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## "I WOULDN'T RUN A GRAIN DRYING BIN WITHOUT IT"

By Bill Gergen

# Urethane Foam: Latest New Insulator For Farm Buildings

"I wouldn't run a drying bin without it," notes Nolan Harms, Colfax, Ill., who 10 years ago insulated the bottom 4 to 5 ft. of his 7,000 bu. grain drying bin with spray-on urethane foam insulation.

Harms figures he cut his fuel costs 33%, saving over \$1,000 each year. The 2-in. thick layer of insulation, with an R-value of 14.3, cost \$700.

Meanwhile, Ken Heberer and Tom Dutkanych, Belleville, Ill., applied the same type of urethane foam insulation to the roof, side and end walls of their rebuilt 56 x 128 ft. modified open front hog building. "Urethane foam is an incredible insulator. It resists external temperature variations and stabilizes the internal environment of the building," says Heberer.

The above cases are just two examples of the versatility with which urethane foam can be used on farms, say contractors, who have applied the foam to industrial buildings for over 10 years.

Typically, the contractors apply about 2 in. of urethane foam, which adheres as well to metal as to concrete. On top of the urethane, another coat of waterproof coating is applied to seal the foam and protect it from the sun's rays. Once protected, the urethane should last for the life of the bin or building, say contractors.

For Harms, there's no question about the payback. "Without keeping records, we can tell we're drying grain 33% cheaper and faster."

"The problem is that in a drying bin, metal transfers heat very fast, especially when the heat is under pressure. A drying fan creates a tremendous amount of pressure, so you lose a lot of heat in the bottom three or four feet of the bin. The foam insulation saves the heat, making the drying bin more efficient."

So far, the foam has been maintenance free, says Harms. However, moisture from the roof has been dripping on the coating, wearing holes in it so that some foam is beginning to show through. "Where holes develop, the foam will deteriorate within a year or two," says Harms, "so we'll need to repaint the insulation."

Besides insulating the bottom of his drying bin, Harms also foam insulated two bin roofs, intending to reduce condensation. "However, I'm not sure it did any good," he says.

He also applied urethane foam to the 3-ft.

high brick foundation of his house. It worked. "In the winter, it used to be so cold in the basement that even with the furnace going, I almost needed a jacket. Now I can take a shower downstairs no matter how cold it is outside."

Triple T Roofing, Colfax, Ill., applied the foam insulation. "Our business has increased substantially over the last few years," says Jerry Deavers, area manager. "There are big energy savings at the point where the metal walls of the bin meet the concrete. The tar commonly used to seal this seam dries and cracks every year, letting a lot of heat escape. Insulating the lower part of the outside walls, which is in contact with heated air beneath the drying floor, also provides great savings."

According to Deavers, bin insulation costs about \$3 per square foot, or about \$864 for a 30-ft. dia. bin.

Spraying over existing aluminum gave Heberer and Dutkanych a new roof and insulation with considerably less labor and cost than they'd have experienced with replacement. A protective coating covers and seals the foam to provide water and weatherproofing.

"The building had been abandoned by the Heberer family several years ago, and leased to another farmer. When Heberer and Dutkanych took possession of it, it was a mess. The roof had some 6 ft. holes and wouldn't hold weight. The outside walls were covered with holes. What little interior insulation was left was hanging from the ceiling.

"The building was past the point of no return," says Heberer. "It was demolish and start over, or spray on foam. When we considered the cost of labor plus the cost of re-insulation, urethane foam came out the best." Cost of the foam and a double layer of coating was \$18,000.

They gutted the building, pouring new concrete walls for pen dividers, replacing slats and inserting a 12 in. baffled ridge vent the length of the building. New curtains went in on both sides - using insulated fabric.

Exterior surfaces were power-washed and spray-painted to encourage foam bonding. Holes over 1 in. in size were mended with screwed on metal sheeting. To patch smaller gaps, they used duct tape.

"The insulation value of urethane foam was a major selling point for us," says

Heberer. "Even on the coldest winter days, with three pens of hogs in the building, the temperature inside stays above the freezing point. Because the process is seamless, there's no draft. We've also eliminated leakage and moisture problems associated with laps and joints."

Urethane foam would be an excellent coating for a shop, he adds.

Don Jedece, extension ag engineer at the University of Ill., says roof renovation currently is a hot topic. "Swine buildings rust out extremely fast, mainly on the roof. Rusting begins near ventilation outlets where dust settles on the surface."

Some of these roof problems can be traced to the late 1960s and early 1970s, when many building contractors shifted from straight galvanized steel roofing to painted steel roofing. "Some contractors used a lighter paint than others. As a result, some steel roofs now are rusting through much quicker than they should."

Western Waterproofing Co., St. Louis, Mo., custom applied the foam and coating for Heberer and Dutkanych. Don Trost, spokesman, estimates average cost for roof renovation with urethane-foam coating at \$2.25 per square foot for the total package of materials and labor.

Urethane foam insulation has been used on poultry houses for years, says Trost. "As more hog producers get back into the business, and as new construction costs go higher, there's more interest in this."

One advantage of urethane foam is that it's quick to apply. "We did the job in two days," notes Trost. "The Heberers' building contained feeder pigs and brood sows ready to farrow. While we applied the foam, they went about their operation as normal."

For more information, contact: FARM SHOW Followup, Triple T Roofing, Box 219, Colfax, Ill., 61728 (ph 309 723-6483) or Western Waterproofing, 1947 Gravois, St. Louis, Mo. 63104 (ph 314 773-8813).

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For more information, contact: FARM SHOW Followup, McKee Unlimited, Inc., Rt. 2, Box 40, Emerson, Iowa 51533 (ph 712 824-7817).

Table top model illustrates that when bin is empty (top), level indicator turns dark green or almost black. When bin fills up (bottom), indicator turns bright orange.

