



Hot water lines from a wood-fired boiler 75 ft. from the house keep Larry Goodman's home warm.

Wood Furnace Saves \$1,500/Year

Switching from fuel oil to wood fuel has saved Larry Goodman \$1,500 a year. His oil-fired boiler sits cold in his basement while hot water lines from a wood-fired boiler 75 ft. from the house keep his Ionia, Michigan home warm.

"I lost a bunch of oak trees to gypsy moths, and a friend sold me a small wood boiler for only \$100," explains Goodman. "We had a five-zone hot water system in the house, so the hookup was fairly simple. I can open and close zone valves manually to heat only those areas I want."

The boiler itself is just 20 by 24 in. and 25 in. high and can only handle 18-in. pieces of wood. It was made by Custom Welding in Clinton, Wis. Not wanting it in the house, Goodman added on to an existing shed. Today it houses a 16 by 16-ft. wood room, a 6 by 16-ft. boiler room, and a 16 by 16-ft. garage. He insulated and wallboarded the boiler room and installed a baseboard heater to prevent freeze up should the boiler not be fired. When Goodman installed the boiler, he ran two 1-in. copper lines with armor flex insulation through a 6-in. ABS pipe. If he was doing it today, he would use 5-in. piping with two fully insulated water lines. A circulating pump at the old boiler and an extra one by the new boiler move the hot water.

The water lines leave the house at a 5-ft. depth, gradually rising to 4-ft. at the boiler house. Goodman wanted to ensure proper drainage if maintenance was necessary, but so far it has not been needed.

"We keep it at 130 to 140 degrees," he says. "A full load of split wood will run it about 5 to 6 hours, and a load of non-split wood will fire it for up to 7 hours."

The wood heat is supplemented by passive solar gain from large south exposure windows in the upstairs family room. Even on the coldest winter day, the Low E glass heats the cathedral ceiling room to 90 degrees. Goodman recycles this heat and naturally ris-



Measuring 20 in. wide, 24 in. deep, and 25 in. high, boiler handles 18-in. logs.

ing boiler-produced heat. A10-in. diameter insulated flex pipe runs from the attic to the walkout level garage. A thermostat at the top is connected to a filter box and a turbine fan in the garage. When the thermostat reaches 80 degrees, the fan starts up. Hot air is drawn down and through the filter to reheat the downstairs.

"Basically in this house, it is the downstairs level that needs to be heated," says Goodman.

As additional backup, Goodman installed a fireplace in the downstairs level when the house was built. Duct work runs up either side of it. This, too, has a turbine fan to push heated air down and out into the lower level. Not yet satisfied that he was getting all the available heat, he built a set of grates out of pipes and put a blower on them.

"They can heat the house, too," he says.

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Pull Hitch Manually Tows Trailer

When Ken Booth, of Wingdale, N.Y., wanted to manually pull his lawn trailer around the yard, he made a 2-wheel hitch that attaches to the trailer's draw bar.

Booth took the handle bar from an old push mower and attached it using 3/8-in. bolts to a 20 by 2 in.-piece of flat iron fastened to angle iron brackets bolted to the bar. The brackets match the width of the handles.

He then attached wheels to 5/8-in. rods welded to the bottom of the bar. The draw bar hooks to a pin welded to the top of the bar.

The handle bar swings back and forth so you can rest it back on the top of the trailer when not in use.

"The trailer unhooks quickly from the hitch when needed for normal use," says Booth.

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An old push mower's handle lets Ken Booth manually move his lawn trailer around.

Bagger Handles Sand, Compost, Feed

If you're looking for a simple way to put sand, dirt or compost into bags, "The Bagger" may be what you need.

It's simply a sawhorse-type bench with a metal hopper and pipe on top. The pipe mounts on a hinged board that tips up to fill a bag.

The whole thing weighs about 30 lbs. It folds up and stores in about 1 ft. of space.

To use, you set The Bagger upright and clip a 14 by 26-in. bag onto the end of the pipe. You scoop the raw material into the hopper and tip it up to fill the bag. Marketing manager Sara Hand says The Bagger is balanced and won't tip over even when full. "Even if there's 30 or 40 lbs. in there, it tips up easily. It's not stressful on your back," she says.

"This is a cheap and easy way to bag almost anything. Best of all, one person can use it," she says.

It sells for \$109 plus S&H.

Contact: FARM SHOW Followup, Diverse Specialties, Inc., 5512 60th Way North, St. Petersburg, Fla. 33709 (ph 877 248-8387 or 727 545-3233; email: info@diversespecialties.com; website: diversespecialties.com).



You put raw material into hopper and then tip unit up to fill bag.



Bagger lets one person fill bags.

Rebuilt Car Doors Help Wheelchair-Based Driver

"I'm a paraplegic and needed a way to take my wheelchair with me in my car. I didn't want to spend the money for a specially-designed van so I modified my 1985 Buick Century," says Jake Loepf, Dawson Creek, British Columbia.

He cut the passenger side rear door in half and moved the door post farther back, then bolted the rear half of the door permanently to the post. He picked up an extra front side passenger door from another car and cut it in half, then attached it to the Buick's front door. He attached the opener lever rod from the original front door to the opener latch on the add-on door. The car's rear seat was removed.

"It's faster to get in and out of my car than it would be with a specialized van equipped with an automatic lift," says Loepf. "I just slip into the front seat, then fold up the wheelchair and put it into the open back seat area. Then I shut the front door, slide over to the driver's seat, and drive away."

"The entire project took about two days to build. I modified doors on the passenger side instead of the driver's side because I don't want to be in traffic when I get on and off the wheelchair.

"The car's original front door was left intact, so none of the glass in that door had to be modified. However, I did have to find a piece of glass to fit the add-on half door."

Loepf says that when he was first injured in 1966, the doors on 2-door cars were big enough that you could put the wheelchair behind the front seat by just folding the seat back.



A friend shows how Jake Loepf cut the passenger side rear door in half and moved the door post back.



He then took another car's front door, cut it in half, and attached part of it to the front side door.

Later models are too small for that.

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Bicycle Built For Two

Fourteen-year-old Cole Booth of Randolph, N.Y., loves to build things. One of his recent projects is a bicycle built for two that cost him just \$5.

Since he got the older 20-in. bikes for free from a repair shop, Booth's only expense was the welding.

"I widened the front forks on the back bike, then welded them to the back wheel of the front bike," he explains. "It's a bit hard to get used to because the back bike swings around. But I rode it in a couple parades and got a lot of attention from it."



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