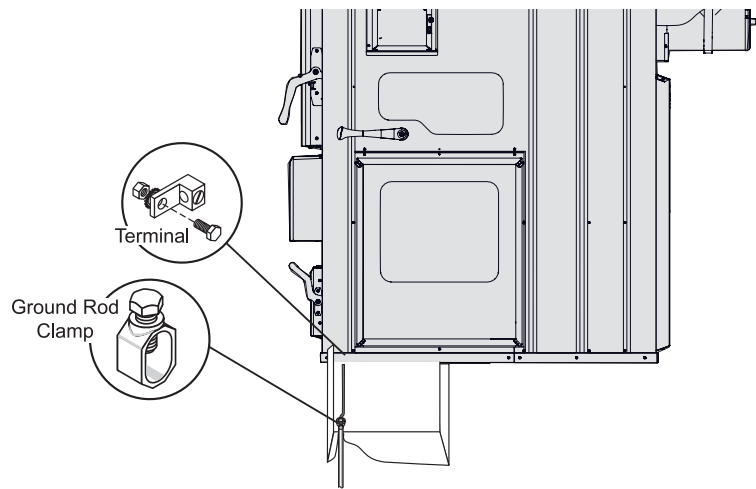
Ground Rod Kit

The outdoor furnace must be electrically bonded to ground in accordance with the requirements of the authority having jurisdiction or, in absence of such requirements, with the National Electrical Code, ANSI/NFPA 70 and/or the Canadian Electrical Code Part 1, CSA C22.1 Electrical Code.

Install a Ground Rod Kit (p/n 6593) and connect it to the outdoor furnace.

1. In the water line trench near the outdoor furnace, drive the ground rod into the ground until the top of the ground rod is below the ground surface.
2. Route the ground wire from the ground rod under the outdoor furnace base and over to the frame of the outdoor furnace.
3. Secure the ground terminal with a cap screw (1/4" x 3/4"), star washer and nut. Secure the ground wire to the terminal; then secure the ground wire to the ground rod with the clamp. Tighten all hardware securely.

NOTE: A hole for the ground terminal has been pre-punched in the outdoor furnace base near the pumps.



Furnace Installation - Connecting to Your Existing System

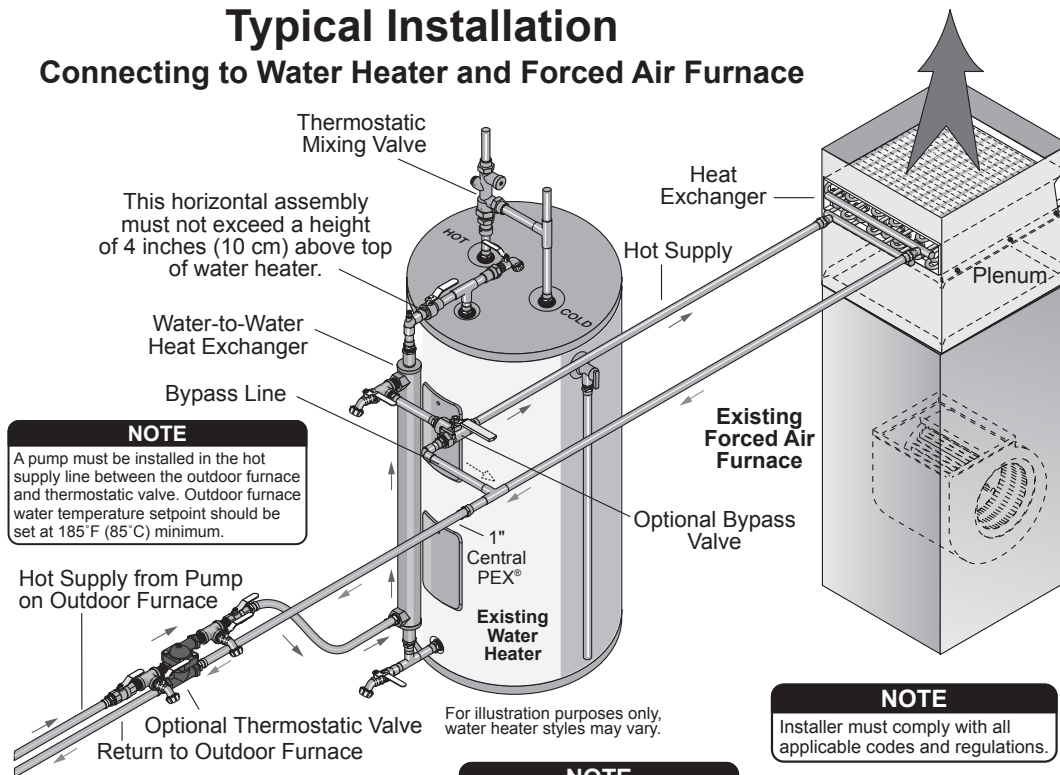
A common installation is to connect the outdoor furnace to an existing water heater and then to an existing forced air system. A water-to-air heat exchanger is mounted in the plenum or duct work of the existing furnace. Heated water from the outdoor furnace either continuously flows through the water-to-air heat exchanger or is diverted through a 3-way zone valve. When the thermostat senses the need for heat, the fan on the existing furnace forces air through the heat exchanger, transferring heat throughout the existing ductwork.

NOTE: There are numerous ways to connect to your heating system. Refer to the Central Boiler Outdoor Furnace Installation Guide for other installations.

Detailed Furnace Installation Variations

Visit CentralBoiler.com to access a library of detailed illustrations for connecting to a wide variety of existing heating systems and for other heating options.

Typical Installation Connecting to Water Heater and Forced Air Furnace

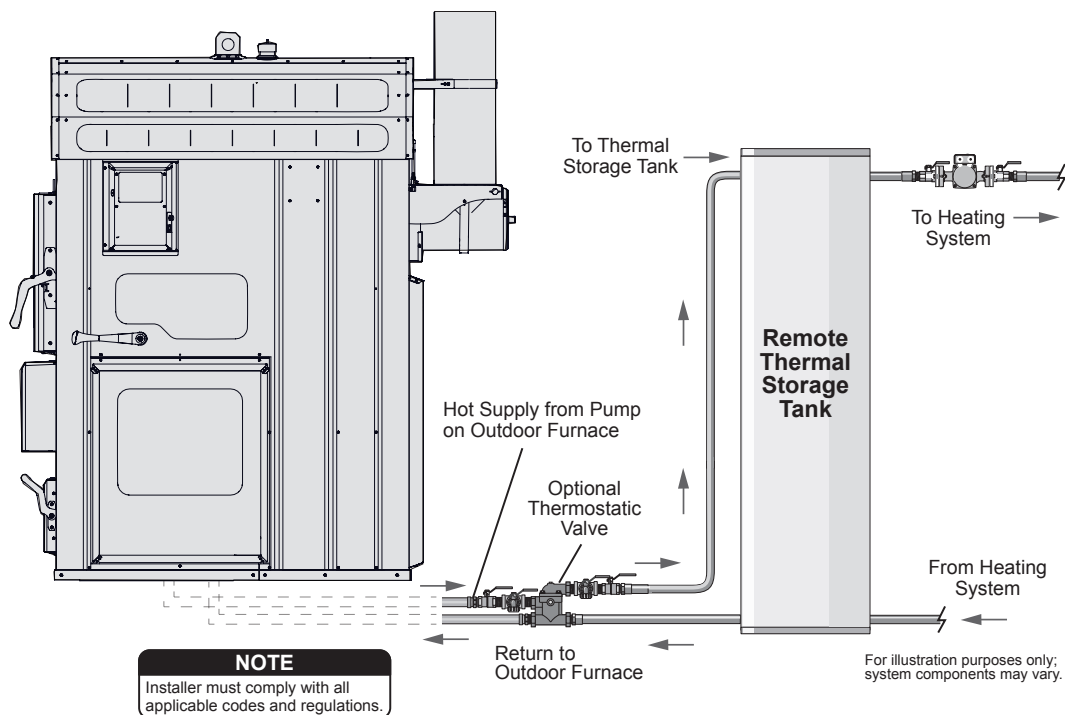


NOTE: A certified electrician must do the electrical installation.

NOTE
Any electrical installation should be done by a qualified installer in accordance with applicable codes.

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Remote Thermal Storage Installation Connecting to Remote Thermal Storage Tank



OUTDOOR WOOD FURNACE BEST BURN PRACTICES

1. Read and follow all operating instructions supplied by the manufacturer.
2. **FUEL USED:** Only those listed fuels recommended by the manufacturer of your unit. 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.
3. **LOADING FUEL:** For a more efficient burn, pay careful attention to loading times and amounts. Follow the manufacturer's written instructions for recommended loading times and amounts.
4. **STARTERS:** Do not use lighter fluids, gasoline, or chemicals.
5. **CHIMNEY RECOMMENDATIONS:** In higher populated areas, extend the chimney to a height above the roofs of surrounding buildings.
6. Always remember to comply with all applicable state and local codes.

Be considerate of neighbors when operating your furnace. If you use your furnace in the summer months, be certain your chimney exhaust is not adversely affecting neighbors with open windows.

Chimney Recommendations

In higher populated areas, extend the chimney to a height above the roofs of surrounding buildings. Use Central Boiler Chimney Extensions when extending the chimney. When only the standard eight feet (2.4 m) of chimney are used, the sections must be secured at the connection joint with four (4) screws to stabilize the extension.

If extensions are added to the standard eight feet (2.4 m) of chimney, the chimney should be reinforced appropriately. The illustration shows chimney support recommendations when three or more sections are used. When adding sections of chimney, make sure that there is nothing within the fall zone of the chimney that could be damaged. If something is located within the fall zone and cannot be removed, guy wires or braces may need to be installed to prevent a falling chimney from causing damage.

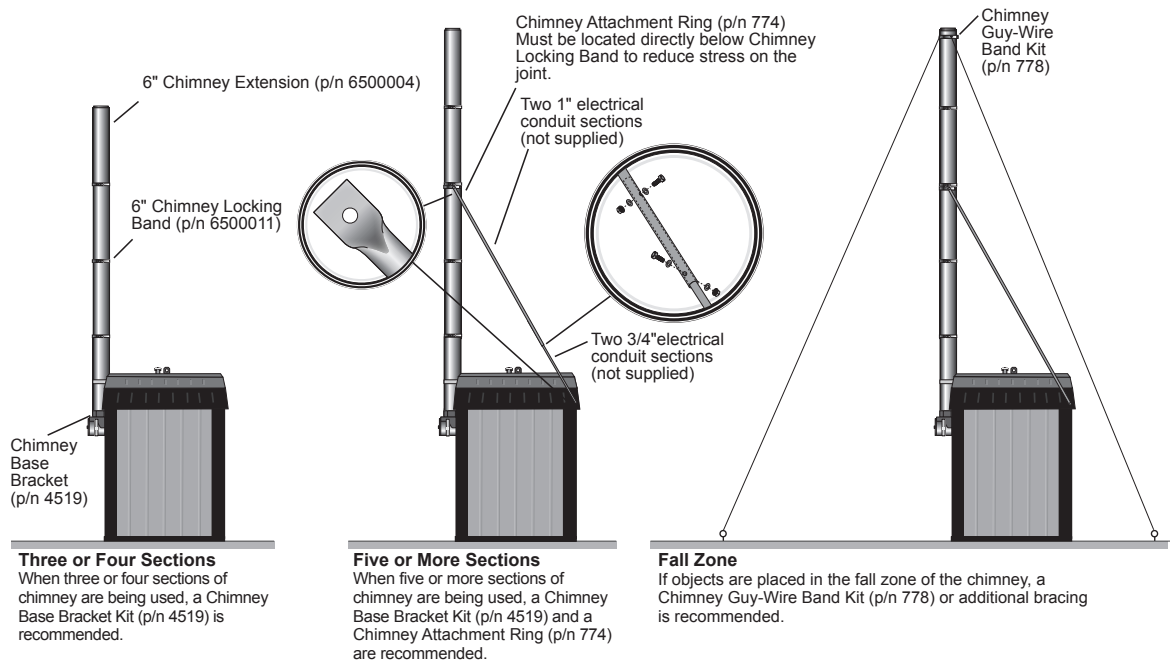
NOTE: If more than three 4-foot (1.2-m) sections of chimney are used, a support (e.g., a pole, pipe or other structural support) may be installed from the ground that can withstand wind. Other reinforcement recommendations are shown.

NOTE: For chimney extensions or chimney replacement, use only genuine Central Boiler chimney components. Parts are available from an authorized Central Boiler dealer.

The installation of a spark arrester is recommended, particularly where there are dry conditions or where there is combustible material near the unit, unless the installation of a spark arrester is prohibited by local requirements. Use common sense to avoid potential fires, including exercising caution when disposing of ashes, cleaning and refueling. Keep all highly combustible materials (e.g., gasoline, propane, leaves, pine needles, etc.) away from an operating unit at all times. Take special precautions in windy conditions.

NOTE: You may need to increase the chimney height if conditions occur that force exhaust to low levels.

Chimney Reinforcement Recommendations



NOTE

- Additional bracing may be necessary in certain areas such as those subject to severe weather, winds, freezing rain, etc.
- Inspect all bracing bi-annually for integrity.

Important Precautionary Information

Be sure to read carefully and understand these precautions before, during and after the installation, operation and maintenance of the furnace.

NOTE: All operations must be in accordance with local and state codes which may differ from the information in this manual.

⚠ CAUTION

This outdoor furnace is not intended to be the only source of heat. In the event of a prolonged power failure, a generator may be used to prevent lines from freezing. Should the outdoor furnace be left unattended, run out of fuel or require service, an alternate heating source in the building being heated should be in place to prevent damage caused by freezing.

⚠ WARNING

The outdoor furnace vent cap must fit loosely on the vent opening. Do not force the cap down or try to seal it tightly onto the vent pipe. Do not extend or restrict the vent pipe or opening. **DO NOT ALLOW THE OUTDOOR FURNACE TO BE PRESSURIZED.**



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⚠ WARNING

Be sure the outdoor furnace is filled with water before firing. Never fire the outdoor furnace when the water level is more than 1" (2.5 cm) below the FULL mark on the sight gauge. 1650XL Inhibitor Plus and Molyboost must be added before the initial fill (see Water Quality and Maintenance).

⚠ WARNING

Disconnect the electrical power to the outdoor furnace before replacing an electrical component.

⚠ WARNING

Do not attempt service inside the electrical control panel without first disconnecting the electrical power at the main power source.

NOTE: Any electrical installation should be done by a qualified installer in accordance with applicable codes.

⚠ WARNING

Allow the outdoor furnace to thoroughly cool and completely clean out the firebox before draining water from the outdoor furnace. If the water in the outdoor furnace ever boils, be sure to check the water level and restore to full. If water is added, the proper level of 1650XL Inhibitor Plus (p/n 1650) must be maintained.

⚠ WARNING

When cleaning the outdoor furnace, be careful not to spill any coals.

⚠ WARNING

ALWAYS store ash in a covered non-combustible container.

⚠ WARNING

Do not allow combustible materials (straw, hay or wood) near the outdoor furnace. Keep the perimeter of the outdoor furnace clear and clean.

⚠ WARNING

For fire safety, keep all combustible materials at least six feet (two meters) away from the outdoor furnace, especially around the door area. Debris of wood chips and other combustibles in the area may be easily ignited if a hot coal is spilled out of the firebox and left unnoticed.

⚠ WARNING

The firebox door must be closed and latched at all times except when filling the firebox with wood. Leaving the firebox door open may lead to a runaway fire. In the event of a runaway fire, close the firebox door. In the event of a chimney or soot fire, close the firebox door and make sure power is off to the outdoor furnace.

⚠ WARNING

All covers must be maintained at all times except during maintenance, inspection and service.

⚠ WARNING

When opening the firebox door, the door switch will shut off the primary air actuator motor and prevent the gas-fired wood ignition burner (if installed) from operating while the firebox door is open. Do NOT disable the door switch.

⚠ WARNING

Use only untreated wood in the firebox. Do not burn trash, plastics, gasoline, rubber, naphtha, household garbage, material treated with petroleum products (particle board, railroad ties and pressure treated wood), leaves, paper products or cardboard.

NOTE: The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in an affected wood heater.

NOTE: Do not use chemicals or fluids to start the fire. Use kindling or gas-fired wood ignition option to start an initial fire.

NOTE: The sight gauge valve should always be closed, except when checking water level. Water will automatically drain from the sight gauge tube when the valve is closed. Remember that this type of valve requires only 1/4 turn to open or close.

⚠ WARNING

This heater is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods, as compared to softwoods or to green or freshly cut hardwoods. **DO NOT BURN:** any wood that is not clean wood, unseasoned wood, garbage, tires, lawn clippings, leaves, brush trimmings or general yard waste, materials containing asbestos, materials containing lead, mercury or other heavy toxic metals, materials containing plastic, materials containing rubber, waste petroleum products, paints and paint thinners, asphalt products, chemicals, coal, glossy or colored paper, construction and demolition debris, plywood, particleboard, salt water driftwood and other previously salt water saturated materials, manure, animal carcasses and asphalt products. Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke.

NOTE: Chloride or sulfurous gases can be generated if plastic or rubber is burned and will mix with the moisture from the wood and form hydrochloric or sulfuric acids in the firebox, creating corrosion.

NOTE: This outdoor furnace is not to be used with an automatic stoker.

⚠ CAUTION

This outdoor furnace is not to be connected to a chimney flue serving another appliance.

⚠ WARNING

When adding wood to the firebox, be careful not to get pinched between the wood and the door frame, or any part of the outdoor furnace. Use extreme care with large pieces of wood that may be difficult to handle.

⚠ WARNING

Sulfuric acid in the test kit is a corrosive acid. Handle carefully. Carefully read and follow precautions on test chemical labels. Keep test chemicals away from children. Safely dispose of tested samples.

Wood Selection and Preparation

Before You Start Operating Your Classic Edge Outdoor Wood Furnace

Be sure to read carefully and observe all of the information in the entire Owner's Manual.

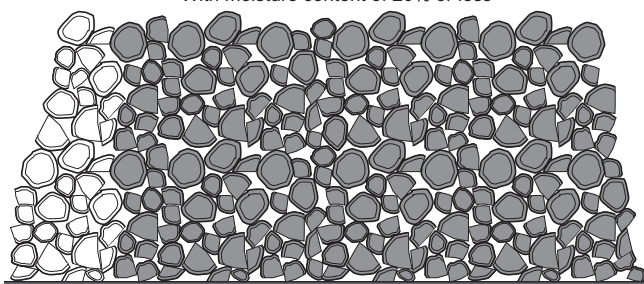
If any questions arise that cannot be answered by the information in this manual, be sure to contact your dealer.

For the best results, it is best to burn seasoned split wood. However, it may be possible to burn some unsplit wood with the split wood depending on quality, size, moisture content and wood type. Properly seasoned wood has a moisture content of 20% or less. It is darker, has cracks in the end grain, and sounds hollow when smacked against another piece of wood. Most wood needs to be split to dry down to 20% within a year. Wood between 4" and 8" (10 and 20 cm) in diameter works well in most cases. Pieces of wood that are too large can reduce output capacity because they burn slower.

- Wood that works well in most cases:
 - Is between 4" and 8" (10 and 20 cm) in diameter
 - Is approximately 60-70% of the length of the firebox
 - Typically weighs 10-15 pounds per cubic foot for heavy heat loads
- Pieces of wood that are too large can reduce output capacity because they burn slower. Wood that is too long can cause bridging.
- Seasoned wood burns more efficiently, minimizes the amount of creosote formation, reduces emissions and extends the life of the outdoor furnace.
- Maintain a quantity of smaller, drier pieces of wood for relighting the fire and for other situations when larger pieces of wood don't work as well.
- The larger the heat load on the outdoor furnace, the drier the wood needs to be in order to maintain an adequate glowing coal bed.

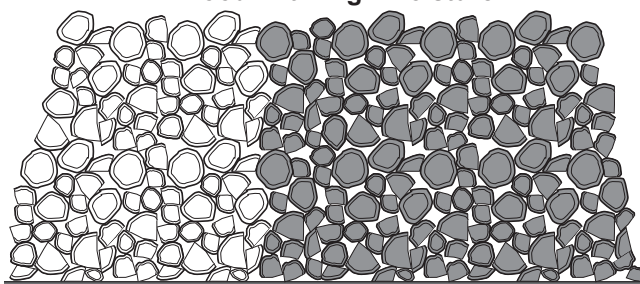
Seasoned Wood

With moisture content of 20% or less



- Wood used to heat
- Wood used to remove moisture

Wood With High Moisture



- Wood used to heat
- Wood used to remove moisture

Following are some reasons that green, unseasoned wood should not be used:

- Green wood contains about 50% moisture by weight. Energy is required to heat the wood and evaporate the moisture - energy which could have been used to provide heat for the home. The illustration below shows that burning drier, seasoned wood provides more energy for heating your home compared with burning green, unseasoned wood that uses more energy to evaporate the moisture and provides less energy for heating your home.
- Unseasoned wood provides less heat, resulting in more condensates (moisture) in the firebox and increased wood consumption.
- Increased moisture in the firebox can result in corrosion.
- Unseasoned wood causes reduced performance, lower combustion rates and lower heat output.
- The full heating potential is unlikely to be achieved with unseasoned wood.
- Burning wood with an excessively high moisture content increases maintenance requirements and can lower the service life of the outdoor furnace.
- The higher the moisture content of the wood being burned, the harder it is to maintain a glowing coal bed because it burns more slowly.

NOTE: Do not store wood within the outdoor furnace installation clearances or within the spaces required for fueling, ash removal and other routine maintenance operations.

Importance of Properly Seasoned Wood

Burning properly seasoned wood (less than 20% moisture content) will minimize wood usage and maximize the efficiency and performance of the Classic Edge (see Wood Selection and Preparation in the Introduction).

In order for wood to burn, the moisture in the wood must first be evaporated (boiled off). The more moisture there is in the wood, the more energy it will consume to dry it and the less energy will be available for heating the water.

