

GARN Smokeless Wood Heating

Frequently Asked Questions

1. How much does a GARN cost?

The GARN WHS comes in three sizes:

- WHS 1500 - \$12,400
- WHS 2000 - \$14,900
- WHS 3200 - Call for current price

These are base prices for each unit. For initial evaluation purposes you might consider adding 25%-50% to the base price to cover the cost of freight, a flue kit, water treatment chemicals and filter, as well as installation materials and labor. These costs can vary greatly depending on labor costs and specific system design, so your total investment may be more or less than that shown below. (PA residents are also subject to Pennsylvania sales tax.)

GARN WHS Model	Base Plus 25%	Base Plus 50%
WHS 1500	\$15,500	\$18,600
WHS 2000	\$18,625	\$22,350
WHS 3200	Call for Best Pricing	

We provide a parts quote good for ten days that is specific to your application prior.

2. Is the GARN safe?

Yes. When installed and used properly, GARN WHS units are very safe and are certified by independent lab tests to comply with all applicable UL and CSA standards and are the only wood-fired hydronic heaters certified for both horizontal and vertical flue venting.

3. How big is a GARN?

The GARN is pretty big and that's a good thing! In the world of hydronic heating, a substantial volume of water means that the system has the ability to store large amounts of thermal energy. This gives you longer time between burns and cleaner more efficient fires than a smaller wood hydronic system without large water storage could possibly offer.

As a rough comparison the GARN WHS 1500 is almost the same size as a Smart car.



This is not a GARN, but represents the relative size of a GARN.

	WHS 1500	WHS 2000	WHS 3200
Width	6'	6'	7' 2"
Height	6' 3"	6' 3"	7' 9"
Length	9' 3"	11' 3"	14' 4"
Weight empty	3,550 lbs	3,980 lbs	7,500 lbs
Weight filled	15,400 lbs	19,000 lbs	34,500 lbs
Approx gallons	1,420	1,825	3,200

4. Can I install the GARN myself?

That depends on your level of experience with plumbing and heating equipment. The electrical and plumbing hookups for a GARN are similar to other wood hydronic heating systems. If you aren't a professional installer we strongly suggest you work with a licensed professional in order to make sure you meet code requirements and to ensure your system works properly. ThisWarmHouse is available to work together with your installer to help ensure that your GARN is properly installed and operating to its full potential. The GARN does need to be sheltered and insulated. If you can't install your GARN in an existing shelter (garage, barn, shed) GARN provides floor plans and instructions for constructing a small building to house your GARN and firewood.

For large or complex projects ThisWarmHouse is able to provide fee based professional hydronic engineering design services at competitive rates that will save you money compared to typical engineering costs.

5. *Is the GARN a low emissions appliance?*

Yes. The GARN is one of the cleanest burning wood burning heating systems available. The EPA's Phase 1 emission guideline for outdoor wood fired hydronic heaters is 0.600 pounds of particulate per million BTU of heat output. EPA Phase 2 guidelines raise the hurdle to 0.32 pounds of fine particles per million BTU of heat output. Preliminary testing of a GARN indicates an emission level of 0.297. In addition, overall efficiency was found to be 84%. (Lower heating value basis.)

6. *What fuel can a GARN burn?*

A GARN will burn:

- Cord wood
- Slab wood
- Pallets
- Scrap wood
- Ear corn
- Wood briquettes

7. *If burning cord wood for fuel, does it need to be seasoned?*

Yes. The GARN achieves optimal efficiency when the moisture content of the fuel is about 20% - typical of cordwood that has been seasoned for a year. Burning wood with a higher moisture content degrades performance in relationship to the degree of moisture contained in the wood. This is true with any heating system that uses wood, but especially important for high efficiency gasification systems like the GARN. Fire and water just don't mix very well.

8. *What is "batch-burning"?*

As opposed to most units that require a constant fire to be maintained in the firebox, the GARN WHS is designed to quickly and efficiently transfer the BTUs stored in the fuel into water. To accomplish this end, the firebox has no damper, allowing the combustion to achieve a 95% *combustion* efficiency. The only fuel burned is that which is required to raise the temperature of the water storage up to the level required to store sufficient BTUs to service the load - usually somewhere between 180-200 F. For most GARN owners, this is achieved in a 2-4 hour burn. The unit then serves to meet the heat demands of the load for up to 24 hours, then the process is repeated.

The following chart is a helpful reference in determining time between firing your GARN.

	WHS 1500	WHS 2000	WHS 3200
<i>Burn rate, BTU/HR*</i>	350,000	425,000	950,000
<i>BTUs stored 120-200F</i>	920,000	1,272,000	2,064,000
<i>BTUs/degree of temp rise</i>	11,500	15,900	25,800
<i>Time between firing = BTUs stored divided by BTU/HR used</i>			
<i>* Burn rate is extremely dependent. These numbers based on the use of split, 24" oak with 20% moisture content and a reloading once per hour</i>			

Simply take the BTUs stored for each GARN and divide by your average heat loss per hour. This will give you roughly the number of hours that you can go between firing the GARN.

9. Does the fire need to be manually started for each burn?

Yes. But it's much simpler and easier than you might imagine. If there are no coals left in the firebox from a previous burn you will need to load a small amount of kindling surrounded by the remaining load of fuel. Turn on the high-powered draft inducer, light the kindling, and close the door. In about two minutes you'll have a roaring fire. It's truly as simple as that.

10. My home requires less than 100,000 BTUs per hour. Is the GARN overkill for what I need?

Great question! If you just look at the BTU burn rate of the GARN it can be easy to misunderstand and think that the GARN provides more heat than your home needs. That's not the case at all. In fact in order to experience all of the benefits that the GARN offers with its large thermal storage you want to make sure the GARN model you choose actually provides more BTUs per hour while burning than what your home uses. This allows the extra BTUs that aren't immediately used to be stored in the GARN's BTU storage and used later when the fire isn't burning. This is what gives you the extended periods between burns and allows the fire to burn at full temperature and maximum efficiency. When you talk with one of the GARN specialists at ThisWarmHouse they will help you determine which model is the optimum size for your home.