



Air is drawn in through door on front of unit (1). Air enters combustion chamber through smaller opening (7). Heated air is drawn down through charcoal chamber at bottom of stove (8) and into heat exchanger at back of furnace (9), making nine passes around heavy-gauge water tubes before exiting.

## First-Of-Its-Kind Furnace Turns Wood Into Gas

"It's the next generation of wood stoves - virtually smoke free with almost no ash. What's more, it burns as much as 50 percent less wood yet puts out the same amount of heat," says Howard Johnson of Johnson Manufacturing about the company's patented new wood-fired "Energy Converter" furnace.

The new wood-burner has a unique burn-from-the-bottom firebox that "charcoalizes" wood and then gasifies it. The gas is then burned in a heat exchanger chamber.

"Very little smoke comes out of the chimney and the flue temperature is only 150° to 200° which is fine because there's virtually no creosote," says Johnson. "This furnace generates so few emissions that it can be used in residential areas where other outside wood furnaces have been banned."

The Energy Converter can be installed inside or outside and adapts to virtually any new or existing heating system. Hot water running through tubes in the heat exchanger is pumped directly to the building or buildings to be heated. Can be adapted to forced air furnaces, boilers, baseboard heaters, and floor heating, or it can be used to heat domestic hot water.

Wood chunks up to 26 in. long are stacked in the fire chamber on the front side. A fire is started down below and rises up through

the wood, turning it to charcoal. When a thermostatically-controlled turbo draft fan on back of the furnace kicks in, it draws heat and combustible smoke gases down through the burning charcoal fire at the bottom of the stove. All smoke, creosote and visible emissions are burned up as fuel, creating temperatures up to 2,000°.

The super heated air is drawn into the heat exchanger at the back of the furnace, making nine passes around heavy-gauge water tubes that extend into the chamber in a maze-like fashion. There's 80 sq. ft. of heat transfer area in the heat exchanger chamber.

"The Energy Converter is built to last and requires minimal maintenance. The water system is sealed to keep out oxygen, which prevents rust. Burn time is 12 to 36 hours, depending on the season," says Johnson.

The furnace weighs 1,650 lbs. and measures 71 in. high, 23 in. wide, and 61 in. long. It holds 180 gal. of water, and is rated to heat up to 5,000 sq. ft. Sells for \$3,995.

For more information, contact: FARM SHOW Followup, Johnson Mfg. & Sales, Inc., N5499 Cty E, Ogdensburg, Wis. 54962 (ph 414 244-7581). In Canada, contact: FARM SHOW Followup, Johnson Mfg. & Sales, Box 267, Atikokan, Ont. P0T 1C0 Canada (ph 807 929-1129).

## "No Power" Fan Runs On Heat From Stove

"People can't believe it when they see it for the first time. It's not plugged in, there's no visible motor powering it, and yet it turns at 400 rpm's, blowing hot air from a wood stove throughout the house like a forced-air furnace," says Art Brown, manufacturer of a first-of-its-kind "no power" fan for wood stoves that's powered by hot air.

Brown worked with inventor Brendan Reilly to perfect the fan which is quiet and almost totally maintenance-free. It requires no installation. All you do is set the fan on top of a wood stove, spin the blade with your finger, and it will run as long as the heat continues. The only maintenance required is a couple drops of oil a month.

"It works like magic. A lot of people are baffled until we explain it to them," says Brown, who's had a lot of interest from a nearby Amish community that heats with wood stoves but has never had forced air because there's no electricity. "They can't believe how much warmer and more comfortable their houses become thanks to this fan."



Small Stirling "engine" is housed in unit's square base. A single piston in the engine drives an offset crank that turns fan.

The secret of the "Free Breeze" fan is a small Stirling "engine" housed in the square base of the unit. Stirling engines have been

## Where To Buy Outdoor Wood Furnaces

Skyrocketing fuel prices have caused renewed interest in outdoor wood furnaces.

Manufacturers say sales are up sharply from a year ago and they're expecting brisk business the rest of the year.