As shown, the higher the moisture in the wood, the larger the volume of the firebox that is used for drying and the smaller the volume used for burning. This results in lower efficiency and lower heat output.

The lower the moisture in the wood, the smaller the volume of the firebox that is used for drying and the larger the volume used for burning. This results in higher efficiency and higher heat output.

Operating Instructions

FIRESTAR COMBUSTION CONTROLLER

Refer to the FireStar Combustion Controller Operation Manual for information about the combustion controller.

Operating the Classic Edge for Maximum Efficiency and Performance

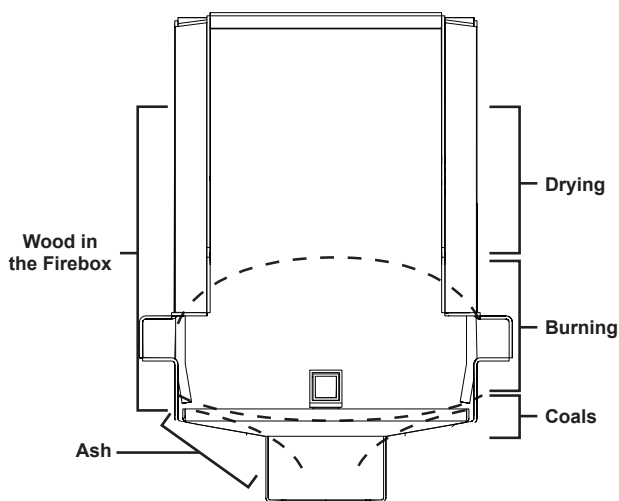
Because of its highly efficient and clean-burning design, the Classic Edge operates differently than other types of wood-burning devices. Understanding a few basic principles will help you operate the Classic Edge as it was designed, maximizing its performance, heat transfer and longevity.

NOTE: For proper operation, the fuel must match the heat load, the furnace must be maintained to ensure proper air flow, and the water temperature must be kept above 150°F (66°C).

1. The combustion air fan pressurizes the airbox located at the front of the outdoor furnace. Primary air flow, regulated by an actuator motor, flows into the firebox through combustion air outlets located on the front and sides near the bottom. Secondary air is regulated by a second actuator motor that allow air flow through the secondary air charge tube. Combustion starts in the firebox near the bottom of the wood load.

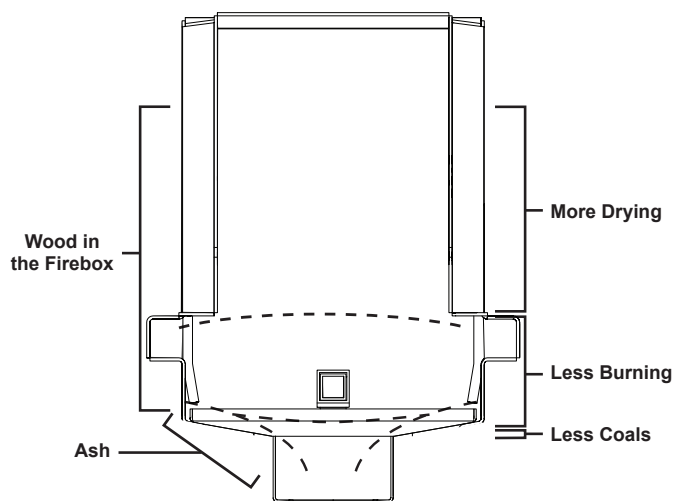
NOTE: The combustion air outlets must be visible (i.e., ash must be kept below the combustion air outlets as shown).

Operating with Properly Seasoned Wood



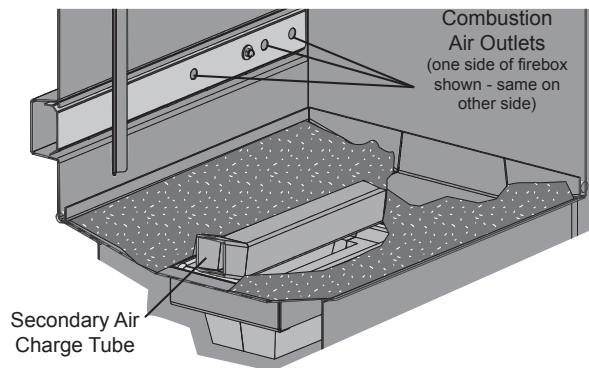
- Burns more efficiently
- Minimizes amount of wood used
- Reduces emissions
- Extends life of furnace
- Reduces bridging

Operating with Wood with Too Much Moisture



- Burns less efficiently
- Increases amount of wood used
- Lowers combustion rates
- Increases maintenance requirements
- Increases bridging

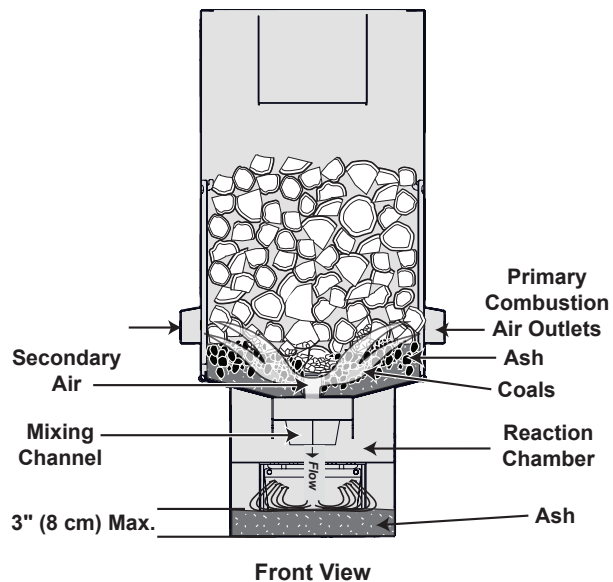
NOTE: The larger the volume where the wood is burning and not drying, the more efficiently the outdoor furnace will be operating.



Keep the combustion air outlets open and clear of ash and coals to allow the furnace to operate properly.

2. Gasified fuel exits the bottom of the firebox alongside and under the secondary air charge tube, through the mixing channel and down to the Reaction Chamber™. Final combustion occurs in the Reaction Chamber where extremely high temperatures aid in complete combustion. The chimney creates a draft (negative pressure) which helps to draw exhaust gases from the furnace.
3. Heat is transferred to the water from the hot gases as they move through the firebox, the Reaction Chamber and the heat exchanger.

CORRECT (Proper Flow)



NOTE: The illustration shows the Classic Edge operating correctly with proper combustion air flow and with the wood properly loaded.

NOTE: A key point to remember about the operation of the Classic Edge is that as wood burns, the combustion gases flow down through the bottom of the firebox so the proper flow must be maintained as shown.

NOTE: Refer to the General Troubleshooting Information for more information on outdoor furnace operation and for conditions to avoid.

Air Flow and Maintaining the Coal Bed

Each time the firebox is loaded with wood, make sure that air flow through the combustion system is not blocked or restricted. Maintain 1-3 inches (2.5 cm to 7.5 cm) of loose, glowing coals alongside the charge tube to optimize the operation of the outdoor furnace. If the coal bed is too deep, it will restrict air flow and limit the amount of heat output. If there is no coal bed, or if the coal bed is too shallow, it will reduce the potential heat output, and can reduce efficiency.

Generally, the coal bed depth will increase if smaller dry wood is loaded at more frequent intervals. If too large pieces of wood and/or wood with too high moisture content are used, the coal bed is likely to be depleted, resulting in reduced heat output and efficiency.

Some ash in the bottom of the firebox (but not alongside the charge tube) is necessary for the proper operation of the outdoor furnace. Ash acts as an insulator, keeping the glowing coals in the bottom of the firebox hot enough to restart the fire when needed after being in idle mode.

Ash Removal Frequency

During the first week of operation, check the level of ash in the Reaction Chamber every two days. Ash needs to be removed from the Reaction Chamber before it obstructs the combustion air flow for efficient operation. Clean the Reaction Chamber before it becomes 1/3 full of ash (approximately 3" or 7.5 cm deep in any area of the Reaction Chamber).

If there are significant changes in the heat load because of colder weather and more wood is burned each day, ash will need to be removed from the Reaction Chamber more often. Using different types of wood can also affect the frequency with which ash will need to be removed.

Cold Start Firing

NOTE: These procedures apply to initial firing or refueling the outdoor furnace from a cold start (water temperature below 100°F or 38°C) and/or no charcoal base left in the firebox).

It's been said that lighting a fire can be more of an art than a science. You may need to vary techniques to achieve best results. Many factors can have a significant effect such as size of wood, moisture content, wood storage, etc. Over time, you will become familiar with your particular conditions. This will allow you to identify cause and effect in a variety of circumstances and what works best for your conditions.


⚠ CAUTION

Do not burn plastic, garbage, treated wood or fuels not listed for this outdoor furnace.

⚠ CAUTION

If the water in the outdoor furnace boils, be sure to check the water level and restore to full. Add 1650XL Inhibitor Plus (p/n 1650) as needed (see Water Quality and Maintenance).

NOTE: Before firing the outdoor furnace for the first time, make sure the proper amount of 1650XL Inhibitor Plus has been added and the water level is 1" below the full mark on the sight gauge, as the water will expand when heated.

1. Disconnect the heat load draw by turning off the pump(s).
2. Turn the controller on by pressing the **Power**  button.
3. For Classic Edge 550 and 750 models, lift and push the bypass door handle toward the back of the outdoor furnace to open the bypass door; then unlatch and open the firebox door.

NOTE: For Classic Edge 550 and 750 models, if the optional Bypass Alarm Kit (p/n 2500153) is installed, the alarm is a reminder that the bypass door is open. During a cold start, it will continue to sound.

⚠ WARNING

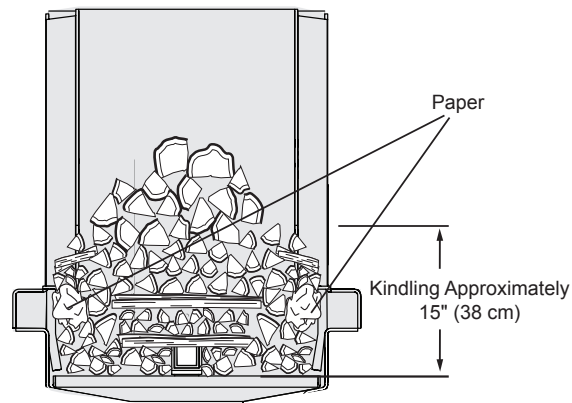
When opening the firebox door, the door switch will shut off the primary air actuator motor while the firebox door is open. Do NOT disable the door switch.

4. The first time you fire the outdoor furnace, add very dry kindling to fill the firebox to a level approximately 15 inches (38 cm) from the bottom of the firebox. Smaller kindling is preferred. It should be staggered and able to ignite and burn quickly for the initial fire.
5. To get the cleanest start-up, the kindling must first start to burn at the bottom and as close to center as possible. Place paper around the firebox with very small pieces of kindling on top. Light the paper and kindling. Once the paper and kindling are lit, close and latch the firebox door. For Classic Edge 550 and 750 models, do not close the bypass door.

⚠ CAUTION

Do not leave the firebox door open while the fire is burning. Damage to the door seal and paint on the front of the outdoor furnace will result and it could cause a dangerous build-up of gas in the firebox.

Cold Start Initial Fire Up



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6. Allow the wood load to burn until the kindling turns to coals (for Classic Edge 550 and 750 models, leave the bypass door open); then add enough kindling again to fill the firebox about 1/4 full. On top of the kindling, add 8-10 inches (20-25 cm) of dry, seasoned split wood. Close and latch the firebox door.
7. For Classic Edge 550 and 750 models, wait for 15 seconds; then slowly pull the bypass door handle toward the front of the furnace and push down to close the bypass door.
8. After the water temperature is above 150°F (66°C), proceed to Adding Heat Load.



OPERATING TIP

Load wood to reduce condensation - this means adding only enough wood each time to maintain the fire for 12 hours.

Adding Heat Load

NOTE: During initial start-up, a considerable amount of moisture from condensation will collect inside the firebox and heat exchanger and may drip out of the Reaction Chamber door. This is normal and the moisture will evaporate after the first couple of fuel loads.

1. With no heat load draw in the system, monitor the operation of the outdoor furnace until the water temperature reaches the water temperature setpoint.
2. Turn on the pump(s); then start a heat load draw in the system by turning up the thermostat in the house. Monitor the outdoor furnace for one hour or until another cycle occurs (i.e., outdoor furnace goes from combustion to idle mode). If the water temperature drops and does not recover to the water temperature setpoint within one hour of starting the heat load draw, the heat load draw should be shut off, allowing the furnace to cycle to the idle mode again.

NOTE: The outdoor furnace will not operate satisfactorily if the heat load is higher than the output capacity of the outdoor furnace.

3. At this point, there should be glowing coals established in the bottom of the firebox. The firebox can be filled with dry, seasoned split wood.

Adding Wood - Best Practices for Frequency and Amount

For the best results, it is best to burn seasoned split wood less with a moisture content of 20% or less. Burning wood with a high moisture content increases maintenance requirements and can lower the service life of the outdoor furnace.

To reduce condensation and creosote formation and to increase efficiency, the recommendation is to load the outdoor furnace with only enough wood to maintain the fire for your heat load requirements for 12 hours. There should be enough wood left at the end of 12 hours to re-ignite the fire.

Adding more wood than is needed between fills causes increased condensation in the firebox. Condensation reduces efficiency and increases the amount of combustion by-products like creosote. Air flow can also be restricted because too much wood in the firebox will create excessive coals or too deep of a coal bed.

⚠ CAUTION

Do not burn wood with an excessively high moisture content and/or operate the outdoor furnace frequently or for extended periods of time with the water temperature below 150°F as this will result in more condensation in the firebox that can lead to excessive corrosion.

NOTE: Operating at temperatures of 170°F or more will decrease condensation in the firebox. As a result, the outdoor furnace will operate with a greater efficiency and require less maintenance. Failure to follow proper operating instructions may result in furnace damage.

NOTE: To reduce flare-ups when opening the firebox door to reload with wood, it is best to wait 15 minutes or more after the water temperature setpoint is met.

⚠ CAUTION

To reduce condensation, DO NOT overload the firebox with wood.

1. For Classic Edge 550 and 750 models, slowly lift and push the bypass door handle toward the back of the outdoor furnace to open the bypass door; then wait for 15 seconds.

NOTE: For Classic Edge 550 and 750 models, if the optional bypass alarm is installed, the alarm is a reminder that the bypass door is open. During a cold start, it will continue to sound.

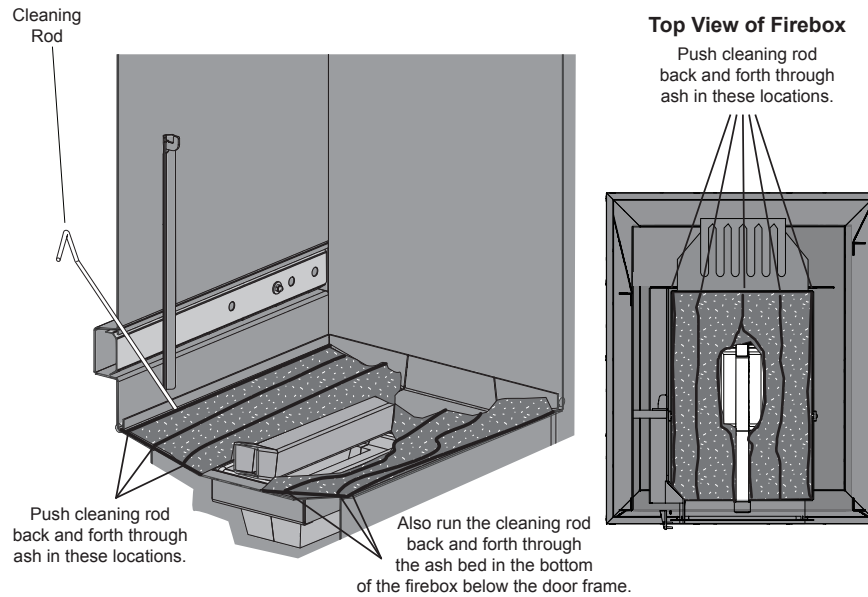
⚠ WARNING

Keep your face away and stay as far away as possible from the firebox door area when opening the door.



OPERATING TIP

Run the cleaning rod through the coal bed once every 8-12 hours to avoid bridging and to help optimize combustion.



2. Unlatch the firebox door; then slightly open the firebox door and wait 10 seconds. Stay as far away as possible as the firebox door is opened because smoke and hot gases escaping through the firebox door opening could ignite. From a safe distance, observe the fuel load.

⚠ WARNING

Use extreme care when adding wood when wood or coals are already present. Very hot gases may be coming out of the firebox door opening.

3. Using the illustration as a reference, push the cleaning rod back and forth through the ash, coals and remaining wood in the bottom of the firebox to loosen it up, including a pass on each side of the air charge tube. Also run the rod through the ash bed back and forth in the bottom of the firebox below the door frame.

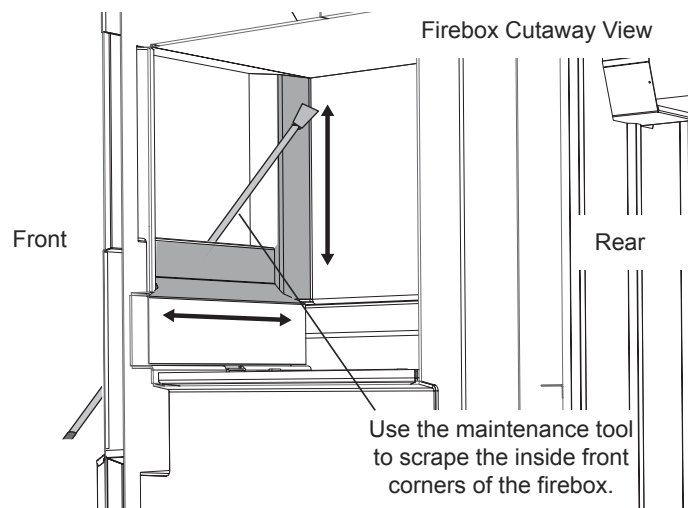
NOTE: Neglecting to push the cleaning rod through the ash and coals as described in Step 3 each time before wood is loaded can cause the ash bed to deepen and become compacted. This can result in poor heat output and combustion because of restricted airflow. Compacted ash will not fall into the Reaction Chamber; it will need to be removed with a shovel.

4. Some ash in the bottom and the angled sides of the bottom of the firebox (but not alongside the charge tube) is necessary for the proper operation of the outdoor furnace. Ash acts as an insulator, keeping the glowing coals in the bottom of the firebox hot enough to restart the fire. When using the cleaning rod, some of the ash will fall into the Reaction Chamber and some ash with coals will remain. The coals remaining around the mixing channel (the area alongside the secondary air charge tube) will create a clean, efficient burn.
5. The combustion air outlets must be kept open and clear of ash and coals to allow the furnace to operate properly. If needed, remove enough ash to keep the combustion air outlets free of obstruction.

⚠ WARNING

When adding wood to the firebox, be careful not to get pinched between the wood and the door frame or any part of the outdoor furnace. Use extreme care with large pieces of wood that may be difficult to handle.

6. Each time wood is loaded, visually check the condition of the coal bed and ash content and, if needed, use the cleaning rod to make sure the system is not plugged. Inspect the firebox for crusty deposits on the walls and in the corners and use the maintenance tool or similar type of tool to scrape and remove.
7. Use the maintenance tool to scrape the inside front corners of the firebox, down each side and across the top, as shown.



8. When loading, do not tightly pack wood into the firebox. Load the wood so that the combustion air outlets on the side of the firebox do not become blocked or restricted.
9. Close and latch the firebox door. **Do not use the firebox door to ram wood into the outdoor furnace. Do not operate the outdoor furnace with the firebox door open.** Combustion in the firebox cannot be controlled if the firebox door is left open or unlatched. If the firebox door is left open, an uncontrolled burn will result. To return to a controlled burn, close and latch the firebox door.
10. For Classic Edge 550 and 750 models, wait for 15 seconds; then slowly pull the bypass door handle toward the front of the furnace and push down to close the bypass door.

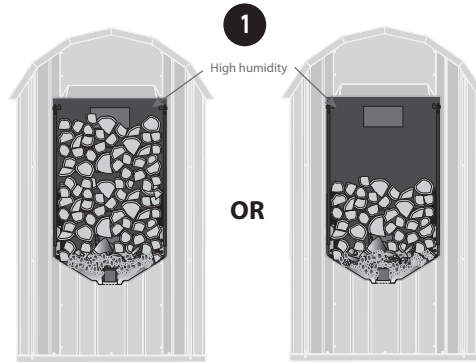
⚠ WARNING

The firebox door must be closed and latched at all times except when filling the firebox with wood or damage to gaskets, paint, etc., may occur. Leaving the firebox door open may lead to a runaway fire. In the event of a runaway fire, close the firebox door.

Why a 12-Hour Burn Time?

Operating for a 12-Hour Burn

It is best to burn the wood load down to a glowing coal bed as often as possible to dry the firebox, air channels and ashes.



Load enough wood to maintain the fire until next reloading, preferably about 12 hours

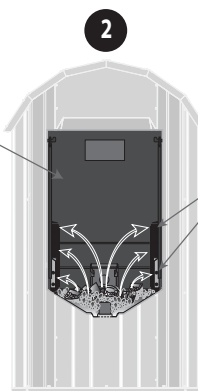


Run the rod through the coal bed in a number of places once every 8-12 hours to avoid bridging and to help optimize combustion.



Wood between 4" and 8" (10-20 cm) across and approximately 60-70% of the length of the firebox works well in most cases.

