

# Greenwood Furnace Series Indoor Wood Boiler

## DATA SHEET

### CLEAN, HIGH-EFFICIENCY HEATING FOR THE HOME

Greenwood hydronic furnaces\* burn so hot and clean, they produce almost no smoke, creosote or ash. When combined with a radiant or forced-air heating system, they can reduce winter heating bills by 70 percent. Each Greenwood furnace:

- **Clean.** Burn wood completely, leaving virtually no particles to create smoke, creosote or ash.
- **Efficient.** Greenwood furnaces approach 85 percent thermal efficiency. That means most of the heat released by burning wood is captured to heat your home.
- **Economical.** Reduce your overall heating costs, saving up to 70 percent of your current heating costs.
- **Certified Safe.** As safe to operate as a home hot-water heater. Greenwood furnaces meet strict UL and CSA standards for indoor operation.
- **Low Maintenance.** Our furnaces do not need to be cleaned as often as wood stoves or inefficient outdoor furnaces.
- **EPA Qualified.** The Greenwood Furnace complies with new strict emission limits for sale and operation, especially in areas where traditional outdoor wood boilers have come under strict regulation.

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Patent Pending

\* "Hydronic furnace" is the term adopted by the American Society for Testing and Materials (ASTM) to describe devices formerly called "wood boilers." Wood-fired hydronic furnaces create hot water, but not steam.

### GREENWOOD HYDRONIC FURNACE SPECIFICATIONS

MODEL:	Greenwood 100	Greenwood 200	Greenwood 300
Furnace Output (BTU/hour)	100,000 BTU	200,000 BTU	300,000 BTU
Approx. Heating Capacity <sup>1</sup>	up to 3,500 ft <sup>2</sup>	up to 7,000 ft <sup>2</sup>	up to 10,000 ft <sup>2</sup>
Furnace dimensions	32" w x 52" h x 48" d	42" w x 52" h x 48" d	52" w x 52" h x 48" d
Max log length <sup>2</sup>	18 inches	28 inches	38 inches
Max log diameter (door height)	16 inches	16 inches	16 inches
Approximate Weight	2,350 pounds	3,000 pounds	3,700 pounds
Firebox Volume	19" w x 32" h x 24" d (8.4 cubic feet)	29" w x 32" h x 24" d (12.9 cubic feet)	39" w x 32" h x 24" d (17.3 cubic feet)
Flue Size	6 inches	7 inches	8 inches

## ADDITIONAL INFORMATION

<b>Indoor/Outdoor</b>	Use Greenwood's wood-fired hydronic furnaces meet UL and CSA standards for indoor heating appliances. With a 12-inch clearance required from combustible materials, the furnace may be located in your basement, garage, or shed.
<b>Combustion Efficiency</b>	Temperatures in the ceramic firebox reach nearly 2000° F, assuring almost total combustion of the wood fuel. Little particulate matter remains to create smoke, creosote or ash.
<b>Thermal Efficiency</b>	The Greenwood boiler is one of the most energy efficient wood-fired hydronic furnaces on the market. It achieves up to 85 percent thermal efficiency (depending on the stage of the burn cycle).
<b>Recommended Fuel</b>	The furnace operates most efficiently with dry, unsplit logs. Heat output will vary with the species of wood burned, but as a practical matter, we recommend using whatever solid wood is readily available.
<b>Fuel Duration<sup>1</sup></b>	A full load of hardwood will typically last 8 - 12 hours at peak demand and longer under milder conditions.
<b>Combustion Chamber</b>	The firebox is made of super-duty cast ceramic refractory with walls that are 4 to 6 inches thick.
<b>Operating Temperature</b>	The temperature inside the firebox ranges from 1600 to 2000° F depending on the fuel and stage of the burn cycle. The temperature of the heat transfer fluid is typically 165 - 180° F.
<b>Exhaust Temperature</b>	Combustion gases exit the furnace at an average temperature of 350° F.
<b>Exhaust Pipe/Chimney</b>	Correct exhaust sizing and installation is important to overall furnace efficiency. Our furnaces require a 6 to 8-inch flue pipe.
<b>Draft Requirement</b>	The Greenwood furnace requires a draft of 0.05" - 0.07" water column to operate efficiently.
<b>Hot Water Storage Tank Backup Heating</b>	Greenwood boilers provide heat-on-demand, eliminating the need for a hot water tank. Greenwood furnaces can be integrated with most existing heating systems, providing primary heat during the winter. Your existing system would serve as a backup.
<b>Limited Warranty</b>	Greenwood provides a limited warranty of 10 years for internal furnace parts and 1 year for the control system. Please see warranty for complete details.
<b>Safety Certifications</b>	OMNI-Test Laboratories, an independent agency, has certified Greenwood furnaces meet ANSI/UL-391 (U.S.) standards for solid-fuel and combination-fuel central and supplementary furnaces and CSA B366.1 (Canada) standards for solid fuel-fired central heating appliances.
<b>Emission Levels</b>	The EPA has proposed emission standards of 0.60 lbs/MBTU. The Greenwood boiler emissions are below these levels.

