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CUTS HOME HEATING COSTS 30%

Solar Heater Built From Empty Beer Cans

If you're looking for a way to cut your home heating bill without spending a bundle, take a tip from Al Lebens, of Chaska, Minn.:

Build yourself a solar heat trap out of empty beer cans.

It could cut your fuel bill 30% or more. And, you can build and install the entire system yourself in a couple days for a total investment of right at \$150.

For the past two years, Al's beer can solar collector, combined with a small wood stove which takes over during the hours when there is no sun, has provided all the heat for the family's 1100 sq. ft. home. He hasn't bought any fuel oil for the past two years and jokes about not knowing if his fuel oil furnace, which has been standing idle, even works any more.

Al's total investment in the home-built solar heat system is only \$40 for a fan and control: "I was able to salvage all the other material, including glass for the front of the solar collector panels. Even if I'd purchased all the material new, total cost wouldn't have exceeded \$150," he told FARM SHOW.

Because he has access to free wood, Al doesn't spend a nickel to heat the family's home. "By using solar heat during the day, we get by with about 5 cords of wood over the winter. Without solar heat, it would take 15 or more cords of wood, or right at 1000 gal. of fuel oil — which is what we were using before we installed the solar system."

Since he installed the solar heating system 2 years ago, Al has been flooded with visitors and requests for "how to" building plans. Unable to keep up with the flood of letters and phone calls, he invested \$300 to print up a set of blueprints, complete with illustrations and step by step draw-



Al Lebens cut the cans in half lengthways. Easiest way to cut them is with a band saw, he says.

ings. He sells the blueprints for \$6.00, including postage and handling.

For his 1100 sq. ft. home, Al used three 4 by 8 ft. collector panels. The panels are put into place in the fall along the south wall of the house, then removed again in the spring. Al cut the cans in half lengthways with a band saw and used 180 "halves" in each 4 by 8 panel. The can "halves" are strung on 1/8 in. rods and are mounted in horizontal rows inside each panel. Black paint coats the aluminum cans and the entire interior surface of each panel.

A small, thermostatically controlled fan (525 cfm) pulls room air from the basement into the solar collector. This air travels the entire length of the 3-panel collector where the sun heats it up. The same fan returns solar heated air into the basement where it

can be diverted directly into "space" in the basement for gravity-feeding via floor registers to rooms upstairs, or all or part of the heat pulled off the solar collector by the fan can be directed into a large L-shaped box which is filled with rocks for storing heated air. "If it's a real hot day, the solar collector will generate far more heat than the house can use. The rock bed allows this excess heat to be stored temporarily. Stored heat gradually dissipates from the rock bed to help warm the house for several hours after the sun goes down," Lebens explains.

He notes that finding enough empty beer cans to build a system similar to his shouldn't be a problem. "You could pay kids 5 or 10¢ each and get all the aluminum cans you need for very little total cash outlay. The 270 cans he used (90 for each of three 4 by 8 panels) were picked up in roadside ditches and didn't cost a cent.

Regardless of how cold it has gotten the past two years, the Leben's low-cost solar system has generated some heat. "We don't get much solar heat when it's cloudy, but neither do factory-made solar heat systems costing \$10,000 or more. If it's cloudy, no solar system I know of generates any significant amount of heat. But it's no problem, so long as you have a wood stove for backup, or any other type of standby heating unit, whether oil, gas or wood."

For houses which don't have an unobstructed south-facing outside wall for the solar collector — or if you feel a solar collector against the house would be distracting — you can build an A-shaped collector in the yard and pipe the solar heat it generates back to the house, Lebens points out. One change he plans to make in his system is to put insulation on the back side of the solar panels. "We get some heat loss which could be reduced to virtually zero by installing blanket type insulation on the underside of the panels."

The 525 cfm fan kicks in automatically to "wipe" heated air off the panels. On a hot day, if the fan didn't kick in because of a power failure, heat inside the panels could build up to upwards of 300°. "We have a special door-type relief valve which opens up automatically if temperature inside a panel gets over 180°. We use a regular car thermostat for this valve. If and when there is an undue amount of heat buildup, the valve opens to let the heat escape," Al explains. "There's no worry about fire, even if these relief valves should fail, since the maximum heat buildup of 300° would still be less than half the kindling point of wood. The valves are mainly to help insure that a high temperature buildup inside the solar panels won't cause glass on the front of each panel to crack or break in the event electric power goes off and the fan becomes inoperative."

If you'd like a set of construction plans, send \$6 to: FARM SHOW Followup, Al Lebens, 460 Flying Cloud Drive, Chaska, Minn. 55318 (ph. 612 445-2507).



Leaves are stuffed into top of press, and the lid screwed on. Photo shows lid removed and the pressed leaf log being ejected.

"LEAF LOGGER"

Turn Leaves into Logs

Bag them, burn them or let the wind blow them are three things you can do with leaves.

A California innovator, Robert S. Welther, suggests a fourth alternative — press them into logs and burn them in your fireplace.

Welther has designed a hand-operated leaf press called the "Leaf Logger". It can be easily built by the average home owner with locally purchased supplies (excluding jacks) for between \$60 and \$85. Plans for the press can be purchased for \$3.00.

"Leaf Logger" is designed for a 12-ton press which turns out a log 4 in. in dia. and 6 in. long. Says Welther: "Logs made with 8-10 tons of force have a density and burning rate about equal to dry pine wood."

For more details, contact: FARM SHOW Followup, Leaf Logs, Inc., 6413 W. 80th St., Los Angeles, Ca. 90045.