Low humidity



Radiant heat from glowing ember bed dries and cleans air channels, and also will ignite new wood load

DRYING
Radiant heat dries and cleans air channels

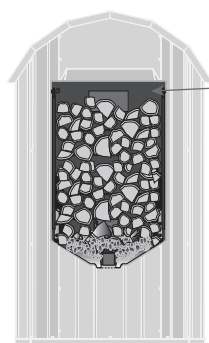


Before reloading, use the cleaning rod to loosen the ash and coals as directed in the Owner's Manual

A dry firebox lasts longer, requires less maintenance and operates with more efficiency than a wet firebox.

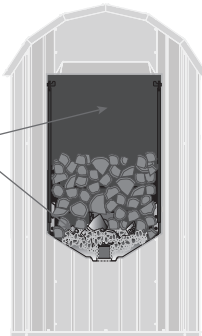
Adding more wood than is needed between loads increases condensation and reduces efficiency.

A firebox with high humidity requires more maintenance, operates with less efficiency and will shorten the life of the furnace.



Loading more wood than is needed between fills increases condensation – the firebox and air channels will not dry

NO DRYING
Very little radiant heat to dry air channels



Reloading at this level can restrict airflow and create excessive coals or too deep of a coal bed, while making it impossible to run the cleaning rod through to loosen the ash and coals

High humidity
Here, wood is added before remaining wood is allowed to burn down.

Coal bed will continue to deepen and operating efficiency will continue to diminish



Coal bed is too deep to allow enough air to keep the bottom of bed glowing, which is needed for proper operation.

Repeating this type of reloading pattern, along with not following other procedures described in the Owner's Manual and instructional videos, will diminish the efficiency, performance and life of the furnace

These illustrations provide a summary of how to properly load and reload your downdraft outdoor furnace. Be sure to read the Owner's Manual for other important safety and operational information. Over time, you will become familiar with your particular conditions, and you will learn how best to load the wood so it burns down to a glowing coal bed as often as possible before reloading. ©2015 Central Boiler • 1-MAY-2015

Maintenance

PREVENTIVE MAINTENANCE SCHEDULE

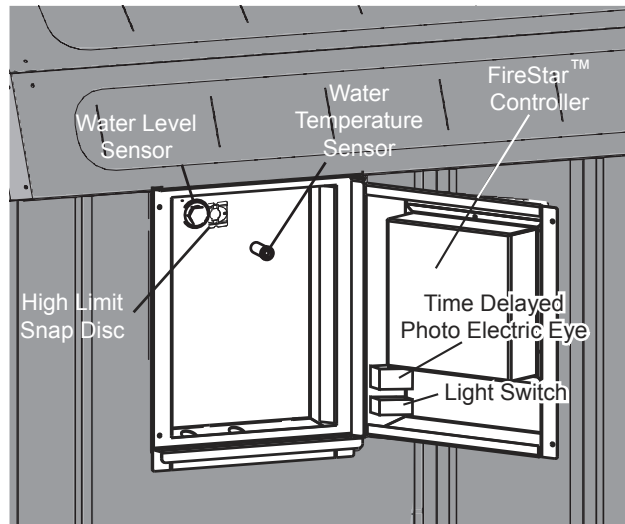
Regular maintenance and inspections can help extend the life of your outdoor furnace and prevent high-cost repairs. This table is meant to serve as a general guideline until you become acquainted with how the outdoor furnace operates with your specific application.

OPERATION	SERVICE INTERVAL							See Section Number
	Before first operation of season	Daily	Weekly	Monthly	Semi-Annually	Post Season	Other	
Check water level.	●	●						3-1
Remove ash.			C			●		3-3
Scrape firebox door frame; use cleaning rod in ash.		A				●		3-3
Inspect firebox door seal.		A				●		3-4
Inspect and lubricate door latch bushings.						●	G	3-4
Inspect chimney.	●		●			●		3-5
Check vent cap.	●							3-2
Clean heat exchangers.	●		C			●	F	3-6
Inspect rear access heat exchanger door latches, seal and insulation							H	3-6
Inspect Reaction Chamber.	●		C			●		3-7
Inspect secondary air charge tube and refractory.						●		3-11
Inspect firebox and firebox ash area.	●	A				●		3-8
Inspect and clean combustion air outlets.	●		C			●	B	3-9
Inspect and clean the combustion fan and inlet screen.					D			3-10
Oil the combustion fan.						●		3-10
Check pH and nitrite levels of water.	●				D	●	E	
Inspect primary and secondary combustion air elbows.						G		3-12
Grease bypass door handle (Classic Edge 550/750 only).				F		●		3-13
Perform a complete firebox cleaning.				F		●		3-14

NOTE: Check daily for build-up of creosote in the lower corners and around the air outlets until experience shows how often cleaning is necessary.

- A Daily, or as needed.
- B Twice a week.
- C Weekly until interval for your application can be determined.
- D When new, after three months, then every six months thereafter.
- E Refer to **Testing Treated Water in the Outdoor Furnace**.
- F Frequency will vary depending on heat load requirements, type of wood used and the moisture content of the wood.
- G Or as needed.
- H Whenever rear access heat exchanger door is opened.

Control Locations



ROUTINE MAINTENANCE

⚠ CAUTION

Use only genuine Central Boiler Parts and Accessories if it ever becomes necessary to replace any component of the outdoor furnace.

Routine inspections and maintenance are essential to the proper operation and longevity of the outdoor furnace. The items indicated in the preventive maintenance schedule are intended to serve as a guideline. Actual intervals between inspections and maintenance may vary depending on a number of factors, including your heat load requirements, type of wood used, and outdoor temperatures.

NOTE: Proper maintenance of the firebox, Reaction Chamber, heat exchanger, chimney transition box and chimney tee are essential for the outdoor furnace to function properly and for longevity.

⚠ CAUTION

Do not burn plastic, garbage, treated wood or fuels not listed for this outdoor furnace.

NOTE: Chloride or sulfurous gases can be generated if plastic or rubber is burned and will mix with the moisture from the wood to form hydrochloric or sulfuric acids in the firebox, creating corrosion.

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 connector and chimney should be inspected at least twice monthly during the heating season to determine if a creosote buildup has occurred, and to check for corrosion or condensation. If creosote has accumulated it should be removed to reduce the risk of a chimney fire.

WARNING

The chimney and chimney connector must be clean and in good condition.

NOTE: A small intense fire is preferable to a large smoldering one to reduce the amount of creosote deposition. The wood load should be matched to the heat load.

MAINTENANCE SECTIONS

Refer to the Preventive Maintenance Schedule for the recommended intervals with which to perform these maintenance items.

3-1. Water Level

Open the sight gauge valve. The sight gauge tube will fill to indicate the level of water in the outdoor furnace. Be sure to close the sight gauge valve after checking water level. The sight gauge valve and tube will drain when the valve is closed.

3-2. Vent Cap

Check that the vent cap fits loosely on the vent opening.

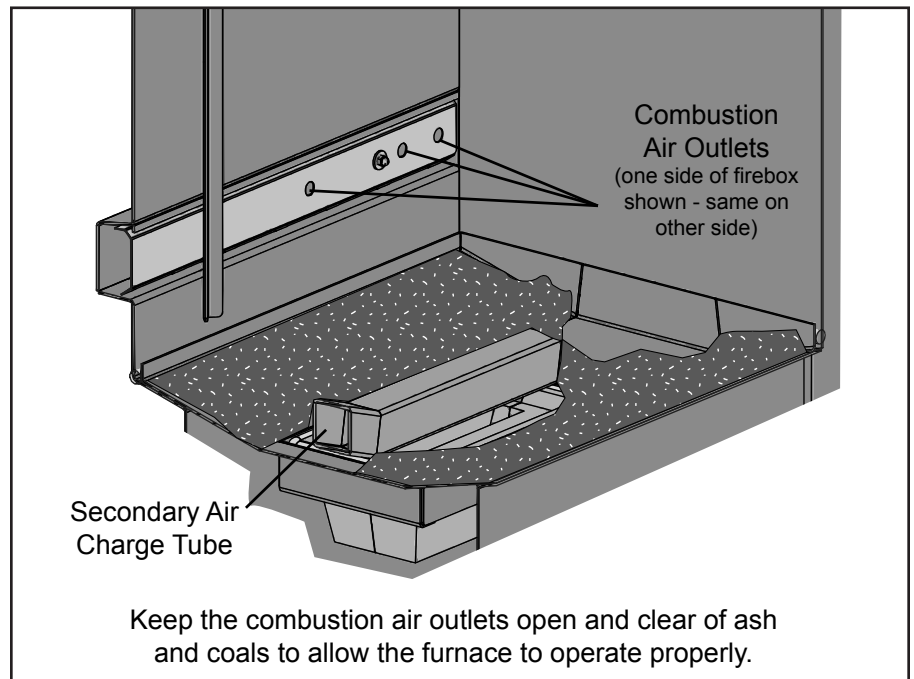
WARNING

The outdoor furnace vent cap must fit loosely on the vent opening. Do not force the cap down or try to seal it tightly onto the vent pipe. Do not extend or restrict the vent pipe or opening. DO NOT ALLOW THE OUTDOOR FURNACE TO BE PRESSURIZED.

3-3. Ash

Some ash, but not more than three inches, on the sides and bottom of the firebox is necessary for the proper operation of the outdoor furnace (as shown). No ash should cover the mixing channel (the area alongside the secondary air charge tube). Ash acts as an insulator, keeping the glowing coals in the bottom of the firebox hot enough to restart the fire. **For best performance and for a clean, efficient burn**, a shallow bed (3 inches or less) of loose coals (without ash) should be raked back over the mixing channel if possible.

1. Remove enough ash to keep the combustion air outlets free of obstruction.



2. Remove any heavy or solidified ash.

⚠ CAUTION

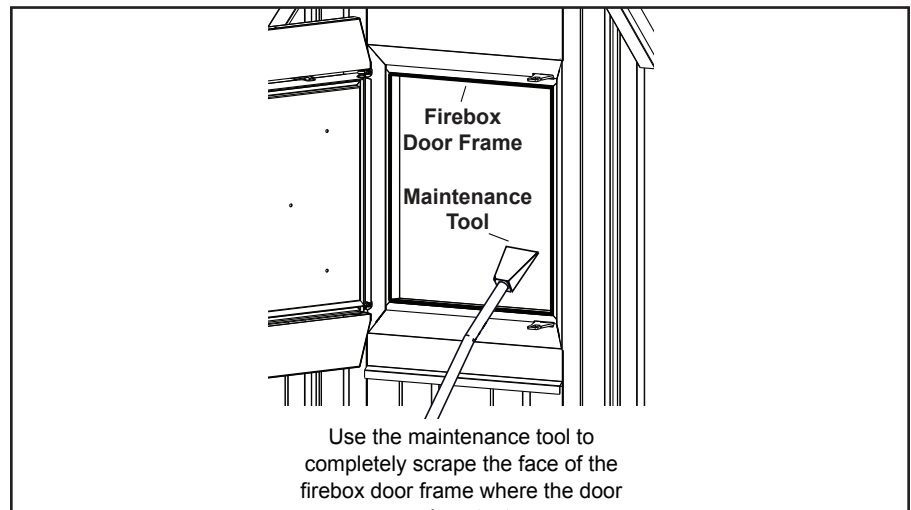
Always wear the appropriate personal protective gear when cleaning ash from the firebox and the Reaction Chamber.

3. **Disposal of ashes** - Ashes should be placed in a steel container with a tight-fitting lid. The container of ashes should be placed on a noncombustible floor or on the ground, well away from combustible materials, pending final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Other waste shall not be placed in this container.

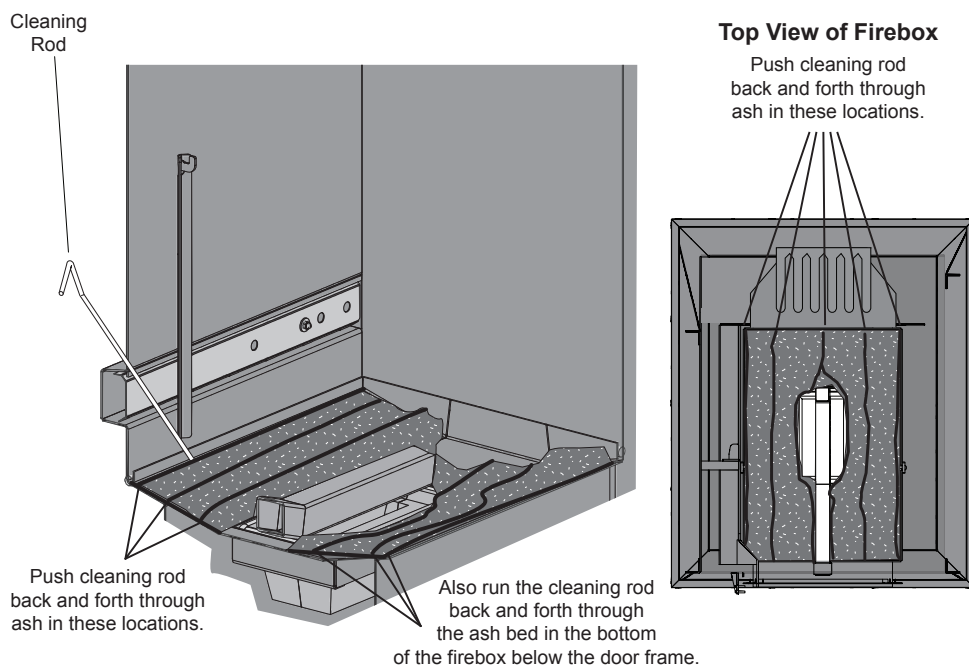
⚠ WARNING

When removing ash, be careful not to spill any coals or ash outside of the noncombustible container.

4. Each time ash is cleaned out, inspect the firebox door seal and/or covers to make sure they are sealing properly.
5. Every other day (or as needed), use the maintenance tool to completely scrape the face of the firebox door frame where the door seal contacts.



6. Using the illustration as a reference, push the cleaning rod back and forth through the ash in the bottom of the firebox in the locations indicated by the lines. Make sure to scrape a path around the air charge tube.



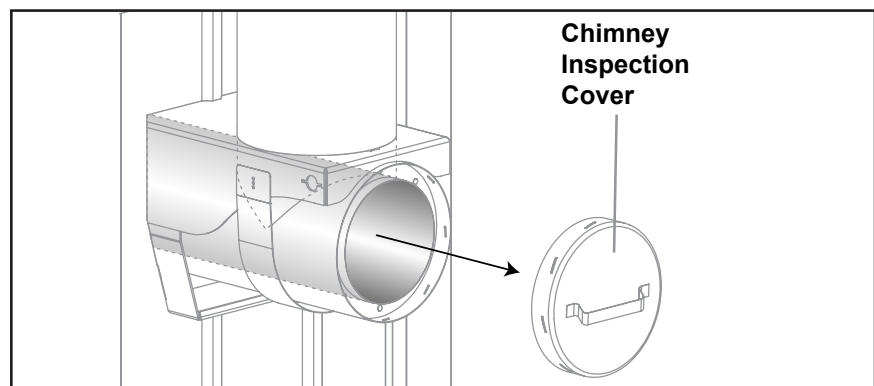
3-4. Firebox Door Seal and Bushings

Make sure the firebox door is properly latched and check the condition of the firebox door seal. If it is not sealing properly (indicated by a uniform indentation), replace the seal.

3-5. Chimney

Remove the chimney inspection cover. Inspect the chimney outlet and chimney for excessive creosote, ash or deposits and clean as necessary.


NOTE: The chimney inspection cover must fit tightly. Check and clean if necessary the groove for the cover to prevent air from leaking out. Leaking air caused by an improperly fitting cover can cause corrosion.



3-6. Heat Exchangers

NOTE: Inspect the heat exchangers weekly, and clean as needed, until the interval for your application can be determined. Frequency will vary depending on a number of factors including heat load requirements, type of wood used and the moisture content of the wood.

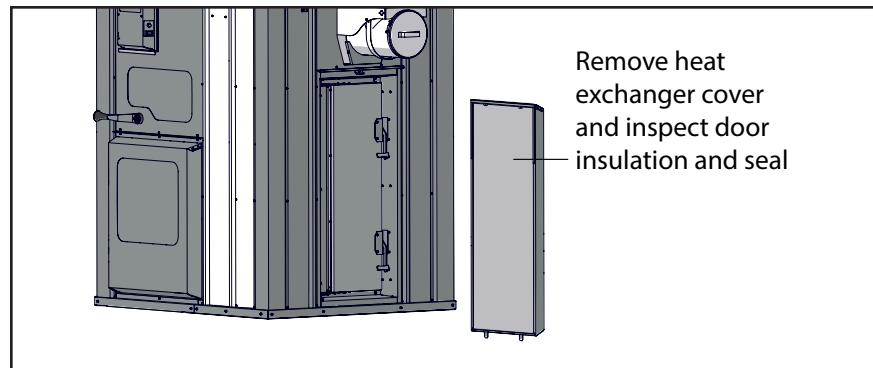
NOTE: The best time to clean the heat exchangers is prior to loading with wood when all that remains in the firebox is a glowing coal bed.

1. Press the **Power**  button on the FireStar combustion controller to turn it off.

⚠ CAUTION

Be sure to turn off the FireStar combustion controller before doing this procedure.

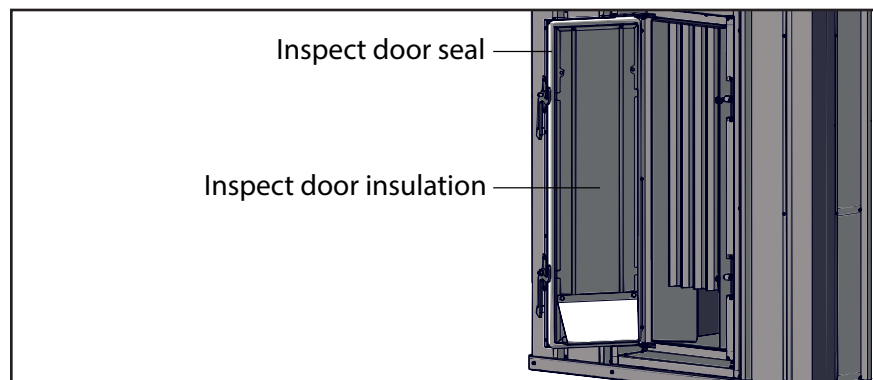
2. Remove the chimney inspection cover. Inspect the area above the heat exchangers for any excessive ash buildup. Clean and remove any excessive ash accumulation.
3. Remove the outer heat exchanger cover from the back of the furnace. Inspect the cover insulation and repair/replace as necessary.



4. Carefully undo both latches on the heat exchanger door; then slowly open the door making sure to stand clear of the opening.

⚠ CAUTION

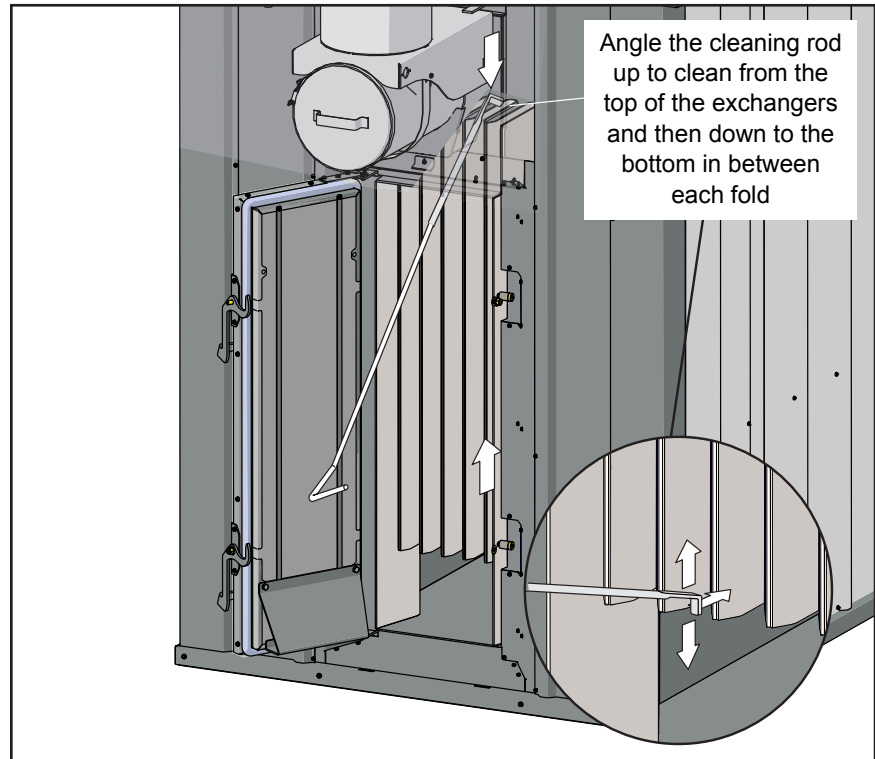
Open the heat exchanger door slowly and stand off to the side when opening it.




5. Inspect the door insulation and door seal. Repair/replace any defective seal or insulation.
6. Inspect the door frame edge for any buildup of creosote or ash. Use the maintenance tool to clean the door edges.


7. Inspect the heat exchangers for excessive buildup of creosote or ash. Use the scraping end of the maintenance tool to clean any accumulations from the sides of the heat exchanger sections. Angle the cleaning rod up to clean from the top of the exchangers and then down to the bottom between each folder of the exchanger.

The Flue Brush Kit (p/n 390) is an excellent option as an additional way to clean the exchangers.



8. Using the maintenance tool and a shovel, clean any accumulated ash from beneath the heat exchanger. Dispose of ash as indicated in section 3-4.
9. Ensure that the door seal and frame are still clean of any debris or ash; then close and latch the heat exchanger door.
10. Install the heat exchanger cover and chimney inspection cover.
11. Press the **Power**  button on the FireStar combustion controller to turn it on.