"Interest in outside wood-burning furnaces skyrockets when fuel prices climb," says Olav Isane of Aqua-Therm, a veteran manufacturer of wood-burning units.



Aqua-Therm

"People are looking for a cheaper heat source than LP gas or fuel oil. And they're looking for a way to heat with wood that doesn't create such a mess in the house and that's safer. Outside wood-burners offer all three advantages."

Here's a list of some of the manufacturers of outdoor furnaces in North America:

**Aqua-Therm**  
Rt. 1, Box 1,  
Brooten, Minn. 56316  
ph 800 325-2760 or 612 346-2264

**Canwood Welding & Fabricating**  
Box 242  
Canwood, Sask., Canada SOJ  
OKO  
ph 306 468-2282; fax 2283

**Central Boiler (Classic)**  
R.R. 1, Box 220  
Greenbush, Minn. 56726  
ph 800248-4681 or 218 782-2575

**Custom Steel 'n Wood Designs**  
Box 223  
Pilot Butte, Sask., Canada SOG  
3Z0  
ph 306 781-4679; fax 4835

**Hardy Manufacturing Co. Inc.**  
Rt. 4, Box 156  
Philadelphia, Miss. 39350  
ph 800 542-7395 or 601 656-6948

**Heatmore Inc.**  
Hwy. 11 E, Box 787  
Warroad, Minn. 56763  
ph 800 834-7552

**Johnson Mfg. & Sales, Inc.,**  
N5499 Cty E,  
Ogdensburg, Wis. 54962  
ph 414 244-7581.  
In Canada, contact:  
**Johnson Mfg. & Sales,**  
Box 267,  
Atikokan, Ont. P0T 1C0 Canada  
ph 807 929-1129

**Mahoning Outdoor Furnaces**  
R.D.# 1, Box 250  
Mahaffey, Pa. 15757  
ph 800 692-5200 or 814 277-6675

**Northwest Manufacturing Inc.**  
P.O. Box 154  
Red Lake Falls, Minn. 56750  
ph 800 932-3629 or 218 253-4328

**Rik-Mar Fabricators, Inc. (Bryan)**  
P.O. Box 4232  
Bryan, Texas 77805  
ph 409 779-1616

**Sure-Flame, Inc.**  
245 Erie St.  
Huntington, Ind. 46750  
ph 219 356-1905

**Taylor Manufacturing Inc.**  
P.O. Box 518  
Elizabethtown, N.C. 28337  
ph 800 545-2293 or 910 862-2576

**Warm Homes Of Wright Inc.**  
6756 Hwy. 210  
Wright, Minn. 55798  
ph 218 357-2911



Bryan Furnace

around for decades but no one has ever come up with a marketable way to use them. They consist of a sealed chamber with a single piston that's driven by a special gas that expands quickly when heated and contracts when it cools down. The heating up and cooling down happens almost instantly. The piston in the small engine drives an offset crank that drives the fan.

Brown notes that over the years large Stirling engines have been built to power cars, trucks, generators and other equipment. The drawback is that like a steam engine, you need a firebox to power the engine. In the case of the "Free Breeze" fan, however, the fire already exists.

"It's the perfect application for this technology. Everyone who sees this fan wants one. We just started selling it and we've

already got a couple hundred out there with no complaints," says Brown, noting that the only problem with the fan is that when you have visitors to your house you can forget about talking about anything else for the first hour or so. "All they'll want to do is see your fan and find out how it works."

The unit weighs about 15 lbs. and has a 14-in. dia. 8-bladed fan. You just set the unit freely on top of a hot surface. No installation needed. Brown says it'll start turning slowly as the surface gets warm, and then speed up as the stove heats up.

Sells for \$229.95 (U.S.). Dealers are being set up throughout North America.

Contact: FARM SHOW Followup, Mead Time Stoves, Box 451, Tavistock, Ontario N0B 2R0 Canada (ph 519 655-2848 or 519 887-9126).