



HAHSA is linked to home by underground hot water pipes.

STORES HEAT IN 18 TONS OF SAND

This Heating System Goes Outside The Home

Previous issues of FARM SHOW have featured new-style heating systems built outside the home. Latest new development along this line is the "build-it-yourself" HAHSA (Heating and Heat Storage Apparatus). The wood-burner is housed in a small shed, detached from the house or other structure it heats, and has 18 tons of sand packed around the burning chamber for heat storage.

In the sand and above the fire chamber are two heat exchangers. One is connected by two ¾-in. pipes to carry hot water to the building to be heated, and return cold water for re-heating. The system also heats water for domestic use — using ½-in. pipes and the second heat exchanger.

The manufacturer claims the HAHSA system is especially safe because the fire is outside, away from the house or other building. There are

no trapped gases in the home, no chimney fires, and no wood-burning mess in the house.

Heat from the HAHSA is thermostatically controlled, keeping the building heated as desired. Also, the unit can be fired with almost anything that will burn, such as wood, lumber scraps, waste paper or cardboard. With 18 tons of sand to store heat, the furnace needs to be fired up only once every day or two.

The manufacturer claims the system will pay for itself in 12 to 18 months. Cost of a do-it-yourself installation, using parts and instructions from HAHSA, is right at \$1,200 to \$1,300. Cost of a complete set of plans is \$20.

For more details, contact: FARM SHOW Followup, HAHSA, Box 112, Falls, Penn. 18615 (ph 717 587-5565).

HOME-MADE WOOD-BURNING FURNACE

Home-Built Furnace Cost Only \$100

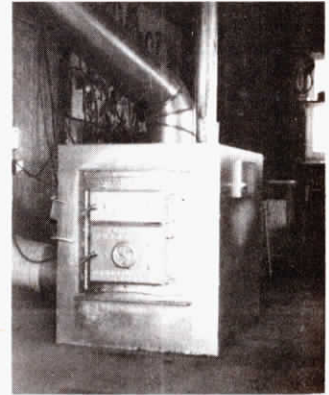
A home-made wood-burning furnace that cost \$100 to build, using mostly salvaged materials, eliminated the need to buy a \$1,200 manufactured furnace for Nebraska farmer Harold Witulski, of Beatrice.

He's been using his home-made furnace for 3 years and says it does an excellent job of heating his 1,200 sq. ft. ranch style house.

The guts of the furnace is a 26-in diameter heavy steel tube 40 in. long that serves as the burning chamber. It's welded inside a square "box" made of plate steel through which air circulates, pulling heat off the outside of the burning chamber and distributing it through ductwork throughout the house.

A unique feature of the airtight furnace, according to Witulski, is a baffle welded inside and at the top of the combustion chamber. It provides a secondary burning area where gases that otherwise would go up the chimney are burned. The result is a highly efficient system, obtaining maximum utilization of the wood burned.

"Wood in the tube burning chamber burns from front to back — kind of like a cigar," explains Witulski. In the morning, when the fire has consumed most of the wood, hot coals glow at the back of the chamber. He cleans ashes out the front, then moves the hot coals toward the front and fills the chamber with wood logs. The wood ignites from the coals and the heating process resumes. It's necessary to refill the furnace with wood only about



Small fan salvaged from an old freezer brings cold air into bottom of furnace.

twice each day. It can hold a fire for up to 12 hrs.

All heat for the Witulski house comes from the wood-burning furnace, except when the family leaves for longer than a few hours. A propane furnace then takes over.

The Nebraskan says it is handy having the furnace in the garage rather than basement because he can check the fire when he happens to be walking through the garage doing other things around his 700-acre farm. He has drawn up plans and illustrations of his home-made furnace. They sell for \$10 a set.

For more details, contact: FARM SHOW Followup, Harold Witulski, Route 2, Box 181, Beatrice, Neb. 68310 (ph 402 228 0633).

Car Radiator Key To This Home Heating System

An old car radiator is the ingenious part of a home-made heating system invented by Cliff Hylden of Silver Bay in Northern Minnesota.

Hylden, an electrician by trade, burned wood in a double-barrel stove in his basement for several years, then purchased a wood-fired boiler, placed it in his garage and piped the hot water underground to his house basement. There, the pipes connect to the old car radiator in front of Hylden's hot air furnace. The radiator transfers hot water heat to hot air so he can distribute it throughout his house via the existing forced air duct system.

"I learned that a radiator on a car engine disposes of about 200,000 btu's of heat while the car is running," explains Hylden. "So, I figured a radiator should be capable of keeping up with the 100,000 btu capacity of my wood-burning boiler. "I spent \$25 on a used radiator. The

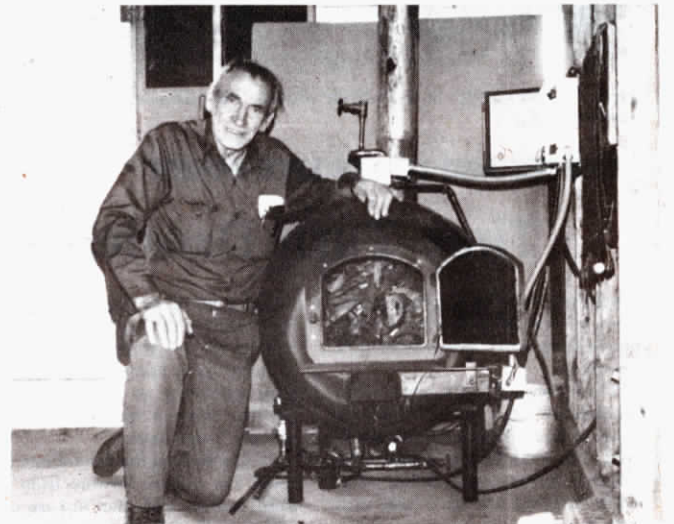
alternative — converting to a baseboard water heating system for the house — would have cost me \$1,200."

The house's conventional furnace is disconnected, and the pilot light has been turned off. Insulated underground pipe circulates water between the garage and house. Also, through a separate system, the boiler provides hot water for the Hylden household.

The benefits of having the wood-fired boiler in the nearby unattached garage, instead of in the house, include fire safety, less wood and ashes mess in the house, and no smoke in the house.

Hylden purchased a new wood-fired boiler. It was manufactured locally, and is sized for home use.

For more details, contact: FARM SHOW Followup, Cliff Hylden, 62 Horn Blvd., Silver Bay, Minn. 55614 (ph 218 226-4178).



A \$25 used radiator transfers hot water heat to hot air.