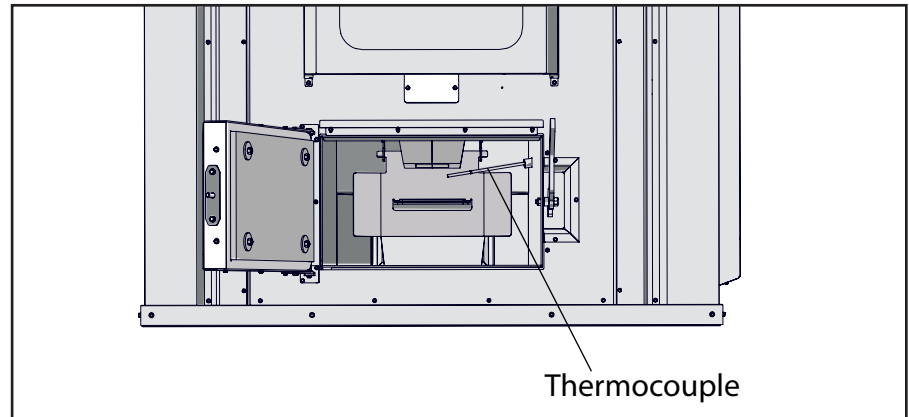
3-7. Reaction Chamber

1. Press the **Power**  button on the FireStar combustion controller to turn it off.

CAUTION

Be sure to turn off the FireStar combustion controller before doing this procedure.

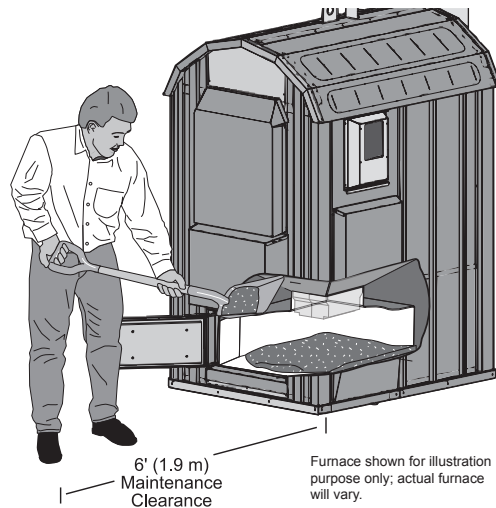
2. Unlatch and open the Reaction Chamber door.
3. Use the maintenance tool to pull the ash to the front of the furnace; then use a small shovel to remove all of the ash and deposits from the Reaction Chamber. Take care not to damage the temperature sensor.




NOTE: It is extremely important to clean all the way to the back of the Reaction Chamber. If necessary, refer the 3-7 Heat Exchangers section for procedure for removing ash from heat exchanger area.

⚠ CAUTION

Take care not to damage the temperature sensor when removing ash.



4. Close the Reaction Chamber door and secure the latch.
5. Press the **Power**  button on the FireStar combustion controller to turn it on.

3-8. Firebox

⚠ WARNING

Remove all wood, coals and ash from the firebox.

1. Scrape the top and sides of the firebox and around the door frame area to remove any deposits; then inspect the surfaces of the firebox for any signs of corrosion, paying particular attention to the ash level and below.

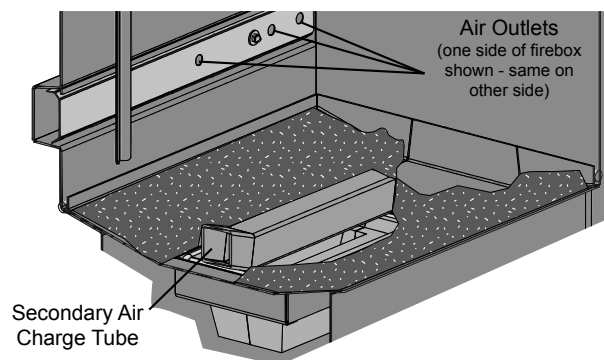
NOTE: When scraping to clean inside the firebox, be sure to pay particular attention to the corners and to the seams.

2. If signs of corrosion are present, determine the cause and correct it as soon as possible. Refer to the section title Corrosion is Present in the Troubleshooting section.
3. A thin, tar-like creosote layer may form on the firebox walls and migrate toward the bottom of the firebox where it could collect into a thicker layer. Normally this layer will burn up as it collects on the bottom. If it migrates to the bottom of the firebox and does not burn up, it must be removed. Do not allow it to cover or restrict air flow through the combustion air outlets or bottom of the firebox. If larger, thick, dry deposits form on the walls in the firebox, they should be removed with the maintenance tool.

NOTE: Be aware that the hotter the fire, the less creosote is deposited, so weekly cleaning may be necessary in mild weather, even though monthly cleaning may be enough in coldest months.

3-9. Combustion Air Outlets

Primary combustion air enters the firebox through the combustion air outlets located on the sides and front of the firebox. It is essential to the operation of the outdoor furnace that these outlets remain unobstructed. Clean the combustion air outlets before they become plugged. The side and front air channels can be removed for cleaning by removing the acorn nuts. Make sure to thoroughly remove all ash and deposits from behind the side air channels.



Keep the combustion air outlets open and clear of ash and coals to allow the furnace to operate properly.

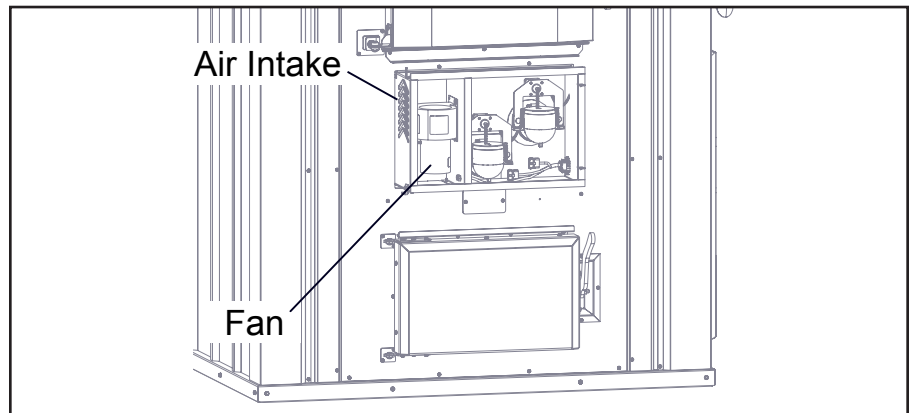
3-10. Combustion Air Fan

1. Disconnect power to the outdoor furnace.

⚠ WARNING

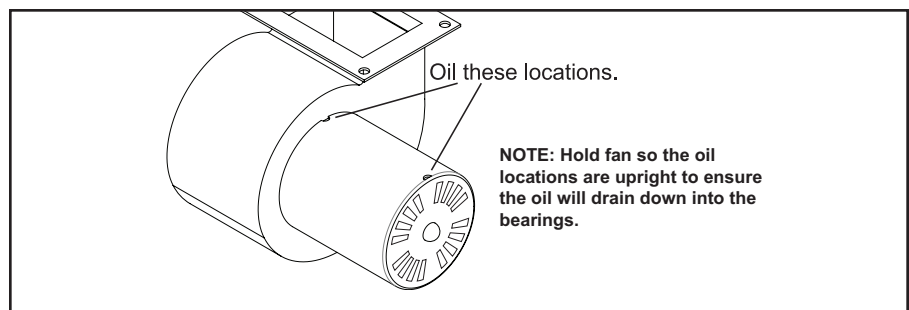
Do not proceed without testing that power is disconnected.

2. Remove the outer airbox cover; then open the airbox cover. Inspect the combustion air fan inlet screen and fan wheel and clean if necessary. Make sure the air intake is clean and not obstructed.



NOTE: Only if the decal on the fan housing indicates to oil the bearings at the end of each heating season, oil the combustion fan bearings using the following procedure.

4. If the decal on the fan housing indicates to oil the bearings, remove the bolts securing the combustion fan and remove the combustion fan. Hold the fan so the oil locations are upright; then apply 10 drops of SAE 20 non-detergent oil (e.g., 3-IN-ONE® Oil) in each location, as shown. Install the combustion fan and secure with bolts.



5. Close and secure the airbox cover. Install the outer airbox cover and secure with screws.

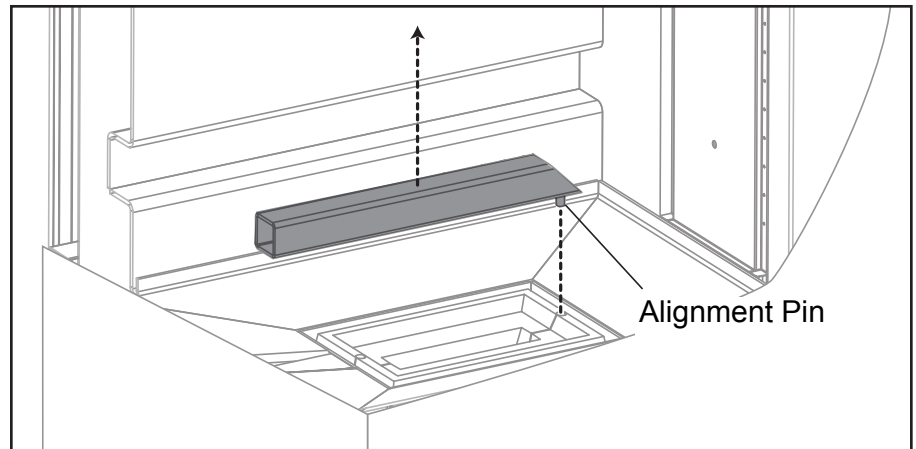
⚠ DANGER

Do not connect power or operate the outdoor furnace with the outer airbox cover removed. The outer airbox cover must be installed and secured with screws.

3-11. Secondary Air Charge Tube and Refractory

Removing and inspecting the secondary air charge tube and inspecting the refractory is best done after the outdoor furnace has been shut down and the firebox has been cleaned according to the Complete Firebox Cleaning Procedures.

NOTE: The secondary air charge tube and refractory are wear items.



1. Remove the secondary air charge tube by lifting and then sliding it toward the rear of the outdoor furnace. Inspect the mixing channel to see the area is not plugged.
2. Inspect each refractory module for damage. Small cracks and chips in the refractory are normal. If large pieces of the refractory modules are missing, contact your Central Boiler dealer.
3. Install the secondary air charge tube making sure the alignment pin is seated in the alignment hole in the refractory modules.

3-12. Primary Air Elbow

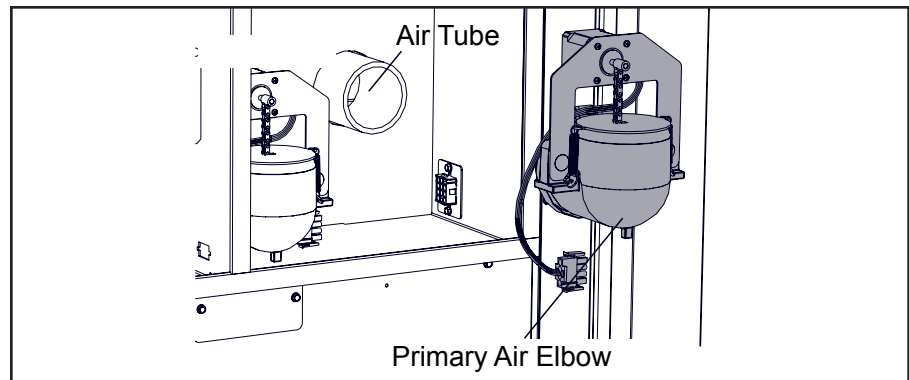
1. Disconnect the electrical power to the outdoor furnace at the main power source.

⚠ WARNING

Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while servicing the actuator motors (i.e., use lock out, tag out).

2. Remove the outer airbox cover; then open the airbox door.
3. Disconnect the actuator motor wiring harness.

4. Loosen the hose clamp securing the primary air elbow to the air tube; then remove the assembly from the airbox.



5. Inspect the elbow and clean out any build-up or blockage.

NOTE: A *small* amount of material in the elbow is normal and is not an indication of improper operation.

6. Inspect the air tube for blockage or obstructions. To remove blockage or obstructions in the air tube, a screwdriver and a shop vac may be useful.
7. Install the primary air elbow over the air tube; then tighten the hose clamp.
8. Connect the actuator motor wiring harness.
9. Close and secure the airbox door. Install the outer airbox cover and secure with screws.

⚠ DANGER

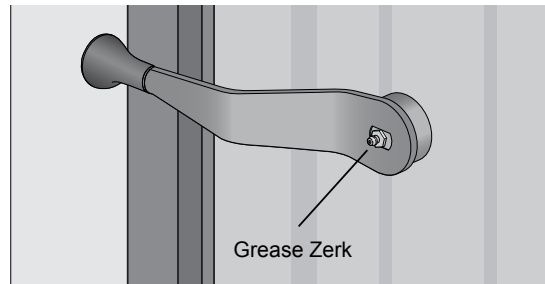
Do not connect power or operate the outdoor furnace with the outer airbox cover removed. The outer airbox cover must be installed and secured with screws.

10. Connect the electrical power to the outdoor furnace at the main power source.

3-13. Bypass Handle

NOTE: This procedure only applies to Classic Edge 550 and 750 models with bypass handles.

1. Using the grease zerk on the bypass handle, add grease.



2. Lift and lower the bypass handle several times to distribute the grease.

3-15. Complete Firebox Cleaning Procedures

The procedures outlined here explain how to thoroughly clean the firebox, Reaction Chamber, heat exchanger and chimney tee. The frequency for performing this type of cleaning will vary depending on a number of factors, including your heat load requirements, type of wood used, and the moisture of the wood.

NOTE: Proper maintenance of the firebox, Reaction Chamber, heat exchanger, chimney transition box and chimney tee are essential for the outdoor furnace to function properly and for longevity.

NOTE: It may be best to allow the wood and coals to burn out completely before this type of cleaning.

⚠ CAUTION

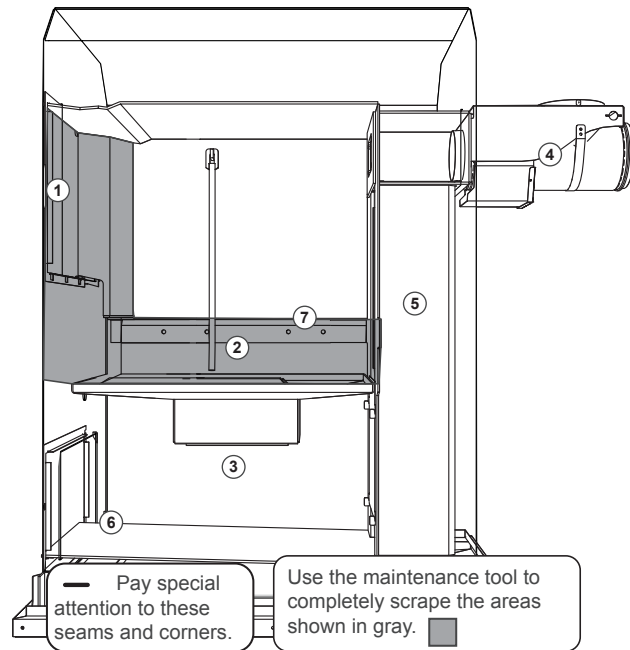
Always wear the appropriate personal protective gear (e.g., protective gloves, clothes, dust mask, etc.) when cleaning ash from the firebox and the Reaction Chamber, etc.

⚠ CAUTION

Clear the entire area surrounding the outdoor furnace of any combustible materials before performing these cleaning procedures.

⚠ WARNING

Be careful not to spill any coals or ash. Place coals and ash in a metal container with a tight-fitting metal lid.




Clean ash and deposits from the areas identified in the order shown. Refer to the corresponding sections for detailed procedures.

- ① Door Frame ② Firebox ③ Reaction Chamber ④ Chimney Tee
 ⑤ Heat Exchangers ⑥ Reaction Chamber
 ⑦ Combustion Air Outlets/Air Channel Plates

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NOTE: Refer to the illustration and clean the areas identified in the order shown. For each area in the illustration, refer to the following corresponding section.

1. Press the **Power**  button to turn the FireStar combustion controller off.

CAUTION

Be sure to turn off the FireStar combustion controller before doing this procedure.

1. Door Frame

1. Open the firebox door; then scrape the face and surface area of the door frame to remove any deposits.

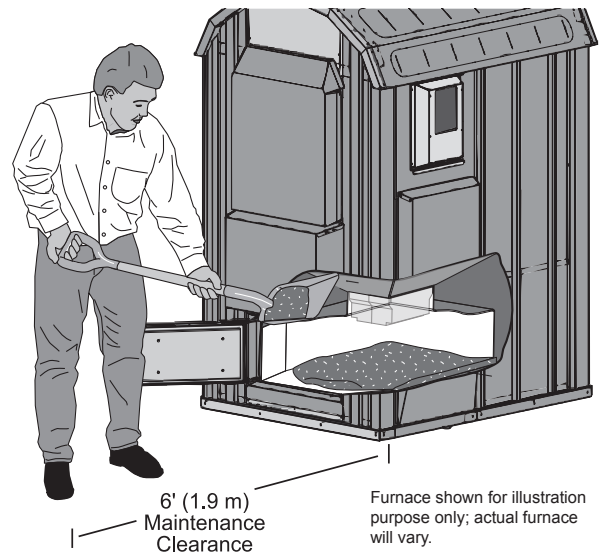
2. Reaction Chamber

1. Undo the latch and open the Reaction Chamber door.
2. Use the maintenance tool to pull the ash to the front of the furnace; then use a small shovel to remove all of the ash and deposits from the Reaction Chamber. Take care not to damage the temperature sensor.

NOTE: It is extremely important to clean all the way to the back of the Reaction Chamber. If necessary, refer the 3-7 Heat Exchangers section for procedure for removing ash from heat exchanger area.

⚠ CAUTION

Take care not to damage the temperature sensor when removing ash.



3. Firebox

1. Using a shovel, remove as much ash as possible.
2. Turn the shovel around and push ash from the front of the furnace below the door frame to the back of the furnace. Remove as much ash as possible, placing it in a suitable metal container.

NOTE: It can take many days before ash is completely cooled. Other waste should not be placed in the same container.

⚠ WARNING

When removing ash, be careful not to spill any coals or ash outside of the noncombustible container.

3. Using the maintenance tool or similar type of tool, completely scrape the area from one inch above the combustion air outlets down to the center refractory on the bottom of the firebox. Pay special attention to scraping the front corners. Scrape any crusty deposits off the firebox walls. Remove all of this material by shoveling it out.
4. Inspect the surfaces of the firebox for any signs of corrosion. Use a wire brush to clean if needed.

4. Chimney Tee

1. Remove the chimney inspection cover. Clean the chimney outlet and chimney of excessive ash or deposits.

NOTE: The chimney inspection cover must fit tightly. Check and clean if necessary the groove for the cover to prevent air from leaking out. Leaking air caused by an improperly fitting cover can cause corrosion.

2. Use a small mirror to check that the chimney is clear.

5. Heat Exchangers

NOTE: The best time to clean the heat exchangers is prior to loading with wood when all that remains in the firebox is a glowing coal bed.

1. Press the **Power**  button on the FireStar combustion controller to turn it off.

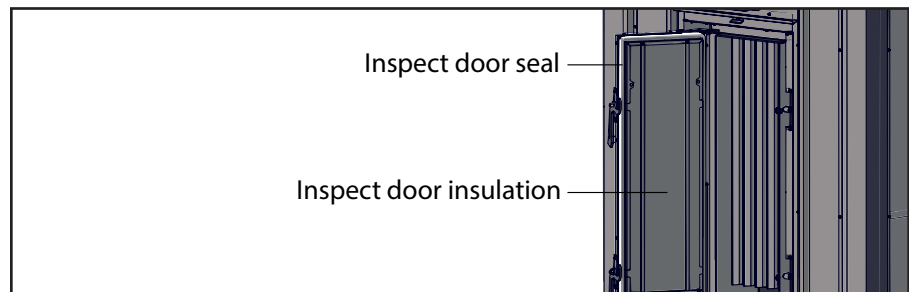
CAUTION

Be sure to turn off the FireStar combustion controller before doing this procedure.

2. Remove the chimney inspection cover. Inspect the area above the heat exchangers for any excessive ash buildup. Clean and remove any excessive ash accumulation.
3. Remove the heat exchanger cover from the back of the furnace. Inspect the cover insulation and repair/replace as necessary.
4. Carefully undo both latches on the heat exchanger door; then slowly open the door making sure to stand clear of the opening.

CAUTION

Open the heat exchanger door slowly and stand off to the side when opening it.

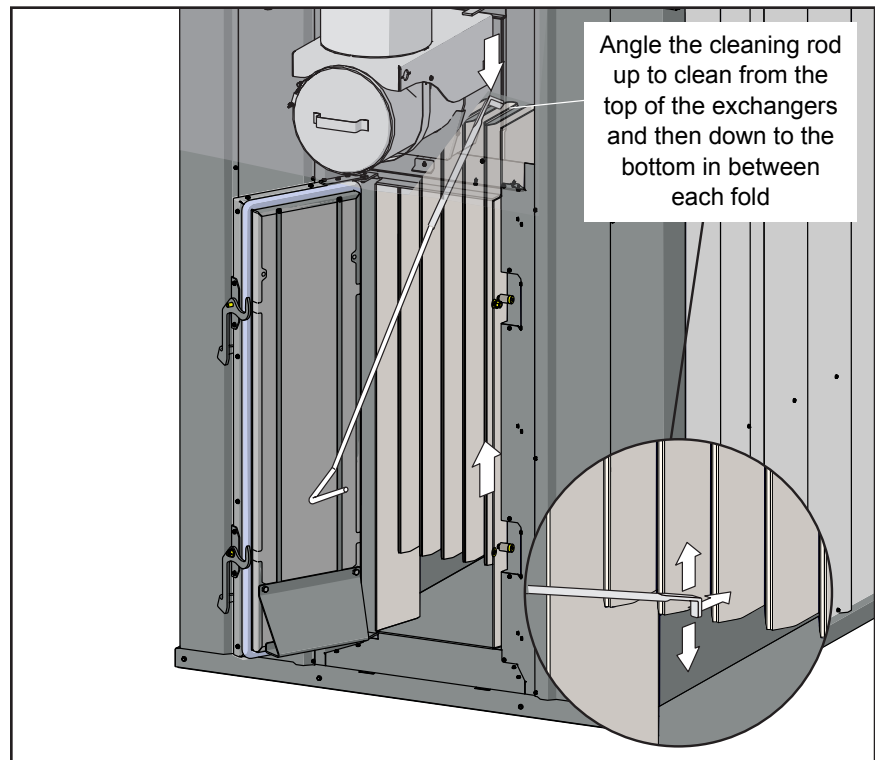



5. Inspect the door insulation and door seal. Repair/replace any defective seal or insulation.

The Flue Brush Kit (p/n 390) is an excellent option as an additional way to clean the exchangers.



