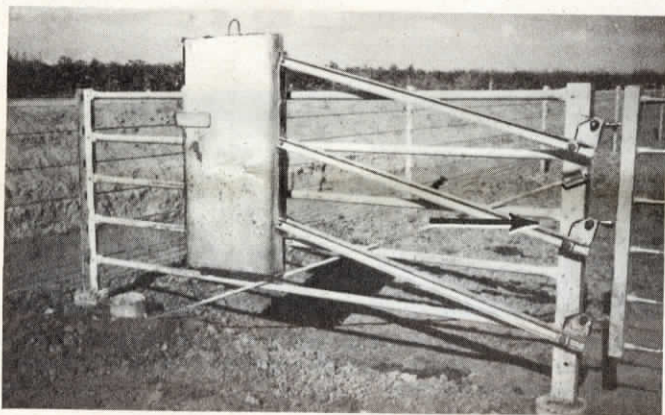




Darrel Thurnbeck, left, and Tom Rauenhorst check Beaver heat exchanger recently installed in Thurnbeck's turkey barn. During winter months, outgoing warm foul air is used to reduce temperature of incoming cold air about 23°F.



Special hinging arrangement (arrow) "leverages" the 430 lb. weight to apply thousands of pounds of constant pressure on each cable the year-around. Floating weight rises and falls as weather changes.

NEW "LEVERAGE" SYSTEM

Keeps Cable Fence Tight Year Around

Had trouble keeping cable-type feedlot fence tight the year around? If so, you'll be interested in a new "leverage" system introduced by Nielsen Industries, Glendale, Ariz.

No matter what the temperature — whether 30° below or 110° above — it automatically adjusts to keep the cables tight. Here's how it works:

A 430 lb. weight made of concrete provides tension for keeping the cables tight. Its weight is "leveraged" through a specially-designed hinging assembly which serves about ¼-mile of cable fence consisting of up to 7 strands of cable. Two "leverage" units can be placed at each end to serve a half-mile stretch of cable fencing. If you have cable fencing on

all four sides of a feedlot, you'd need a "leverage" unit at each corner.

Kits for do-it-yourself construction and installation of the "leverage" fence units are available. "We tell cattlemen to send us a sketch and measurements of the cable fence they're proposing to install. From this we can help them 'spec' a leverage system for insuring adequate tension on all cables the year around. Just set it and forget it — It's that simple," explains Mark Knistler, general manager.

For more details, contact: FARM SHOW Followup, Nielsen Industries, 6505 W. Olive, Ave., Glendale, Ariz. 85302 (ph. 602 931-5349).

HEAT EXCHANGER SYSTEM

New Way to Heat, Ventilate Barns

If you're having "impossible" ventilation problems in a livestock or poultry barn, or want the very latest in low-cost heating and ventilation for a new setup you're planning to build, leave it to Beaver — a new heat exchanger system that boasts "up to 75% or more reduction in heating costs."

The Beaver System uses outgoing warm foul air to heat incoming fresh air. In a well stocked, well insulated barn used to house cattle, hogs, horses, sheep, turkeys, layers or broilers, "free" body heat generated by the animals or birds is salvaged, eliminating the need for an expensive furnace or space heater.

"It's a lot cheaper to operate than conventional heating-ventilating systems, and more efficient than solar heat," explains George Rauenhorst who, along with his son Tom, engineered and developed the Beaver heat exchanger system. "I've worked on the concept 30 years and have tested it on my own farm for 10 years. I know it works," George told FARM SHOW.

The Rauenhorts deliberately searched out problem situations to test the first commercial installations of their new heat exchanger. In one installation, for example, the humidity problem in a horse barn was so bad that the insulation was dripping wet and peeling off the ceiling and walls. "Three days after we installed the system, the insulation was dry and has been ever since," George points out.

"It's a cheap way to heat a calf barn," says Gene Dillon, Olivia, MN., dairyman who had one of the first prototype heat exchangers installed three years ago. "When it's 20° below zero outside, fresh air comes in at 30° above zero. The interior of the building stays dry, thus reducing the amount of bedding needed."

Last fall, Darrell Thurnbeck, Forest Lake, Minn., had the Rauenhorts install the Beaver System in a barn used to house 300 breeder turkey toms. Thurnbeck figures the exchanger, which cost about \$3,000 to install, complete with fans, replaces an 86,000 btu furnace and the fuel to operate it.

Here, according to Tom Rauenhorst, is how the savings pencils out:

"Each tom turkey, weighing 40 to 50 lbs., requires 10 cu. ft. of air per minute to keep the air free from dust and excessive moisture. With 300 birds in the building, the exchange system must bring in 3,000 cu. ft. of air per minute."

Tom further explains that 3,750 btu's/hr. are needed to heat 3,000 cu. ft. of air one degree. Outside air coming in at 10°F is heated 23°. With

3,000 cu. ft. of air movement, Thurnbeck salvages about 86,250 btu's of "free" heat provided by the turkey toms. (3,750 btu's times 23°). Incoming air is heated, yet remains fresh — with none of the oxygen burned out of it and no fumes or other impurities added, Tom points out.

Cost of a complete system, including fans, motors, ducts and installation, ranges from about \$750 for a system designed for moving 500 cu. ft. of air/min. to \$4,000 for one moving 5,000 cu. ft. of air.

"Heat exchangers have been around for a long time but haven't been successfully adapted to farm buildings," says George Rauenhorst. "They've been too expensive or they didn't work because of ice buildup or other problems."

Three key exclusive features of the Beaver system set it apart from others, according to the Rauenhorts:

1. It's designed specifically for farm buildings and readily adapts to any livestock or poultry barn that's well insulated and has tight windows and doors. "We can space ducts at various intervals in buildings up to 160 ft. wide, or wider, with uniform ventilation throughout — no dead air spots. Size of the heat exchanger ducts can range from 4 to 8 ft. wide, from 6 in. to 2 ft. high, and up to 80 ft. long. In wide buildings, ducts can come in from both sides towards the center.

2. Exclusive tubulator bars built inside the exchanger ducts keep the air stirred and turbulated as it moves through.

3. A special metal sheet, made of high grade industrial aluminum, is used to separate the "inlet" and "outlet" ducts. The sheet absorbs heat from warm foul air and transfers it to cold air coming in through the adjacent duct.

"It's important that the inlet and outlet ducts be matched and balanced," explains Tom. "You can't take heat off the aluminum sheet any faster than it's put on, and vice versa. We get some ice build up inside the warm air duct in below zero weather but not enough to cause any problems."

Looking ahead, the Rauenhorts hope to develop heat exchanger ducts which can be adjusted, as needed, for size. For example, in cold weather, they could be collapsed and restricted to put air under more pressure and thus increase the rate of heat exchange.

For more details, contact: FARM SHOW Followup, Beaver Heat Exchanger, c/o George or Tom Rauenhorst, Beaver Heat Exchanger, Box 52, Olivia, Minn. 56277 (ph. 612 523-1312 or 523-1315).