<sup>1</sup> Heating capacity and fuel duration depend on many factors including construction quality, indoor/outdoor temperatures, etc.

<sup>2</sup> For maximum burn time, load wood with the length equal to the width of the door, enabling greatest wood density. Wood up to 24" in length may be loaded in the Model 100, but result in less firebox fuel density.

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# Aspen Series Outdoor Wood Furnace

## DATA SHEET

### HIGH-EFFICIENCY HEATING FOR THE HOME

Extending Greenwood's commitment to high-efficiency renewable heating solutions, the Aspen Series is designed to replace often-banned, low-efficiency outdoor wood furnaces. When integrated with a radiant, baseboard, forced-air or other central heating system, the Aspen Series can reduce heating bills by 70%. Each Greenwood Aspen Series outdoor wood furnace is:

- **Clean.** The Aspen Series burns wood completely, leaving virtually no particles to create smoke or ash.
- **Efficient.** In side-by-side tests, the Aspen Series uses 50% less wood than a traditional outdoor wood furnace while producing the same amount of heat.
- **Economical.** Reduces your overall heating costs – saving up to 70% of your heating bill.
- **Certified Safe.** Meets strict UL and CSA standards for safe operation.
- **Low Maintenance.** Aspen Series models do not need to be cleaned as often as wood stoves or inefficient outdoor furnaces.
- **Simple.** The design removes known failure points that are part of all dual-fuel systems and is designed for easy maintenance.
- **EPA Qualified.** The Aspen Series complies with new strict emission limits for sale and operation, especially in areas where traditional outdoor wood boilers have come under strict regulation.

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### ASPEN SERIES SPECIFICATIONS

MODEL:	Aspen 95	Aspen 175	Aspen 350
	Coming 2009		Available Fall 2008
8hr Sustained Output*	70,000 BTU/hr	110,000 BTU/hr	270,000 BTU/hr
Maximum Sustained Output*	120,000 BTU/hr	230,000 BTU/hr	420,000 BTU/hr
Comparable Heating Area**	up to 2,500ft <sup>2</sup>	up to 6,000ft <sup>2</sup>	up to 12,000ft <sup>2</sup>
Dimensions (W x H x L)	-	48" x 81" x 73"	49" x 96" x 81"
Shipping Weight	-	2,000 lb	3,100 lb
Door Size (W x H)	-	18" x 18"	20" x 24"
Firebox Volume (W x H x L)	-	23" x 22" x 31"	28" x 33" x 40"
Water Capacity	-	75 gal	115 gal
Maximum Log Length	-	29"	38"
Limited Warranty	-	10 Years	10 Years

\*Output based on full load of seasoned White Oak.

\*\*Note: Square footage based boiler sizing estimates are highly unreliable. Always base sizing on sustained BTU output.

## THE ASPEN SERIES INCLUDES A NUMBER OF ATTRACTIVE FEATURES

<b>Plug-and-Go Operation</b>	The Aspen Series connects to existing outdoor wood furnace plumbing with few or no modifications.
<b>Flexible Digital Control</b>	The digital control panel allows the operator to regulate the furnace's operating temperature and heat output.
<b>Secure Lockable Door</b>	The Aspen Series' pressure-sealed locking door prevents unauthorized access and keeps the heat in the furnace.
<b>Built-in Exhaust Curtain</b>	The exhaust curtain allows the smoke to escape through the normal exhaust flue when loading the furnace during operation.
<b>Convenient Night Light</b>	There is no need to worry about short daylight hours with the Aspen's external night light.
<b>Accessible Rear Panel</b>	The full rear door enables easy access for installation and cleaning.

## ADDITIONAL INFORMATION

<b>Backup Heating</b>	Aspen Series outdoor wood furnaces can be integrated with most existing heating systems – forced air or radiant – providing primary heat during the winter. Your existing system would serve as a backup.
<b>Dual Burn Chambers</b>	The primary firebox is lined with heavy-duty firebrick and the secondary combustion chamber is a complete ceramic enclosure.
<b>Combustion Efficiency</b>	Temperatures in the secondary burn chamber approach 2,000° F, assuring almost total combustion of the wood fuel. Little particulate matter remains to create smoke or ash.
<b>Exhaust Temperature</b>	Combustion gases exit the furnace at an average temperature of 350° F.
<b>Recommended Fuel</b>	The furnace operates most efficiently with seasoned wood. Heat output will vary with the species of wood burned, but as a practical matter, we recommend using seasoned cord wood.
<b>Safety Certifications</b>	The Greenwood Aspen Series meets UL/CSA safety standards for indoor installation.
<b>Emission Levels</b>	The EPA has proposed emission limits of 0.60 lbs/MBTU and 0.44 lbs/MBTU, Greenwood's Aspen Series emissions are well below these levels and meet proposed 2010 limits.
<b>Limited Warranty</b>	Greenwood provides a limited warranty of 10 years for internal furnace parts and 1 year warranty for electrical components. Please see warranty for complete details.

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