6. Inspect the door frame edge for any buildup of creosote or ash. Use the maintenance tool to clean the door edges.
7. Inspect the heat exchangers for excessive buildup of creosote or ash. Use the scraping end of the maintenance tool to clean any accumulations from the sides of the heat exchanger sections. Angle the cleaning rod up to clean from the top of the exchangers and then down to the bottom between each folder of the exchanger.



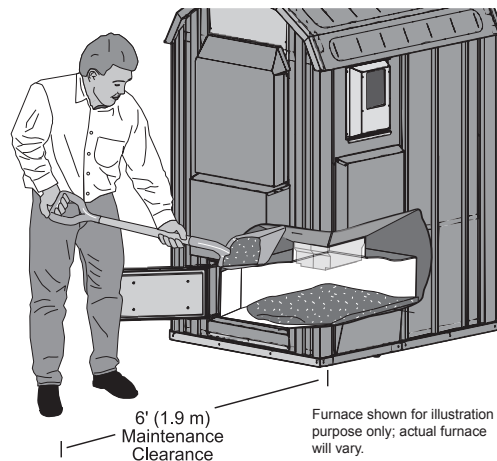
8. Using the maintenance tool and a shovel, clean any accumulated ash from beneath the heat exchanger. Dispose of ash as indicated in section 3-4.
9. Ensure that the door seal and frame are still clean of any debris or ash; then close and latch the heat exchanger door.
10. Install the outer heat exchanger cover and chimney inspection cover.
11. Press the **Power**  button on the FireStar combustion controller to turn it on.

6. Reaction Chamber

1. Lift and slide the charge tube toward the rear of the outdoor furnace to remove; then inspect the mixing channel to see the area is not plugged.
2. Install the charge tube making sure the alignment pin is properly in place.
3. Using the maintenance tool and small shovel, remove all of the ash and deposits from the Reaction Chamber being careful not to damage the temperature sensor.


⚠ CAUTION

Take care not to damage the temperature sensor when removing ash.



4. If needed, remove the heat exchanger cover and open the heat exchanger door to remove any remaining ash. Close the heat exchanger door and replace the heat exchanger cover.
5. Close the Reaction Chamber door and secure the latch.

7. Combustion Air Outlets/Air Channel Plates

1. Mark the location of each air channel plate; then remove the acorn nuts securing the side and front air channel plates and remove the plates. Remove any ash or deposits from behind the air channel plates in the wall of the firebox.
2. Using a screwdriver or similar tool, clean out each combustion air outlet in the air channel plates. Make sure any debris or buildup on the back side of the plates and corner sections is removed.
4. Replace the side and front air channel plates. Apply a high-temperature, anti-seize compound to the stud threads; then replace the acorn nuts and tighten securely.
5. Press the **Power**  button to turn the FireStar combustion controller on.
6. With the firebox door open, temporarily hold the door switch in. Air should blow into the firebox from each of the combustion air outlets. Feel with your hand to ensure air is coming out of each outlet. If air is not blowing through an outlet, determine and correct the cause.
7. Refer to the Firing the Outdoor Furnace section for initial start-up procedures.

INITIAL WATER TREATMENT

⚠ CAUTION

Avoid damaging your furnace and voiding your warranty. Add water treatment BEFORE adding water to the system. Water treatment in your outdoor furnace is just as important as the oil in a car's engine.

1650XL Inhibitor Plus, MolyBoost and Initial Water Treatment

Central Boiler 1650XL Inhibitor Plus (p/n 1650) gives optimum protection when it is used to initially treat the water and is then maintained at proper levels. The initial nitrite level target is 20 drops by nitrite test, but 20 to 30 drops is acceptable. Do not exceed treatment of higher than 30 drops by nitrite test.

The recommended initial treatment rate for the outdoor furnace is specified by units. One unit of the 1650XL Inhibitor Plus is a 1-gallon (3.78-liter) container.

INITIAL 1650XL INHIBITOR PLUS TREATMENT AMOUNTS	
Classic Edge 350	1 unit
Classic Edge 550	1-1/4 units
Classic Edge 750	2 units

NOTE: If the system has a larger than normal water capacity, more 1650XL Inhibitor Plus should be added at a recommended rate of one unit per 180 gallons (681 liters) of water.

MolyBoost (p/n 1670) enhances the corrosion protection properties of 1650XL Inhibitor Plus. When used with 1650XL Inhibitor Plus, MolyBoost provides more protection than using 1650XL separately. MolyBoost does not provide adequate protection alone without 1650XL.

NOTE: Adding MolyBoost as part of the initial water treatment IS REQUIRED.

INITIAL MOLYBOOST TREATMENT AMOUNTS	
Classic Edge 350	15 oz.
Classic Edge 550	21 oz.
Classic Edge 750	32 oz.

NOTE: If the system has a larger than normal water capacity, MolyBoost is added at a rate of 1 oz. (29.6 ml) per 10 gallons (37.8 liters) of system water.

Refer to Finalizing the Installation in the Installation Guide for more information about initial water treatment, filling the outdoor furnace with water and purging air.

Importance of Water Samples

Maintaining the corrosion inhibitor at a proper level is imperative to preventing corrosion failures. To qualify for the 25 year warranty, you must follow the instructions in the Owner's Manual and Installation Guide concerning initial water treatment and maintenance. When the outdoor furnace is initially put into service, and once a year after that, you are required to submit a water sample to confirm proper maintenance and water treatment (see When to Submit Water Sample for more information). No warranty claim can be approved unless the outdoor furnace registration and the required water tests verifications are on file at Central Boiler.

NOTE: It is your responsibility as owner to ensure that your water sample information is accurate and that you submit your samples on a timely basis as required by the warranty for your stainless steel outdoor furnace. Failure to do so will result in a one year warranty.

Water Sample Kit

Your owner's packet contains a Water Sample Kit for submitting an initial water test. Additional Water Samples Kits are available from your Central Boiler dealer.

When to Submit Water Sample

INITIAL WATER SAMPLE: You are required to submit an initial water sample within 30 days of purchase of your outdoor furnace. **EXCEPTION:** if your outdoor furnace is not being installed within 30 days of purchase, you must email Central Boiler (service@centralboiler.com) with an estimated installation date, your name and your furnace serial number. When the furnace installation is complete, send the water sample **within 10 days of the initial fill**.

ANNUAL WATER SAMPLE: You are required to submit a water sample yearly prior to the anniversary date of your initial installation. Record the anniversary date below:

DATE OF INSTALLATION

TO CHECK STATUS OF YOUR WATER SAMPLE: Check the status of your water sample at:

CentralBoiler.com/w25

You will need your serial number and postal code. Please allow 2-3 weeks for results to be available.

WATER QUALITY AND MAINTENANCE

An important part of outdoor furnace maintenance is controlling the quality of the water in the outdoor furnace.

Water Test Kits and Test Results

DATE	pH LEVEL	NITRITE LEVEL

Record the results of pH and nitrite level tests in the table above.

If additional space is needed, record on a separate sheet of paper.

It is very important to keep record of water test results (include the date, pH and nitrite level). If subsequent water tests indicate a pH that is too low and/or a nitrite level that is too high, the results should be verified using a new test kit.

The pH test strips and Permanganate Reagent each have a varying shelf life that can affect their accuracy. Test kits should be stored in a dry area at room temperature to obtain maximum accuracy over a longer period of time.

The pH of the water in the outdoor furnace will not decrease unless fresh water is added to the furnace. The nitrite level of the water in the outdoor furnace will not increase unless 1650XL Inhibitor Plus is added. For example, if a water test in the fall of the year indicates a pH of 8.5 and a nitrite level of 20 drops by nitrite test (2000 ppm) and no water or 1650XL Inhibitor Plus is added, a water test the following spring must indicate a pH of at least 8.5 and a nitrite level of no more than 20 drops by nitrite test (or slightly less, due to evaporation).

If the test indicates a significantly lower pH level or higher nitrite level, perform another test with a new test kit to verify the results. If the results are +10% different using a new test kit, either water or 1650XL Inhibitor Plus has been added to the system.

If a test is conducted and verified that indicates a high pH (above 9.5) and/or nitrite level (above 30 drops), DO NOT ADD MORE 1650XL INHIBITOR PLUS. Adding 1650XL Inhibitor Plus increases nitrite and pH levels. Use the following steps to obtain the correct nitrite and pH levels:

1. Drain the outdoor furnace until the water in the sight gauge reaches the bottom of the sight gauge; then add fresh water until it is 1 inch (2.5 cm) below the FULL mark on the sight gauge.
2. Circulate the water for 30 minutes. Test the water again and, if needed, add 1650XL Inhibitor Plus.
3. Bring the water temperature up to operating temperature (185°F or 85°C), circulate for 24 hours and test the system water again.

Testing Treated Water in the Outdoor Furnace

1. To obtain a system water sample, it will be necessary to bend the sight gauge tube away from the outdoor furnace. Before collecting the sample, open the valve and drain about a quart of water from the sight gauge tube; then carefully fill the sample container without contaminating the sample. **Be sure to properly install the sight gauge tube and close the valve when finished.** The water in the sight gauge valve and tube will drain when the valve is closed.

CAUTION

The water in the sight gauge may be hot. Use caution when obtaining a sample.

2. If no antifreeze is present in the water, use Test Kit (p/n 405). If antifreeze has been added to the water, use Test Kit (p/n 597).

NOTE: For more information about systems with antifreeze, refer to the Installation Guide.

3. Dip the pH test strip from the test kit in the water sample. Shake excess water off the test strip. Compare the color of the test strip to the chart provided to determine pH level. The pH of the water should now be between 8.0 and 9.5.
4. Rinse and fill the sample tube to the 25 mL mark with treated water from the outdoor furnace.

5. Add 25 drops of Sulfuric Acid (p/n 404) to the water sample and swirl to mix.

WARNING

Sulfuric Acid is a corrosive acid. Handle carefully. Carefully read and follow precautions on test chemical labels. Keep test chemicals away from children. Safely dispose of tested samples.

6. Using the dropper, add Permanganate Reagent (p/n 403) one drop at a time, swirling the water and counting each drop, until the color changes from colorless to a faint pink that persists for at least one minute.

NOTE: Always hold the dropper in a vertical position to ensure proper droplet size.

7. If the nitrite level is not at least 20 drops by nitrite test, add 1/4 unit of 1650XL Inhibitor Plus (p/n 1650); then circulate water for 24 hours and repeat procedure, as needed, to achieve a nitrite level of at least 20 drops by nitrite test.
8. Do not exceed treatment of higher than 30 drops by the nitrite test. If the test requires more than 30 drops, dilute the water by draining water from the system until the water level just reaches the bottom of the sight gauge; then add untreated water until the water level reaches the full mark. Perform steps 2-3 from 1650XL Inhibitor Plus and Initial Treatment and steps 1-9 from Testing Treated Water in the Outdoor Furnace.

CAUTION

Completely clean out the firebox before draining water from the outdoor furnace.

9. After the proper nitrite level has been obtained, check pH to make sure it is between 8 and 9.5.

After initial treatment, the maintenance nitrite level target is 15 drops by nitrite test, but 15 to 30 drops is acceptable. One drop of permanganate reagent equals approximately 100 ppm.

SYSTEM MAINTENANCE

The pH and nitrite levels of the water, once treated, should remain stable as long as water is not added to the outdoor furnace. If water is added to the outdoor furnace and/or system, the system water should be tested and 1650XL Inhibitor Plus should be added (if necessary) to maintain the recommended level of protection.

NOTE: ANY time water is added to the system, it is extremely important to bring the water temperature up to operating temperature (185°F) as soon as possible, even if it is during the off-season.

NOTE: If there is a leak in the system or if the outdoor furnace loses water from boiling frequently, the problem should be identified and repaired immediately. Under normal operation, little or no water needs to be added. Adding water to the furnace may cause corrosion if not immediately treated with 1650XL Inhibitor Plus to the proper pH and nitrite levels. In addition, the amount of dissolved solids in the system (due to adding additional water) can cause problems.

After the initial three months of operation and every six months thereafter, the pH and nitrite levels of the system water should be tested. These levels should be maintained as previously stated.

POST HEATING SEASON MAINTENANCE

The water should be left in the outdoor furnace if the outdoor furnace is not being used for an extended period of time. Check pH and nitrite levels as described in the Water Quality and Maintenance section.

1. Refer to the Preventive Maintenance Schedule for a list of operations to perform.
2. Shut off the power supply to the outdoor furnace.
3. Place a cover over the chimney to keep rain from entering the outdoor furnace. Clean and oil the chimney flue to the firebox.
4. To prevent condensation in the firebox, one option is to keep a 60W light bulb on in the firebox during the non-heating season.

Flushing the System

If the system water is brown or orange, it is an indication the 1650XL Inhibitor Plus level has not been maintained and corrosion is present in the water jacket. The water jacket should be thoroughly flushed and the system refilled with the proper amount of 1650XL Inhibitor Plus and Molyboost added. Be sure to test the system water to verify the proper amount of 1650XL Inhibitor Plus.

1. De-energize the pump(s) and close the supply and return valves on the outdoor furnace. Remove the inspection panel and insulation covering the drain to gain access to the drain valve. Remove the cap and connect a hose to the drain.

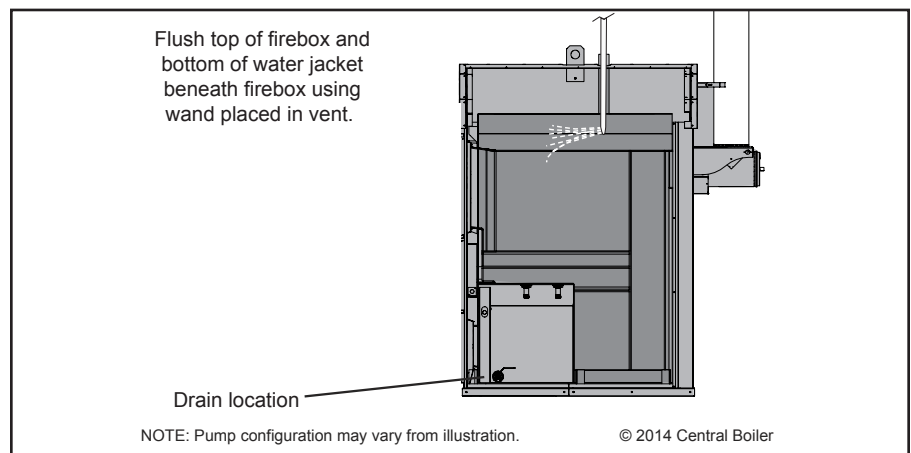
NOTE: Refer to General Installation Information for information on draining treated system water.

2. Completely clean the firebox. See section 3-15 Complete Firebox Cleaning Procedures.

⚠ CAUTION

Completely clean out the firebox before draining water from the outdoor furnace.

3. Open the drain valve to drain the outdoor furnace; then flush the top of the firebox and bottom of the water jacket beneath the firebox using a wand placed in the vent. Rotate the wand in a circle to flush thoroughly.



4. Close the drain valve securely and replace the cap on drain after flushing the outdoor furnace.
5. Add 1650XL Inhibitor Plus and Molyboost.
6. Fill the outdoor furnace following the procedure in Water Quality and Maintenance. Start the pump(s) and bring the water temperature up to operating temperature (185°F) for two hours with the system circulating to thoroughly mix the 1650XL Inhibitor Plus.

NOTE: ANY time water is added to the system, it is extremely important to bring the water temperature up to operating temperature (185°F) as soon as possible, even if it is during the off-season.

7. Replace insulation around drain valve.
8. Replace the inspection panel.

SERVICEABLE ITEMS

NOTE: These procedures should be performed by a qualified individual and in accordance with any and all federal, state/provincial and local codes and regulations. When performing work on an appliance observe all precautions in the literature, tags and labels attached to the appliance and other safety precautions that may apply. When working with electricity and electrical components, failure to follow precautions could result in property damage, personal injury or death.

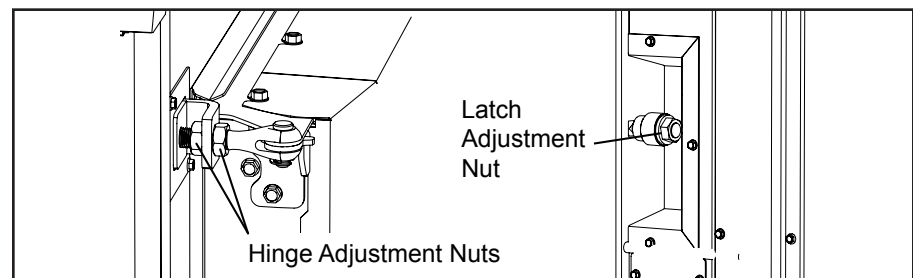
NOTE: If any of these items are under warranty, remember that the warranty covers only the cost of the replacement part. Labor is not covered.

NOTE: Use only genuine Central Boiler parts and accessories if it ever becomes necessary to replace any component on the outdoor furnace.

FIREBOX DOOR HINGE / LATCH BEARING ADJUSTMENT

If the firebox door seal has been replaced and it is not sealing properly, the firebox door may need to be adjusted to close more tightly. When adjusting the firebox door, make sure it is not adjusted too tightly as damage to the firebox door, frame or door seal may result.

1. To tighten the hinges, loosen the inner adjustment nut and turn the outer nut in slightly; then tighten the inner adjustment nut securely. Adjust the top and bottom hinge for equal pressure when the door is latched.
2. To tighten the latch bearing, loosen the latch adjustment nut; then tap the latch bearing assembly in toward the firebox. Tighten the latch adjustment nut securely.



FIREBOX DOOR SEAL

The firebox door seal must be in good condition to ensure an airtight seal. If the outdoor furnace is operated with the door open or ajar, the firebox door seal may become damaged or brittle due to excessive temperatures. If replacement is necessary, use the following procedure:

⚠ WARNING

Remove all wood, coals and ash from the firebox.

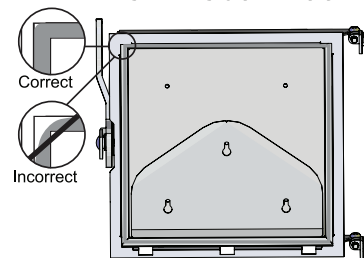
1. Disconnect power to the outdoor furnace.

⚠ WARNING

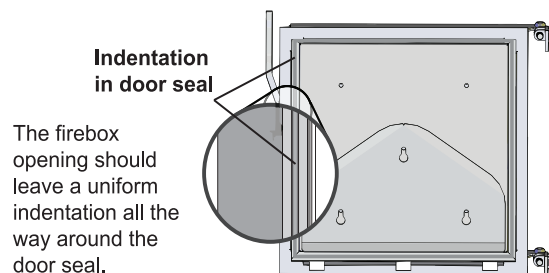
Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while testing components (i.e., use lock out, tag out).

2. Using a scraper, remove the firebox door seal on the inner side of the firebox door and clean any remaining silicone adhesive from the groove. Any residue left in the groove will interfere with the new silicone seal.
3. Apply a liberal amount of silicone sealant into the entire firebox door seal groove.
4. Starting at the center of the hinge side of the firebox door, insert the new silicone seal into the groove, pressing it firmly into the bead of silicone sealant. Make sure the seal is not stretched as it is pressed into the corners. Force the seal out to fill in the corners as shown.

Inner Firebox Door



5. Scrape the face and surface area of the door frame to remove any deposits.
6. Close the firebox door. Make sure that pressure is felt as the latch is closed to ensure the seal is tight with the door frame.
7. Open the firebox door and check that there is an impression in the seal from the door frame. This mark must extend, with no gaps, around the entire perimeter of the firebox door seal. If needed, adjust the hinges and latch assembly.



⚠ CAUTION

The firebox door seal will be damaged or destroyed if it is not installed properly.

REACTION CHAMBER DOOR SEAL

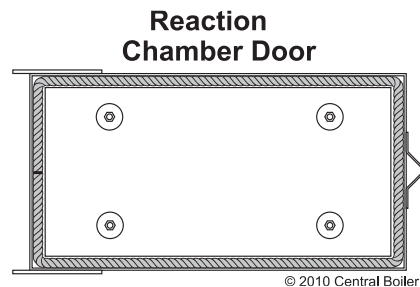
The Reaction Chamber door seal must be in good condition to ensure an airtight seal. If replacement is necessary due to the Reaction Chamber door seal becoming damaged or brittle, use the following procedure:

1. Disconnect power to the furnace.
2. Unlatch and open the Reaction Chamber door.
3. Use the maintenance tool to pull the ash to the front of the furnace; then use a small shovel to remove all of the ash and deposits from the Reaction Chamber. Take care not to damage the temperature sensor.

⚠ WARNING

Remove all ash from the Reaction Chamber.

4. Using a scraper, remove the Reaction Chamber door seal rope and clean any remaining silicone adhesive from the groove. Any residue left in the groove will interfere with the new seal.
5. Apply a liberal amount of silicone sealant into the entire Reaction Chamber door seal groove.
6. Starting at the center of the hinge side of the Reaction Chamber door, insert the new door seal rope into the groove, pressing it firmly into the bead of silicone sealant. Make sure the Reaction Chamber door seal rope is not stretched as it is pressed into the corners. Force the Reaction Chamber door seal rope out to fill in the corners as shown.

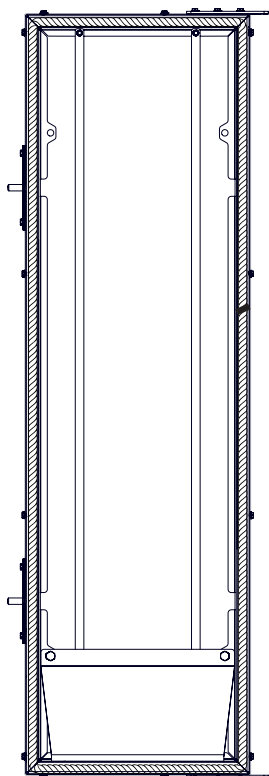


6. When the seal has been pressed into the groove all the way around the Reaction Chamber door, cut the end of the rope about one inch longer than required and press it tightly against the beginning end of the rope.
7. Close the Reaction Chamber door and secure the latch.

HEAT EXCHANGER DOOR SEAL

The heat exchanger door seal must be in good condition to ensure an airtight seal. If replacement is necessary due to the door seal becoming damaged or brittle, use the following procedure:

Heat Exchanger Door Seal Rope



1. Press the **Power**  button on the FireStar combustion controller to turn it off.

CAUTION

Be sure to turn off the FireStar combustion controller before doing this procedure.

2. Remove the heat exchanger cover from the back of the furnace.
3. Carefully undo both latches on the heat exchanger door; then slowly open the door making sure to stand clear of the opening.

CAUTION

Open the heat exchanger door slowly and stand off to the side when opening it.

4. Using a scraper, remove the heat exchanger door seal rope and clean any remaining silicone adhesive from the groove. Any residue left in the groove will interfere with the new seal.
5. Apply a liberal amount of silicone sealant into the entire heat exchanger door seal groove.
6. Starting at the center of the hinge side of the heat exchanger door, insert the new door seal rope into the groove, pressing it firmly into the bead of silicone sealant. Make sure the door seal rope is not stretched as it is pressed into the corners. Force the door seal rope out to fill in the corners as shown.
7. When the seal has been pressed into the groove all the way around the heat exchanger door, cut the end of the rope about one inch longer than required and press it tightly against the beginning end of the rope.
8. Close the heat exchanger door and secure with latches. Install and secure the heat exchanger cover.

CIRCUIT BREAKER

The circuit breaker is located in the pump access area and also serves as the furnace disconnect. If the circuit breaker trips (turns off), reset it by turning it on. If the circuit breaker continues to trip, a component may be faulty. It is possible to isolate a faulty component using the following procedure.

1. Disconnect power to the outdoor furnace.

WARNING

Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while testing components (i.e., use lock out, tag out).

2. Remove the outer airbox cover; then open the airbox cover.
3. Disconnect the actuator motor harness and disconnect the fan harness.
4. To test for a faulty component, connect one component at a time (e.g., start with one of the actuator motors); then connect power to the outdoor furnace. If the circuit breaker trips, the component is likely faulty. If not, disconnect power to the outdoor furnace and repeat the procedure until all components have been tested.

CAUTION

Disconnect power to the outdoor furnace before disconnecting a component and before connecting a component.

5. Close and secure the airbox cover. Install the outer airbox cover and secure with screws.

DANGER

Do not connect power or operate the outdoor furnace with the outer airbox cover removed. The outer airbox cover must be installed and secured with screws.

ACTUATOR MOTOR/AIR INLET ELBOW

To inspect components for wear, follow steps 1-5, clean as needed and then reverse the steps for assembly. If defective or worn parts are found and replacement is necessary, continue with step 6.

NOTE: Actuator motor/air inlet elbow components should be inspected monthly for wear and to ensure proper operation.

1. Disconnect power to the outdoor furnace.

⚠ WARNING

Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while testing components (i.e., use lock out, tag out).

⚠ WARNING

Do not perform the steps outlined here until the outdoor furnace has been turned off and there is NO fire or hot coals in the firebox. Removing the elbows allows combustion air into the firebox which can result in a runaway fire or ignite hot coals that are present.

NOTE: Inspect all components as they are removed. Replace any components that show excessive wear. Clean any accumulated deposits from air regulating disc and elbow.

2. Remove the outer airbox cover; then open the airbox door.
3. Disconnect the actuator motor from the wiring harness.
4. Loosen the hose clamp at the rear of the rubber elbow and remove the elbow and actuator motor assembly.
5. Disconnect the two return springs from the air regulating disc, taking note of how they are attached for assembly.

NOTE: If only inspecting and cleaning components, reverse steps 1-5 for assembly. If replacement is necessary, continue with step 6.

6. Loosen the nuts to remove the actuator motor support bracket from the rubber elbow.
7. Remove the cotter pin attaching the lift chain to the air regulating disc. Take note of the orientation of the spring attachment hooks on the regulating disc.

NOTE: The primary air regulating disc will have a small amount of high temperature silicone on the bottom where the lift chain comes through. Remove the silicone to gain access to the cotter pin. High temperature silicone must be reapplied if removed on the primary air regulating disc.

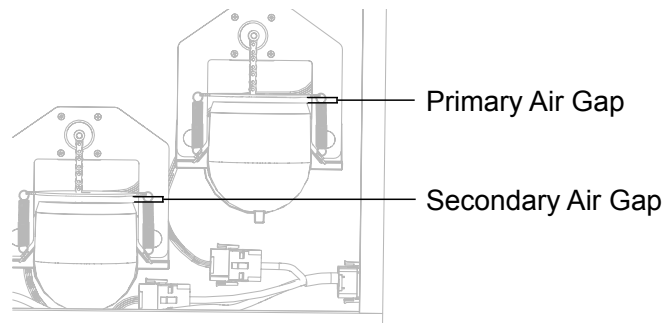
8. Remove the four screws on the face of the support bracket that hold the actuator motor in place.
9. Tilt the motor back and remove from the bracket.
10. If the lift chain requires replacement, the master link is located on the back side of the chain. Use a screwdriver or a set of small pliers to slide the clip off the master link; then remove the chain from actuator motor. Install the new lift chain reversing the order of these steps.
11. Install the new actuator motor following these steps in reverse order.
12. Ensure proper air regulating disc gaps are set and maintained.

AIR REGULATING DISC GAPS

Whenever any of the actuator motor/air inlet elbow components have been replaced, the proper air gap will need to be checked and set if necessary. Air gaps are measured from the bottom of the air regulating disc to the top of the inlet elbow.

Refer to the FireStar Operation Manual on how to put the controller into Test Mode and make adjustments to the gap setting.

The following illustration and table indicates the proper gap settings by model.



	Classic Edge 350	Classic Edge 550	Classic Edge 750
Primary Gap*	.187" (4.75 mm)	.200" (5.08 mm)	.775" (19.69 mm)
Secondary Gap*	.373" (9.47 mm)	.373" (9.47 mm)	.612" (15.54 mm)

*Measurement is the maximum height from the elbow opening to the bottom of the air regulating disc.

⚠ CAUTION

Gap settings are the maximum settings and should not be altered for increased firing for any reason.

AIRBOX SEAL

Replace the airbox seal if it becomes damaged or worn to maintain proper operation of the furnace. See your Central Boiler dealer for replacement seals.

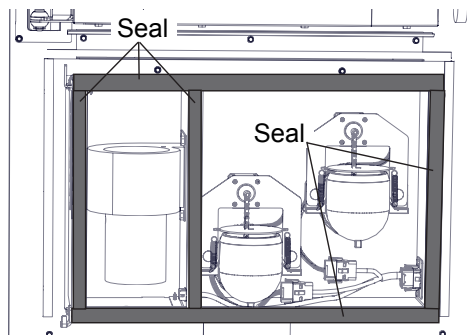
NOTE: It is best to replace the entire seal. Over time, the seal will compress, and replacing it in sections may result in the old sections not sealing completely against the airbox door.

1. Disconnect power to the outdoor furnace.

⚠ WARNING

Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while replacing the airbox seal.

2. Remove the outer airbox cover; then, using a scraper or similar tool, scrape off the existing seal from the airbox.
3. Clean off any remaining adhesive residue with alcohol or a suitable solvent.
4. Measure and cut replacement seal.



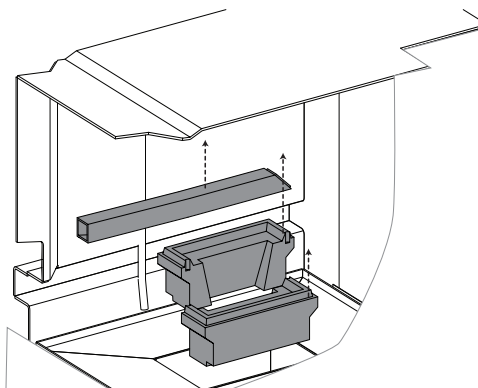
5. Remove the adhesive backing from the replacement seal and carefully apply the seal to the airbox as shown, making sure there are no gaps.
6. Close the airbox door and turn the furnace back on.
7. After the fan has started, use your hand to feel around the edges of the airbox door to check for leaks. A little air leakage, especially around the latches, is normal. If an excessive amount of air is felt, turn off the furnace; then check and repair/replace the seal if necessary.
8. Install the outer airbox cover.

SECONDARY AIR CHARGE TUBE AND REFRACTORY MODULES

⚠ WARNING

Remove all wood, coals and ash from the firebox and allow the firebox to cool thoroughly before replacing the secondary air charge tube and/or refractory.

Secondary Air Charge Tube and Refractory Removal Procedure



1. Remove the secondary air charge tube by lifting it up and sliding it toward the back of the outdoor furnace.
2. Remove the rope gasket; then remove the existing refractory modules.
3. Ensure the area where the new refractory modules will be installed is clean and free of all debris. Install the new refractory modules; then install a new rope gasket on top of the refractory modules.
4. Install the new secondary air charge tube by placing it in the opening at the front of the outdoor furnace as shown; then pull it toward the front of the outdoor furnace to secure it in place making sure the alignment pin fits into the alignment hole in the refractory modules.

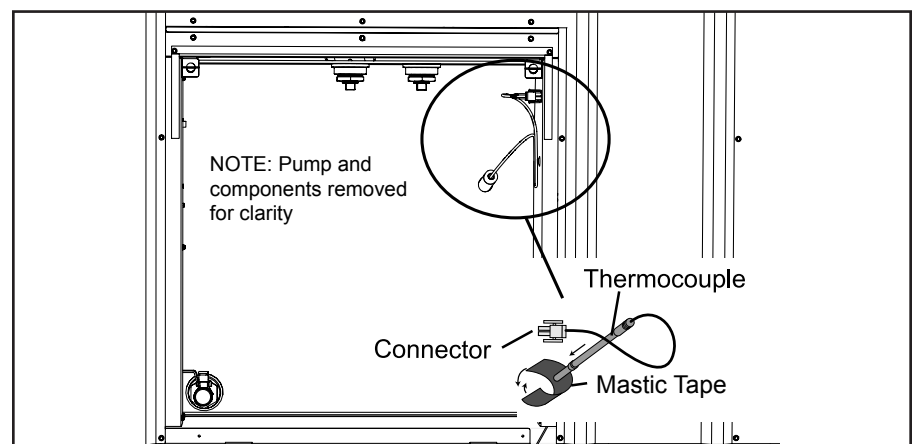
THERMOCOUPLE

1. Disconnect power to the outdoor furnace.

⚠ WARNING

Do not proceed without testing that power is disconnected. Make sure the power cannot be reconnected while replacing the thermocouple.


2. Remove the pump access cover.
3. Disconnect the thermocouple connector; then remove the mastic tape from the thermocouple.
4. Remove the thermocouple.
5. Install the new thermocouple until the stop collar contacts the thermocouple tube.



6. Secure the thermocouple with the mastic tape; then connect the thermocouple connector.
7. Install the pump access cover; then connect power to the furnace.

HEAT EXCHANGER DOOR INSULATION

NOTE: Insulation for the heat exchanger door is not standard fiberglass insulation. Use only the correct insulation when replacing or damage could occur. Contact your Central Boiler dealer for replacement insulation.

1. Press the **Power**  button on the FireStar combustion controller to turn it off.
2. Remove all wood, coals and ash from the firebox and allow the firebox to cool thoroughly.

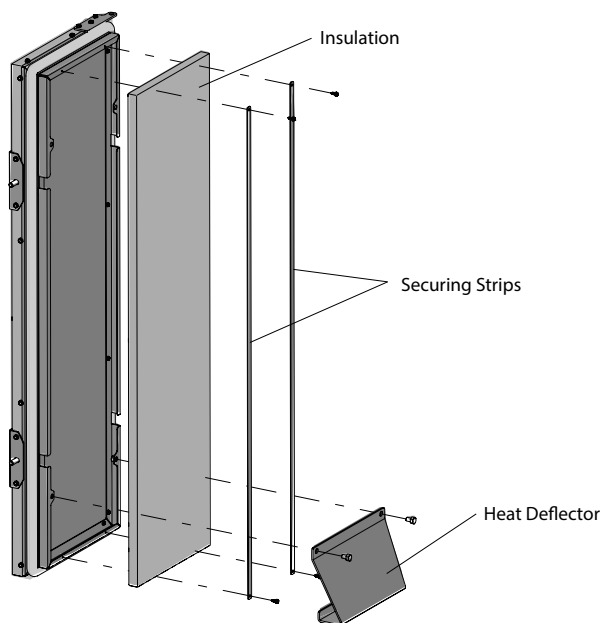
WARNING

Remove all wood, coals and ash from the firebox and allow the firebox to cool thoroughly before replacing the heat exchanger door insulation.

3. Remove the heat exchanger cover from the back of the furnace.
4. Carefully undo both latches on the heat exchanger door; then slowly open the door making sure to stand clear of the opening.

CAUTION

Open the heat exchanger door slowly and stand off to the side when opening it.



5. Swing the door open far enough to gain access to the inside of the door.
6. Wearing proper protective gear, use a brush or small broom to clean off any accumulated ash from the inside of the door.
7. Remove the heat deflector from the bottom of the door.

8. Remove the hardware and securing strips.
9. Carefully remove the insulation paying close attention to how the insulation is installed in the door and tucked into the edges of the door. This will aid in installation of the new insulation.
10. Before installing the new insulation, place it over the opening to make sure it is the correct size.
11. Place the new insulation inside the heat exchanger door with the reflective side facing out (toward you). Be careful not to tear the reflective material. Ensure that the edges of the new insulation are tucked into the edges of the door.
12. Install the securing strips. It may be necessary to adjust the insulation being careful not to tear it, after the securing strips are installed.
13. Install the heat deflector.
14. Check the insulation again to ensure that it is properly secured and attached to the inside of the heat exchanger door.
15. Carefully close and latch the heat exchanger door.

NOTE: The first few times the heat exchanger door is opened and closed after installing new insulation, it could seem more difficult to secure the latches. This is normal and once the insulation settles, securing the latches will be easier.

16. Install the heat exchanger cover.

HEAT EXCHANGER COVER INSULATION

NOTE: Be sure to check the temperature range for the spray adhesive. It may be necessary to replace the heat exchanger cover insulation indoors to allow it to cure properly.

1. Remove the heat exchanger cover from the back of the furnace.
2. Lay the cover on a piece of cardboard on a flat surface; then, wearing proper protective equipment, use a scraper to remove the insulation and any adhesive from the cover.
3. Test fit the new piece of insulation for proper fitment.
4. Using a good quality spray adhesive, follow the instructions on the can and apply the necessary amount to the inside of the cover.
5. Install the insulation in the cover, pressing down in multiple spots to ensure complete contact with the adhesive. Make sure the insulation is tucked all the way into the top of the cover.
6. Leave the cover on the flat surface until the adhesive cures according the adhesive manufacturer's instructions.
7. After the adhesive has cured, check to ensure the insulation has properly bonded to the cover; then install the heat exchanger cover on the furnace.

TROUBLESHOOTING

GENERAL TROUBLESHOOTING INFORMATION

The Classic Edge operates differently than other types of wood-burning appliances. Understanding how the Classic Edge operates will help you to quickly identify and solve many commonly asked questions. Be sure to read thoroughly and understand Section 2 – Operating Instructions.

If the outdoor furnace is not operating the way it should, start by asking yourself the following questions before continuing with more extensive troubleshooting:

Are the pieces of wood properly seasoned?

For the best results, it is best to burn seasoned wood for the following reasons:

- The higher the moisture content of the wood being burned, the less efficient the outdoor furnace is, because it uses extra wood to evaporate the moisture.
- The higher the moisture content of the wood being burned, the harder it is to maintain the proper coal bed because energy is required to heat the wood and more slowly evaporate (boil off) the water.
- The larger the heat load on the outdoor furnace, the drier the wood needs to be in order to maintain an adequate coal bed.

By loading the smallest, driest pieces of wood in the firebox first, it will help to dry out the wood loaded on top of those pieces.

Is the coal bed the correct depth?

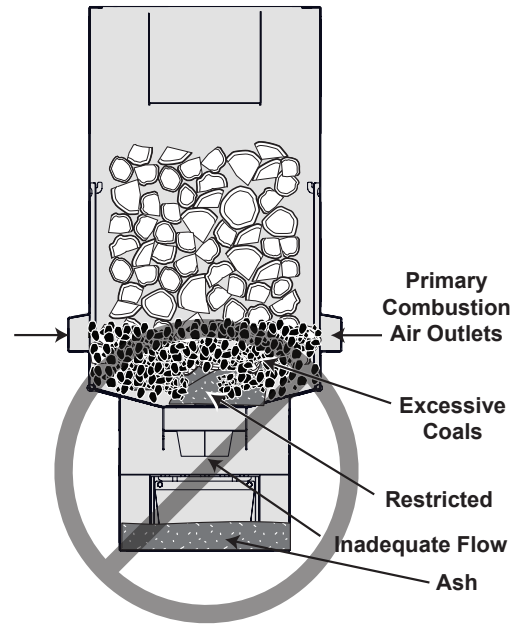
One to three inches (2.5 to 7.5 cm) of glowing coals are needed to optimize the operation of the outdoor furnace. If there is no coal bed, or if the coal bed is too shallow, it may affect emissions. If the FireStar combustion controller never changes from Low Burn to High Burn (see FireStar Combustion Controller section), it could be an indication that the coal bed is inadequate.

If the coal bed is too deep, it could restrict air flow, the coals will stop glowing, and heat output will be lowered.

⚠ WARNING

Combustion air outlets must not be blocked or covered by coals.

INCORRECT (Inadequate Flow)

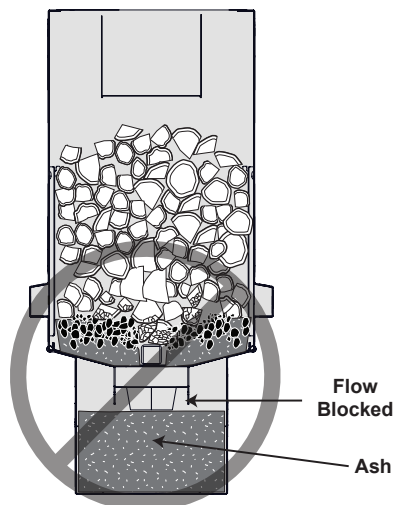


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Is the Reaction Chamber full of ash?

The Reaction Chamber is where final combustion occurs. It is important that the Reaction Chamber remain unobstructed to allow final combustion to occur. It is not designed to be an ash collection area, although over time ash will gradually accumulate in the Reaction Chamber.

If ash builds up in the Reaction Chamber to a level that obstructs flow, the performance of the outdoor furnace will be affected, so the ash must be removed. A good rule is to clean the Reaction Chamber before it becomes 1/3 full (approximately 3" or 7.5 cm deep in any area of the Reaction Chamber).

INCORRECT
(Blocked Flow)**Are the air outlets plugged?**

Primary combustion air is provided through the combustion air outlets in the firebox. The air outlets must not be plugged or obstructed for the outdoor furnace to operate correctly. If it appears the combustion air outlets are plugged or restricted, refer to the Complete Firebox Cleaning Procedures section. If after cleaning each combustion air outlet, air flow is still blocked, inspect the primary combustion air elbow. Refer to section 3-14 Primary Combustion Air Elbow for the procedure.

Is there creosote and/or ash inside the airbox?

Creosote, ash, or even coals in the airbox is an indication that the outdoor furnace has not been maintained and/or operated properly. Especially important to the operation and efficiency of the outdoor furnace is unimpeded air flow throughout the entire system. Refer to Operating the Classic Edge for Maximum Efficiency and Performance for a detailed explanation of how the Classic Edge is designed to operate.

One or more combustion air outlets are covered - If the level of coals and ash in the firebox is allowed to accumulate over the combustion air outlets, normal air flow can be blocked and could force coals and ash back into the airbox. Remove enough ash so the combustion air outlets are not covered. Review the Operating Instructions section for more information.

TROUBLESHOOTING OTHER SITUATIONS

A. OUTDOOR FURNACE IS NOT OPERATING CORRECTLY

1. **Out of wood** - Add wood as necessary. Use correctly sized, seasoned wood.
2. **Mixing channel (area directly below the charge tube) obstructed** - Inspect and clean as required.
3. **Combustion air outlets obstructed** - Clean as required to prevent the combustion air outlets from being obstructed.
4. **Combustion air fan obstructed or not running** - Check the screen over the fan inlet and the inside of the fan for any obstructions.
5. **Airbox leaking** - The airbox cover must be properly secured. Determine the cause and correct.
6. **Primary air actuator motor closed** - If the primary air actuator motor is not operating properly, determine the cause and correct.
7. **Reaction Chamber, heat exchanger or the chimney plugged** - If the Reaction Chamber, heat exchanger or chimney are plugged, determine the cause and correct.
8. **Door open** - If the display on the controller indicates Door Open, close the firebox door. Make sure the firebox door is properly latched and check the condition of the firebox door seal. If it is not sealing properly (indicated by a uniform indentation), replace the seal.
9. **Low water** - If the display on the controller indicates Low Water, the system senses a low water condition. Check the water level at the sight gauge and, if necessary, add water according to the Water Quality and Maintenance section. If adding water does not correct the problem, contact your Central Boiler dealer.
10. **Low water temperature for too long a period of time** - The display on the controller will indicate Fire Out and the controller will shut down the furnace if the water temperature has been too low for too long. Determine the cause of the water temperature being too low.
11. **Alarm condition** - Refer to the FireStar Combustion Controller Operation Manual.
12. **Chimney not drafting properly** - Draft is the force which moves air from the appliance up through the chimney. The amount of draft in your chimney depends on the length of the chimney, local geography, nearby obstructions and other factors. Draft occurs when the temperature in the chimney is high enough to cause a negative pressure that "pulls" the exhaust up and out the chimney.

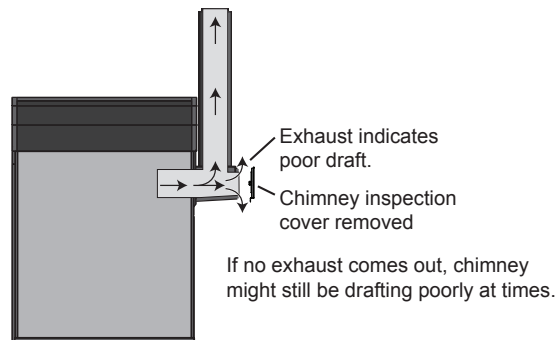
Proper draft is necessary for the Classic Edge to operate optimally. Too much draft may cause excessive temperatures in the appliance. Inadequate draft may cause backpuffing and plugging of the chimney.

If poor draft is suspected, perform the following test: with the outdoor furnace and chimney at normal operating temperature, loosen the chimney inspection cover and pull it back about an inch. If exhaust comes out from around the cover, pressure in the chimney may be incorrect and adding more chimney sections may be required. However, due to many variables, even if exhaust does not come out from around the cover, the chimney might still not be drafting properly at all times. Due to a number of variables, poor draft can be an intermittent problem.

NOTE: A qualified installer may perform the following test to check for proper draft. Before performing the test, the outdoor furnace should be completely cleaned to ensure nothing obstructs exhaust flow through the system. Fire the furnace and allow it to reach normal operating temperature before performing the test.

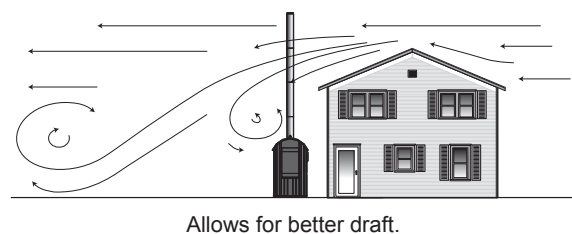
- Drill a hole in the chimney inspection cover; then with the outdoor furnace and chimney at normal operating temperature, use a manometer to check draft. If flue draft is less than -0.05 in. WC (-12.45 Pa) add more chimney sections.
- After the test, fill the hole in the chimney inspection cover with high-temp silicone.

Perform test with bypass closed at normal operating temperature.



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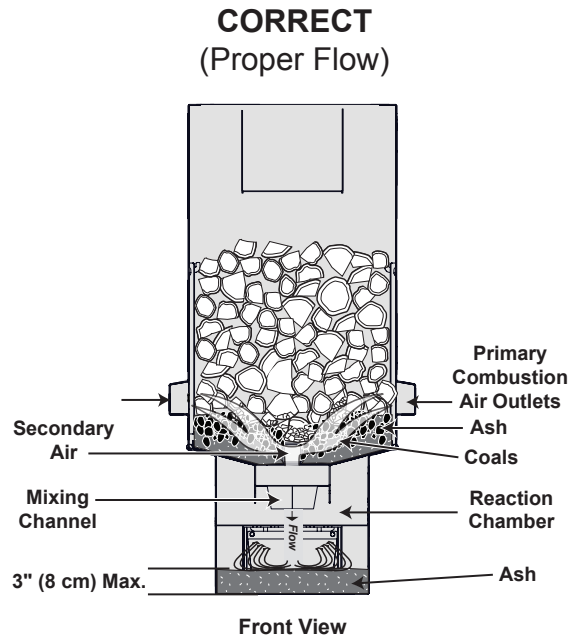
- If a spark arrestor is being used, make sure it is clean and unobstructed.
- Objects like buildings and trees in close proximity or nearby terrain (e.g., hills, valleys, etc.) can adversely affect air flow in the chimney. Adding chimney sections may overcome these factors.



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B. FIRE GOES OUT OR KEEPS GOING OUT

1. **Wood moisture content is too high** - Use properly seasoned wood with a moisture content of 20% or less.
2. **Diameter of wood too large** - Wood between 4" and 8" (10 and 20 cm) in diameter works well in most cases. Larger diameter wood may need to be split.
3. **Wood too tightly packed** - Load the wood so that the combustion air outlets on the sides of the firebox do not become blocked or restricted.



4. **Load of wood too large in relation to coal bed** - Adequate coals are needed to restart the fire after adding wood. If adding too much wood causes the fire to go out, either add drier, smaller pieces of wood first or partially fill with wood to allow time for the coals to restart the fire.
5. **Water temperature setpoint too low** - Set the water temperature setpoint higher (see FireStar Combustion Controller Operation Manual).
6. **Too much time between idle pulses of air** - Reduce the time between idle pulses of air (see FireStar Combustion Controller Operation Manual).
7. **Length of pulse of air too short** - Increase the amount of time the pulse of air is provided (see FireStar Combustion Controller Operation Manual).
8. **Water temperature differential too large** - Set the water temperature differential to a smaller value (see FireStar Combustion Controller Operation Manual).
9. **Not enough ash in the firebox** - Some ash, but not more than three inches, on the sides and bottom of the firebox is necessary for the proper operation of the outdoor furnace. No ash should cover the mixing channel (the area alongside the secondary air charge tube). Ash acts as an insulator, keeping the glowing coals in the bottom of the firebox hot enough to restart the fire when needed after being in idle mode.

C. BUILDING IS LOSING TEMPERATURE

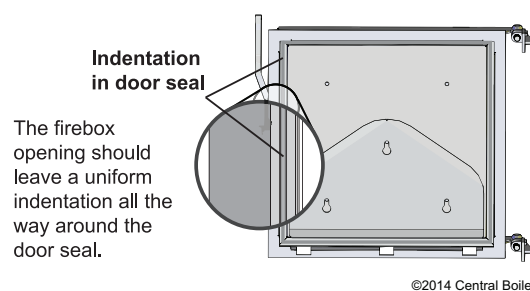
1. **Circulation valve(s) closed** - Be sure the proper valves in the system are open to allow circulation.
2. **Circuit breaker off** - If there is a circuit breaker that supplies power to the outdoor furnace, check that it is on.
3. **Circuit breaker off** - Check that the circuit breaker switch (located in the pump compartment) is on. If the circuit breaker has tripped, determine the cause before resetting it.
4. **Circulation pump(s) not operating** - Check that circulation pumps are operating. If not, disconnect power to the pump. Close valves at the pump. Disassemble the pump and try to turn the pump shaft. If the shaft is stuck, replace the pump cartridge. Replace only the cartridge whenever possible. If necessary, replace the pump. Follow instructions supplied with the pump.
5. **Air in system** - Check for air in the water lines or heat exchangers. If you hear a gurgling sound in a heat exchanger, air is present in the system. Shut off the pump, wait 15 seconds and start the pump. If it is necessary to force air from lines, refer to Initial Start-up Procedures.
6. **Building(s) poorly insulated or uninsulated** - Poorly insulated or uninsulated buildings, buildings with uninsulated or poorly insulated ceilings, or a lack of proper insulation under radiant flooring can cause excessive fuel consumption and or heating problems.
7. **Supply and return lines installed incorrectly** - Make sure the hot supply line is connected to the correct fitting on the outdoor furnace and heat exchanger.
8. **Circulation pump(s) installed backwards** - Check that pump flow direction is correct. If not, shut off power to pump. If the flow is not in the correct direction, disconnect pump from water line and reverse pump mounting to correct flow direction. If the pump is not mounted on the outdoor furnace, check for proper pump mounting location.
9. **Underground supply and return lines insulated poorly** - Heat loss from poorly insulated underground supply and return lines is often indicated by an unusually high amount of snow melting above the lines when the ground temperature is 10° F (-12° C) or colder.
10. **Supply and return lines uninsulated** - Uninsulated supply and return lines in areas that are not intended to be heated (unheated crawl spaces, under mobile homes, etc.) may cause excessive heat loss. Insulate the supply and return lines.
12. **Poor water quality** - Water with high amounts of solids, sand or dirt can create deposits inside the wall of heat exchanger components, reducing the amount of heat output. If this condition is suspected, contact your Central Boiler dealer.
13. **New construction with radiant in-floor heat** - Bringing a cold concrete slab up to temperature the first time will take a considerable amount of time and wood; once warm, wood consumption will be reduced if the concrete slab and building are insulated properly.
14. **Heat load too large** - Re-evaluate the system and match heat load to the outdoor furnace.

D. SMOKE COMING FROM BETWEEN FIREBOX DOOR AND FRONT OF THE DOOR FRAME

1. **Door seal faulty or door frame obstructed** - If there is smoke coming from between the firebox door and the front of the door frame for more than a short time after reloading, scrape the face and surface area of the door frame to remove any deposits. Check the condition of the firebox door seal and replace if necessary.
2. **Door hinges and/or latch need adjusting** - Adjust the hinges and/or latch bearing.

E. OUTDOOR FURNACE IS OVERHEATING

1. **Air entering through the firebox door or smoke coming out of the firebox door when the door is closed** - Make sure the firebox door is properly latched and check the condition of the firebox door seal. If it is not sealing properly (indicated by a uniform indentation), replace the seal. If firebox door does not close tightly, adjust using the appropriate procedure (see Owner Serviceable Items).



NOTE: If the outdoor furnace is operated with the door open, the firebox door seal may be damaged.

2. **Actuator motor and/or air regulating disc stuck open or obstructed** - Remove any obstructions. Lubricate the chain with a high temperature dry film lubricant rated for chains. Be careful not to get lubricant on the actuator motor or motor shaft. If replacement is necessary, refer to Air Regulating Disc Gaps for the factory settings for the air regulating discs.

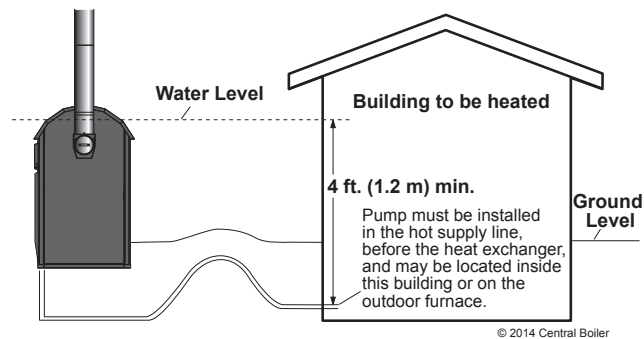
NOTE: If the outdoor furnace loses water from boiling, the problem should be identified and repaired immediately. Under normal operation, little or no water needs to be added. Adding water to the furnace may cause corrosion if not immediately treated with 1650XL Inhibitor Plus to the proper pH and nitrite levels. In addition, the amount of dissolved solids in the system (due to adding additional water) can cause problems.

3. **Water is not circulating** - Check to make sure the pump is operating and water is circulating continuously through the supply and return lines to keep water temperature uniform in the outdoor furnace.
4. **Circulation valve(s) closed** - Be sure the proper valves in the system are open to allow circulation.

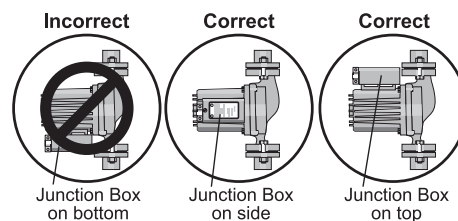
5. **Pulse set to run too long and/or too often in a low heat draw situation** - Increase the time between idle pulses of air and/or decrease the amount of time the pulse is provided (see FireStar operating instructions).
6. **FireStar combustion controller set incorrectly** - Refer to FireStar Combustion Controller Operation Manual.

F. FREQUENT PUMP TROUBLE OR POOR WATER CIRCULATION

1. **Pump mounted incorrectly** - If the pump is not mounted on the outdoor furnace, it must be mounted at a minimum of four feet lower than the top water level in the outdoor furnace.



Make sure the pump motor is installed in a horizontal position. The junction box must not be located below the pump motor. If necessary, remove the four screws and rotate the pump body.



2. **Water will not circulate** - If the system has been drained and refilled, or if the system has been opened for any reason (e.g., replacement of pump, adding heat exchangers, repairing a leak), the system must be purged (see Initial Start-up Procedures).
3. **Poor water quality** - Water with high amounts of solids, sand or dirt can cause frequent pump failure. Use softened and/or filtered water.
4. **Deposits in water lines/heat exchanger walls** - If water high in silica or other mineral content has been used, material deposits may build up on the insides of the supply and return lines and on the heat exchanger walls. If this occurs, the system will need to be drained and then cleaned using Sludge Conditioner (p/n 166). The system must then be refilled with the proper amount of 1650XL Inhibitor Plus (p/n 1650) and fresh water.

G. BURNING AN EXCESSIVE AMOUNT OF WOOD

1. **High volume water heating** - High volume water heating (e.g., car wash, swimming pool, etc.) will require high wood consumption.
2. **Excessive heat loss** - See items 6-10 of Building is Losing Temperature.
3. **Supply and return line heat loss** - If not using ThermoPEX, supply and return lines buried in a wet, low-lying area may cause a large heat loss that will greatly increase wood consumption.
4. **High heat demand** - Concrete slabs (with radiant heat) that are poorly insulated or are exposed to water or cold outside temperatures will require increased wood consumption (see Hydronic Installations section). Bringing a cold concrete slab up to temperature the first time will take a considerable amount of time and wood; once warm, wood consumption will be reduced if the concrete slab and building are insulated properly. The following will also have a high heat demand: poorly insulated buildings, buildings with large amounts of glass windows/doors, buildings with overhead doors, greenhouses, uninsulated crawl spaces, outdoor air infiltration and air leaking through foundation.

H. VISIBLE EXHAUST COMING FROM CHIMNEY

There are conditions related to outside temperatures, humidity, fuel moisture, burn rate and other factors that can cause steam to be visible in the exhaust plume of combustion equipment, whether it is wood, gas or oil.

Seeing a white exhaust plume with moisture present is normal under many conditions and is not suggestive of poor combustion or high emissions.

Opacity is the amount of light which is blocked in an exhaust plume. It is a measurement that is usually stated as a percentage. For example, an opacity of 0% means that all light passes through while an opacity of 100% means that no light can pass through. Opacity measurements give an indication of the concentration of particles in an exhaust plume.

To read opacity correctly, observations should be made only when:

- The sun is shining and behind you,
- You are at least three times the distance of the chimney height away from the furnace, and
- The plume is traveling perpendicular to your position.

The observation should be conducted looking at the point of the plume where condensed water vapor (steam) is not present. Do not observe the plume itself but rather look through it at a contrasting background (such as green leaves or trees). There are many other important factors as well.

The amount of visible emissions can be reduced by burning seasoned wood, by making sure that your chimney meets the recommendations in this owner's manual and by loading the firebox to match your heat load. Once the water content of the wood has evaporated, the emissions become very transparent.

1. **Actuator motor air regulating disc not adjusted properly** - Refer to Air Regulating Disc Gaps for the factory settings for the air regulating discs.
2. **Actuator motor not operating properly** - Refer to Actuator Motor/Air Inlet Elbow in Owner Serviceable Items section if replacement is necessary.
3. **Too much ash in firebox** - Refer to Routine Maintenance for ash removal.
4. **No glowing coal bed** - One to three inches of glowing coals are needed to optimize the operation of the outdoor furnace.
5. **Wood contains too much moisture** - Use correctly sized, seasoned wood.

I. CORROSION IS PRESENT

Corrosion in the firebox can occur when the outdoor furnace is being operated improperly. To maximize the life of your investment, it is important to identify signs of corrosion early (you can do this by performing the items in the Preventive Maintenance Schedule) and take measures to correct it as soon as possible. Some, but not all, causes of corrosion are listed below with possible solutions. If you are unsure how to proceed, contact your Central Boiler dealer.

1. **Water temperature is too low** - If the heat load in the system is too large, the water in the system will not reach high enough temperatures to dry the firebox and corrosion can occur. Re-evaluate the system and match heat load to the outdoor furnace.

NOTE: To reduce condensation in the firebox, it is not recommended to set the temperature below 185°F (85°C).

2. **Heat load is low** - If the heat load is low (during warm outdoor temperatures, for example), filling the firebox full with wood can lead to condensation in the firebox. When the demand for heat is low, add only enough wood to the firebox to last for about 12 hours.
3. **Optional thermostatic valve not installed** - An optional thermostatic valve can be installed on each set of supply and return lines in the system to maintain the outdoor furnace water temperature above 150°F (65°C).
4. **Quality of wood poor** - Use wood with a lower moisture content or if the wood is properly seasoned, it may help to try a different species of wood.
5. **Burning garbage or plastic** - Do not burn garbage or plastic. It is likely unlawful and may damage the firebox in a very short period of time.


NOTE: Chloride or sulfurous gases can be generated if plastic or rubber is burned and will mix with the moisture from the wood to form hydrochloric or sulfuric acids in the firebox, creating corrosion.

7. **Firebox wasn't cleaned out at the end of the heating season** - Be sure to follow the post-heating season maintenance schedule which includes scraping out firebox and removing all ash.
8. **Cleaning rod not run through ash bed prior to loading wood** - It is important that you push the cleaning rod back and forth through the ash bed each time prior to loading wood to allow air flow and prevent the ashes from accumulating moisture. See Operating Instructions for more details.

GENERAL INFORMATION

Make note of these precautionary statements, also found on the outdoor furnace.

CAUTION



Take care not to damage the temperature sensor when removing ash.

ATTENTION



Prenez soin de ne pas endommager le capteur de température lorsque vous enlevez les cendres.

NOTICE

During a cold start, a considerable amount of moisture from condensation will collect inside the firebox and Reaction Chamber. This is normal and the moisture will evaporate when the outdoor furnace reaches operating temperature.

REMARQUE

Lors d'un démarrage à froid, une importante quantité d'humidité de condensation s'accumule à l'intérieur du foyer et de la chambre de réaction. Ce phénomène est normal et l'humidité s'évaporerait lorsque la chaudière extérieure aura atteint sa température de service.

NOTICE

For use with aluminum or copper conductors.

REMARQUE

Pour utilisation avec des conducteurs en aluminium ou en cuivre.

WARNING

Vent cap must fit loosely over pipe.

WARNING

AVOID DAMAGE!

BEFORE operating this appliance read manual and watch videos for proper operation and maintenance procedures.

Damage or decreased life expectancy of appliance could result if appliance is not properly operated or maintained.

WARNING

Risk of fire. Do not store fuel or other combustible materials within marked clearances to combustibles. Do not cover supply and return lines with combustible materials.

CAUTION

Failure to perform proper care and maintenance will reduce the life and performance of your furnace. For best results, always follow these guidelines:

1. Add water treatment additive filling with water.
2. Burn properly seasoned wood.
3. Do not burn anything other than the recommended fuels.
4. Clean and inspect the furnace regularly.
5. Do not operate with the water temperature below 150°F (66°C).
6. Maintain the recommended water treatment levels at all times.
7. Clean the firebox thoroughly and keep it dry when not in use.
8. See Owner's Manual for more information about regularly scheduled maintenance.

ATTENTION

The Owner's Manual is located behind the airbox cover. Remove and read it before operating furnace. If you have any questions, contact your dealer.

NOTICE

Inspect and clean the heat exchangers monthly or as needed.

READ OWNER'S MANUAL FOR COMPLETE INSTRUCTIONS.

MAINTENANCE SCHEDULE

DAILY

Check water level. Remove ashes as needed.

MONTHLY

Check door seal, chimney and vent cap. Remove ashes and clean the firebox. Inspect and clean the heat exchanger and Reaction Chamber.

SEMIANNUALLY

Completely remove ashes from the firebox. Inspect and clean the heat exchanger and Reaction Chamber. This inspection should also be performed after the first and third months of operation. Use a wire brush and small scraper to clean firebox, side walls, back wall and ash pan.

READ OWNER'S MANUAL FOR COMPLETE INSTRUCTIONS.

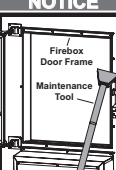
CAUTION

- DO NOT start fire until water level is full.
- Keep face away from door area.
- Hot surfaces.
- Keep children away.
- DO NOT touch during operation.
- DO NOT burn treated wood, plastics or rubber in the furnace.
- Maximum draft marked on the nameplate.
- ALWAYS comply with all applicable codes and regulations.
- ALWAYS take care when adding wood to the furnace to prevent hot coals from spilling out.
- ALWAYS store ashes in a covered non-combustible container.


ATTENTION

- NE démarrez PAS le feu avant de faire le plein d'eau.
- Éloignez votre visage de la porte.
- Surfaces brûlantes.
- Éloignez les enfants.
- NE touchez PAS pendant l'utilisation.
- NE brûlez PAS de bois traité, de plastique ou de caoutchouc dans la chaudière.
- Le tirage maximal est indiqué sur la plaque signalétique.
- Respectez TOUJOURS l'ensemble des législations et réglementations applicables.
- Procédez TOUJOURS avec précaution lorsque vous ajoutez du bois dans la chaudière pour éviter de faire tomber des braises à l'extérieur.
- Stockez TOUJOURS les cendres dans un récipient non combustible et couvert.

NOTICE



Use the maintenance tool to completely scrape the face of the firebox door frame where the door seal contacts.



Keep the combustion air outlets and exhaust pathway open and clear of ash to allow the furnace to operate properly.

DO NOT BURN GARBAGE

Burning garbage causes damage to components of wood burning appliances.

HPBA Refer to your Owner's Manual

BURN RESPONSIBLY

Preserve Your Right to Burn Wood

- Before installing, ALWAYS consider the direction that the chimney exhaust will travel with prevailing winds.

- BEFORE operating, the furnace must be installed with adequate chimney height. If there is a residence within 300 feet (91.5 meters), the chimney must be 2 feet (0.6 meters) higher than the peak of the residence it serves. If there is a residence not served by the furnace within 100 feet (30.5 meters), the chimney must be 2 feet (0.6 meters) higher than the peak of the residence served or not served, whichever is higher. Proper chimney height will aid in dispersing the chimney exhaust. Chimney height may need to be greater than the above minimum requirements. The outdoor wood furnace must be installed in accordance with the manufacturer's recommendations and/or in accordance to all applicable codes and regulations, whichever is more stringent. Refer to your Owner's Manual.

- ONLY burn the proper fuels specified.
- DO NOT create a nuisance. Be certain your chimney exhaust is not adversely affecting neighbors. Creating a nuisance may affect your right to burn wood. If any issue with chimney exhaust arises, take immediate action to solve the issue.
- Properly dispose of ashes into a metal container with a cover.

- Wood burning can be more of an art than a science. The operator may need to vary technique to achieve satisfying results as installations, heat loads and fuel vary. Over time, you will become familiar with your particular installation and you will be able to identify cause and effect in a variety of circumstances.

Protect your right to heat with wood. Careless operation may result in a loss of your rights.

DANGER

Risk of fire or explosion.

DANGER

Risque d'incendie ou d'explosion.

WARNING

- Risk of fire.
- DO NOT operate with flue draft exceeding -0.050 in. water column (-12.450 Pa).
- DO NOT use chemicals to start unit firing.
- DO NOT burn garbage, gasoline, fuel oil, or other flammable liquids or materials.
- DO NOT operate with fuel-loading or ash-removal doors open.
- DO NOT store fuel or other combustible materials within marked installation clearances.
- Inspect and clean flues and chimney regularly.
- For safety, open bypass door 15 seconds before opening the firebox door and do not operate the furnace with the firebox door unlatched.
- Operating the furnace with the firebox door unlatched may lead to a runaway fire. In the event of a runaway fire or immediately after tending to the fire, latch the firebox door and wait 15 seconds before closing the bypass door to purge the firebox.
- DO NOT leave furnace unattended with the firebox door unlatched.
- DO NOT install or operate furnace before first reading and understanding the Owner's Manual.
- DO NOT allow others to install or operate furnace without first reading and understanding the Owner's Manual.

AVERTISSEMENT

- Risque d'incendie.
- N'UTILISEZ PAS l'appareil si le tirage dépasse de -0,050 pouce la colonne d'eau (-12,450 Pa).
- N'utilisez PAS de produits chimiques pour allumer la machine.
- Ne brûlez PAS de déchets, d'essence, d'huile de vidange ni d'autres liquides ou matériaux inflammables.
- NE laissez PAS fonctionner la chaudière avec la porte de chargement du combustible ou celle d'évacuement des cendres ouverte.
- NE stockez PAS de carburant ou autres matériaux combustibles à l'intérieur du périmètre de sécurité indiqué.
- Inspectez et nettoyez périodiquement les carneaux et la cheminée.
- Pour des raisons de sécurité, ouvrez la porte de dérivation quinze secondes avant d'ouvrir la porte du foyer. Ne laissez pas fonctionner la chaudière avec la porte du foyer déverrouillée.
- Si la chaudière fonctionne avec la porte du foyer déverrouillée, un feu de cheminée risque de se déclarer. Si un feu de cheminée survient ou immédiatement après avoir éteint le feu, verrouillez la porte du foyer et attendez quinze secondes avant de fermer la porte de dérivation pour purger le foyer.
- Ne laissez PAS la chaudière sans surveillance lorsque la porte du foyer est déverrouillée.
- N'installez PAS et N'utilisez PAS la chaudière avant de lire et de comprendre le manuel du propriétaire.
- N'autorisez PAS d'autres personnes à installer et utiliser la chaudière avant de lire et de comprendre le manuel du propriétaire.

CAUTION

- DO NOT start fire until water level is full.
- Keep face away from door area.
- Hot surfaces.
- Keep children away.
- DO NOT touch during operation.
- DO NOT burn treated wood, plastics or rubber in the furnace.
- Maximum draft marked on the nameplate.
- ALWAYS comply with all applicable codes and regulations.
- ALWAYS take care when adding wood to the furnace to prevent hot coals from spilling out.
- ALWAYS store ashes in a covered non-combustible container.

ATTENTION

- NE démarrez PAS le feu avant de faire le plein d'eau.
- Éloignez votre visage de la porte.
- Surfaces brûlantes.
- Éloignez les enfants.
- NE touchez PAS pendant l'utilisation.
- NE brûlez PAS de bois traité, de plastique ou de caoutchouc dans la chaudière.
- Le tirage maximal est indiqué sur la plaque signalétique.
- Respectez TOUJOURS l'ensemble des législations et réglementations applicables.
- Procédez TOUJOURS avec précaution lorsque vous ajoutez du bois dans la chaudière pour éviter de faire tomber des braises à l'extérieur.
- Stockez TOUJOURS les cendres dans un récipient non combustible et couvert.

ATTENTION

15 seconds before opening firebox door, lift and push handle toward back of furnace to open bypass door.

15 seconds after closing firebox door, pull handle toward front of furnace and push down to close bypass door.

CAUTION

Remove strapping over vent cap before firing or operating furnace.

WARNING

Turn off Furnace Power Disconnect before opening this panel. Furnace Power Disconnect located on side of furnace under the pump panel.

AVERTISSEMENT

Avant d'ouvrir ce panneau, arrêtez le commutateur de coupure électrique de la chaudière. Ce commutateur est situé sur le côté de la chaudière sous le panneau de la pompe.

CAUTION

DO NOT disable the door switch, as it serves as a safety and reset function.

ATTENTION

NE désactivez PAS l'interrupteur de porte car il sert de fonction de sécurité et de réinitialisation.

NOTICE

Remove this fastener to remove panel. Install this fastener after replacing panel.

NOTICE

Furnace Power Disconnect

Coupure électrique de la chaudière.

NOTICE

To reset the circuit breaker, turn the switch OFF and then ON.

WARNING

Remove strapping over vent cap before firing or operating furnace.

CAUTION

DO NOT disable the door switch, as it serves as a safety and reset function.

NOTICE

Initially inspect the heat exchangers weekly, and clean as needed, until you can determine the frequency of cleaning based on your application.

NOTICE

Refer to the Owner's Manual for cleaning procedures.

NOTICE

Chimney pipe and all extensions must be insulated.

CAUTION

HOT Surfaces

Do NOT Touch During Operation

REMARQUE

Coupez l'alimentation électrique avant d'enlever ce panneau.

ATTENTION

Surfaces BRÛLANTES

NE touchez PAS pendant le fonctionnement

CAUTION

Do not plug, block or seal vent opening. Sealing can result in a dangerous buildup of pressure.

ATTENTION

Ne pas bloquer, obturer ou sceller l'ouverture du conduit d'évacuation. Sceller l'ouverture pourrait entraîner une accumulation dangereuse de la pression.

CAUTION

Watch your head.

AVIS

Four réarmer le disjoncteur, amenez l'interrupteur sur ARRÊT puis sur MARCHÉ.

NOTICE

To reset the circuit breaker, turn the switch OFF and then ON.

NOTICE

Refer to the Owner's Manual for cleaning procedures.

WIRING DIAGRAM

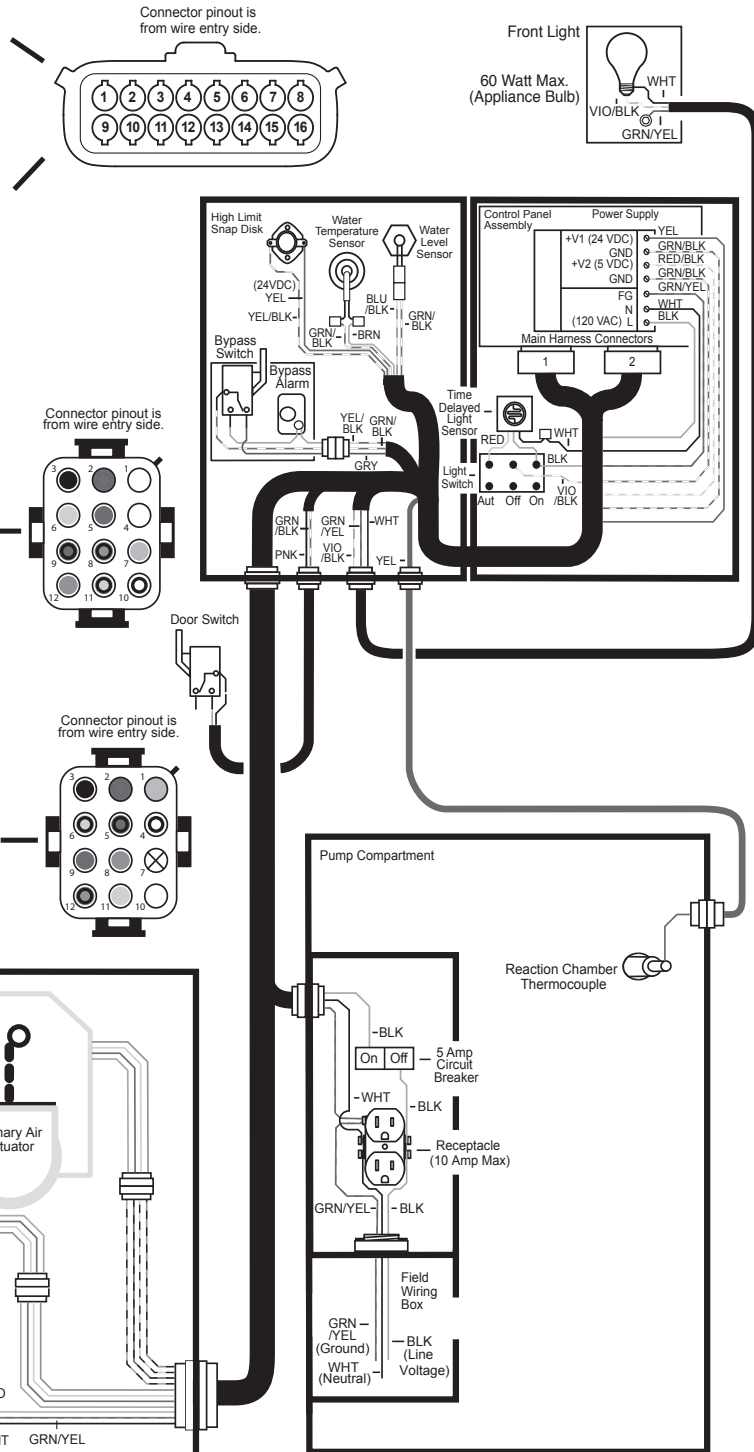
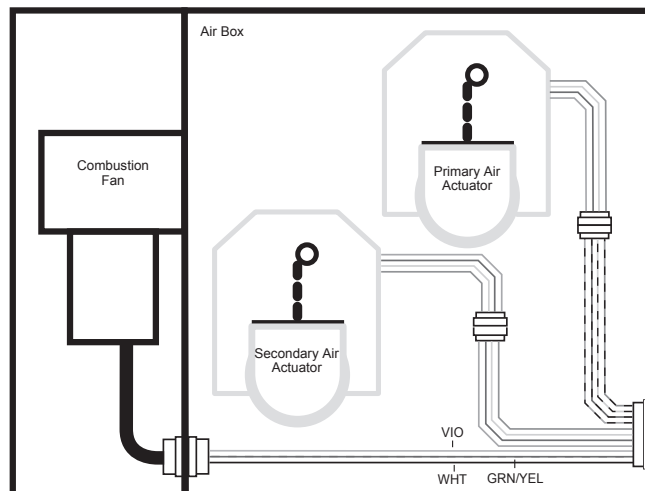
Classic Edge Wiring Diagram

MAIN HARNESS CONNECTOR 1		
TERMINAL	WIRE COLOR & SIZE	DESTINATION
5	BRN 18GA	Water Temperature
8	PNK 18GA	Door Switch
9	RED T/C	Reaction Temp -
10	YEL T/C	Reaction Temp +
13	GRY 18GA	Bypass Alarm Switch
14	BLU/BLK 18GA	Water Level Switch

MAIN HARNESS CONNECTOR 2		
TERMINAL	WIRE COLOR & SIZE	DESTINATION
1	BLK/WHT 18GA	Primary Air Actuator
2	RED/WHT 18GA	Primary Air Actuator
3	BLU/WHT 18GA	Primary Air Actuator
4	GRN 18GA	Secondary Air Actuator
5	RED 18GA	Secondary Air Actuator
6	BLU 18GA	Secondary Air Actuator
8	BLK 16GA	120 VAC
9	GRN/WHT 18GA	Primary Air Actuator
11	YEL/BLK 18GA	+24VDC
12	GRN/BLK 18GA	DC Ground
13	BLK 18GA	Secondary Air Actuator
14	RED 18GA	+5VDC
15	GRN/YEL 16GA	Earth Ground
16	VIO 16GA	Combustion Fan

CONTROL PANEL 12 PIN CONNECTOR		
TERMINAL	WIRE COLOR & SIZE	DESTINATION
1	BLK 16GA	120 VAC
2	GRN/YEL 16GA	Earth Ground
3	WHT 16GA	120 VAC Neutral
4	BLK 18GA	Secondary Air Actuator
5	GRN 18GA	Secondary Air Actuator
6	RED 18GA	Secondary Air Actuator
7	VIO 16GA	Combustion Fan
8	BLU/WHT 18GA	Primary Air Actuator
9	GRN/WHT 18GA	Primary Air Actuator
10	BLK/WHT 18GA	Primary Air Actuator
11	RED/WHT 18GA	Primary Air Actuator
12	BLU 18GA	Secondary Air Actuator

AIR BOX 12 PIN CONNECTOR		
TERMINAL	WIRE COLOR & SIZE	DESTINATION
1	VIO 16GA	Combustion Fan
2	GRN/YEL 16GA	Earth Ground
3	WHT 16GA	120 VAC Neutral
4	BLK/WHT 18GA	Primary Air Actuator
5	GRN/WHT 18GA	Primary Air Actuator
6	RED/WHT 18GA	Primary Air Actuator
8	BLU 18GA	Secondary Air Actuator
9	GRN 18GA	Secondary Air Actuator
10	BLK 18GA	Secondary Air Actuator
11	RED 18GA	Secondary Air Actuator
12	BLU/WHT 18GA	Primary Air Actuator



WATER SAMPLE INFORMATION - TITANIUM SERIES MODELS

NOTE: It is your responsibility as owner to ensure that your water sample information is accurate and that you submit your samples on a timely basis as required by the warranty for your stainless steel outdoor furnace. Failure to do so will result in a one year warranty.

WATER SAMPLE LABEL INFORMATION

Use the Water Sample Kit provided in your owner's packet or include the water sample label information below when mailing water samples to Central Boiler.

NAME:	_____
ADDRESS:	_____
CITY:	_____ STATE: _____ ZIP: _____
EMAIL:	_____
PHONE:	_____ FURNACE SERIAL # _____
DEALER:	_____
DATE SAMPLE COLLECTED:	_____
<input type="checkbox"/> NO ANTIFREEZE ADDED	<input type="checkbox"/> ANTIFREEZE ADDED
<i>Please check ONE box</i>	
FOR LAB USE ONLY:	
Moly	pH Ni Date

MAILING LABEL

Use the Water Sample Kit provided in your owner's packet or send water samples to Central Boiler, Attn: Water Quality Department, 20502 160th Street, Greenbush, MN 56726.

FROM	_____

CENTRAL BOILER, INC.	
ATTN: WATER QUALITY DEPARTMENT	
20502 160th Street	
Greenbush, MN 56726	

LIMITED WARRANTY - CLASSIC EDGE TITANIUM SERIES MODELS

Central Boiler, Inc. ("Central Boiler") warrants to the original owner, except (a) parts manufactured by others and excluded from warranty coverage below; and (b) parts or items specified below as covered by a limited one year warranty, Central Boiler Classic, Classic Edge and E-Classic Titanium Series furnaces against defects in workmanship and against corrosion failure of the firebox/water jacket assembly for a period of TWENTY-FIVE (25) YEARS from the date of original retail purchase, provided that the Limited Warranty Registration Form is completed and sent to Central Boiler within ten (10) days of the original owner taking possession of the furnace and the original owner strictly complies with the instructions for maintenance and water treatment contained in the Owner's Manual; otherwise this Limited Warranty shall be for a period of ONE (1) YEAR from the date of manufacture or one year from original retail purchase, if proof of purchase date can be provided.

If a failure of a warranty covered part occurs that is caused by a defect in workmanship or corrosion, at its option Central Boiler will (1) repair or replace (using new or refurbished replacement parts) the defective or failed part based on the date of original retail purchase at the following prorated scale:

First – Fifth year: Parts and labor will be covered at 100%
Sixth year: Parts will be covered at 70%
Seventh year: Parts will be covered at 60%
Eighth year: Parts will be covered at 50%
Ninth year: Parts will be covered at 40%
Tenth – Twentieth year: Parts will be covered at 15%
Twenty-first – Twenty-fifth: Parts will be covered at 10%

(2) exchange the furnace with a comparable model furnace that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original furnace, or (3) provide a discount off the retail purchase price of a new Central Boiler furnace of comparable model based on the pro-rated scale: Years 1-5 100%, years 6-7 at 50%, years 8-10 at 40%, years 11-15 at 30% and years 16-25 at 10%. A replacement furnace/part assumes the remaining warranty of the original furnace/part or ninety (90) days from the date of replacement or repair, whichever provides longer coverage. If a furnace or part is qualified for replacement under the provisions of this limited warranty, at Central Boiler's discretion, the furnace or part may be required to be returned to Central Boiler for inspection and recycling or disposal.

Because maintaining the corrosion inhibitor at a proper level is imperative to preventing corrosion failures, to qualify for the 25 year warranty the operator must comply with the instructions in the owner's manual for maintenance and water treatment and send a furnace water sample when the furnace is initially put into service and once each year thereafter to confirm proper maintenance and water treatment. No warranty claim can be approved unless the furnace registration and the required water test verifications are on file at Central Boiler.

Parts Manufactured By Others. Parts that are factory-installed by Central Boiler, but are manufactured by others, may be covered by their own manufacturer's warranty and are not covered by this limited warranty, except the FireStar™ combustion controller on the Classic, Classic Edge and E-Classic Titanium Series furnace is warranted against defects in workmanship for a period of two (2) years from the date of original retail purchase, provided that the Limited Warranty Registration Form is completed and sent to Central Boiler within ten (10) days of the original owner taking possession of the furnace; otherwise this limited warranty shall be for a period of ONE (1) YEAR from the date of original retail purchase. This limited warranty covers the controller part only; service calls, mileage, and labor to diagnose the problem and install a new part are not covered.

Parts Covered by a Limited One Year Warranty. The following parts are covered by a limited warranty for workmanship defects for one year: gaskets, seals, heat shields, paint, charge tube, firebox ash pan, combustors, aquastats, actuators, heat refractory, and firebrick. This limited warranty covers the part only; service calls, mileage, and labor to diagnose the problem and install a new part are not covered.

EXCLUSIONS AND LIMITATIONS - This Limited Warranty applies only to Central Boiler Classic, Classic Edge and E-Classic Titanium Series outdoor furnaces. This limited warranty covers only those defects or corrosion failures that arise as a result of normal use of the outdoor furnace and does not cover any other defects or problems, including those that arise as a result of: (a) improper maintenance (b) operation outside the furnace's specifications (see owner's manual), accident, abuse, misuse, misapplication, or parts that are not factory-installed; (c) service performed by anyone other than Central Boiler unless authorized by Central Boiler in writing; (d) modifications undertaken without the written permission of Central Boiler; or (e) if any Central Boiler serial number has been removed or defaced. This limited corrosion warranty will be void if the owner fails to maintain the proper amount of corrosion inhibitor in the system, fails to send water samples to Central Boiler as required, or burns materials in the firebox other than natural wood. This limited warranty excludes the cost of shipping, labor to remove or reinstall the furnace, plumbing labor and/or parts and the cost of alternative heat if the furnace is out of service for repairs. Warranty excludes replacement of water, inhibitors or other additives, and parts used in the system whether or not mounted on the furnace, such as pumps, valves, and piping.

Central Boiler is not liable for damage or repairs required as a consequence of faulty installations or applications by others or any event of force majeure. Central Boiler is not liable for incidents or accidents which can be prevented by the owner or that occur from the operation of the outdoor furnace. A backup heating system should be in place to prevent damage in case of failure to refuel the outdoor furnace or in the event that mechanical failure of the outdoor furnace or system occurs. Heat replacement representations found in Central Boiler promotional information should be used only as a guideline. Heat loss for all applications with all weather extremes and other heat variables must be considered when sizing an outdoor furnace for different applications.

THIS LIMITED WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. CENTRAL BOILER SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF CENTRAL BOILER CANNOT LAWFULLY DISCLAIM IMPLIED WARRANTIES UNDER THIS LIMITED WARRANTY, ALL SUCH WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. No Central Boiler dealer or employee is authorized to make any modification, extension, or addition to this limited warranty. CENTRAL BOILER IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitations on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state or province.

OBTAINING WARRANTY SERVICE - To obtain warranty service, contact the Central Boiler dealer from whom you purchased your furnace or contact Central Boiler by telephone (800-248-4681) or mail (20502 160th Street, Greenbush, MN 56726). Please provide the dealer's name, original date of sale, model number and serial number in all communications. Central Boiler reserves the right to require the warranty service to be performed at a Central Boiler facility when deemed necessary by Central Boiler. All corrosion repairs will be performed at Central Boiler unless authorized by Central Boiler in writing.

Design Changes. Central Boiler reserves the right to change and improve the product design for improved performance without assuming responsibility to upgrade previously sold products.