

## Corn Crib Reborn As Farm Shop

Howard Reischauer was going to tear down an old corn crib to make room for a new farm shop. "I planned to build a pole shed for storage and shop. However, after sizing what I would need, I decided to make something useful of the crib and save some money."

The "something useful" was a 30 by 32-ft. storage shed. One crib was originally slatted for ear corn, while the other had been converted for dried grain storage. Reischauer tore away the crib slats and side and overhead bins, completely gutting the inside of the building. He left the framing studs for the side cribs. The roof was still good, so it was left as is. He covered the exterior with steel siding and installed overhead garage doors at either end of the concrete alleyways.

The two crib floors were concrete. Both were raised about a foot above the alley floor. The ear corn side had a dragway built in, while the shelled corn side was flat.

"I poured concrete in the ends of the dragway, filled it with crushed rock and poured concrete on the top for a flat surface," says Reischauer. "I left most of the uprights in place on the cribs, but cut out two, 6-ft. wide openings in each for easy access and air movement."

Some studs had to be replaced, but Reischauer had salvaged useable wood when gutting the interior. "I spent a lot of time pulling nails and ripping 2 by 4's to replace rotted studs," he recalls.

Reischauer says the entire project cost him about \$3,000, primarily for steel siding and doors. Some salvaged 2 by 12's were put to use as headers for the entry doors, while 2 by 4's were doubled up on the exterior for

mounting siding.

"There was a lot of rotted wood that had to be removed and burned," says Reischauer. "However, most of what I did to the building was with salvaged wood. I have a workbench and storage shelves on one side and storage on the other."

Reischauer also intended to take down a couple of old grain bins on the site. He decided to also repurpose one of them. He removed the drying floors and cut openings in the side for an 8 by 10-ft. garage door.

"To close the gap above the door frame, I took a 2 by 12 and used a jigsaw to cut an arc along one side to fit the curve of the bin," says Reischauer. "To make the upright jams for the door, I ripped 2 by 6's at an angle. With the beveled angles set against the sides of the bin, the remainder of the jams were square with the door."

Reischauer placed 1-in. weatherstripping between the jams and the bin walls. As the jams were bolted to the corrugated metal, the insulation filled the gaps for a tight seal.

Garage door tracks are supported with 1/2-in. metal conduit. Reischauer flattened the ends on them and mounted one from the end of each track to the ceiling of the bin for vertical support. A second set of conduits attaches the track ends to the sidewalls for horizontal support.

"The bin works great for storage of lawn mowers and other equipment and materials," says Reischauer.

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Howard Reischauer converted an old corn crib into a 30 by 32-ft. farm shop. He covered the exterior with steel siding and installed overhead garage doors at both ends.



There's a work bench and storage shelves on one side of building and storage on the other (left). Reischauer also cut an opening into the side of an old grain bin and installed an 8 by 10-ft. garage door.

## Fuel Test Keeps Engines Clean

If your diesel fuel sits very long in the tank, test it before you use it, suggests John Nightingale, Dieselcraft Fluid Engineering. Over time, diesel fuel without stabilizers can oxidize.

"The first thing you notice is the engine smoking as the oxidized fuel has lost its cetane rating and starts to come apart," says Nightingale. "Looking at the fuel, you'll see it is darkening. The older and darker the fuel, the less efficient it is in the engine."

Eventually the oxidation breaks down the fuel. If held in storage, some of the components will drop to the bottom of the fuel tank and form diesel sludge, which smells bad and can cause engines to smoke and eventually plug filters.

"Diesel fuel begins to deteriorate as soon as it is produced," says Nightingale. "Within 30 days of refining, all diesel fuel, regardless of brand, goes through a natural process called repolymerization and oxidation. Once it starts to oxidize, it is like milk going sour. It oxidizes throughout."

Knowing how much fuel has oxidized is key. Dieselcraft offers an oxidation evaluation test kit for use before using stored fuel, whether in the storage tank or the engine. The test, which works with all commercial diesel fuel types, consists of filling a vial half full of fuel and adding 15 drops of an oxidation catalyst. In the presence of a high level of oxidation, the catalyst turns black.

"The more oxidized the fuel, the faster the results show," says Nightingale. "Severely oxidized fuel can produce a black band in 5 min. or less. Less oxidized fuel will produce a brown band. To be sure, we suggest letting the sample rest for up to 20 min."

Depending on the level of oxidation,

Nightingale may suggest different additives. If bad enough, filtering may be recommended.

If water has accumulated in the tank, bacteria and fungi may add to the sludge. This can lead to serious problems.

"When you refill the tank, you stir up all the sludge on the bottom, and when it hits the fuel filters, they plug," explains Nightingale. "Of particular concern are standby generators that are mission critical. Even if tested for 20 min. every week, the engine may run for 2 hrs. when needed and then quit if the fuel has gone bad."

Nightingale emphasizes the same thing can happen with any stationary engine, like an irrigation engine, or even a tractor or truck engine that sits over winter.

"I get calls from people saying they have algae in the tank," says Nightingale. "It is microbes, not algae. If someone sold you a biocide, it has done nothing to fix the problem."

Nightingale recommends testing older fuel for microbes and mold. He offers a test that identifies the presence of both on a single test. If a problem is present, he recommends a tank cleaner to treat the remaining fuel.

The diesel fuel test for oxidation is priced at \$9.95 for a single test or \$49.95 for 20 tests. The bacteria and mold test is priced at \$15.95 for a single test or \$290.00 for 20 kits plus a free 8-oz. sample bottle of tank cleaner for treating up to 275 gal. of diesel fuel.

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## He Specializes In Boosting Ford Truck Performance

"We can fine-tune a gas or diesel engine to produce more power, drive better, shift better and use less fuel doing it," says Ford performance specialist Doug Lewis. "I've learned over the years that even though Ford builds great cars and trucks, there are many ways to make them perform better and last longer."

Lewis is a certified Ford Master Tech who worked in Ford dealerships for 18 years before starting Ford Performance Specialists in 1998. Lewis's Georgia operation, which isn't affiliated with Ford Motor Company, offers many conventional Ford technical services as well as custom services for all Ford vehicles, including diesel trucks. His reputation has spread across the country through internet sales, forum postings, and technical support provided over the phone.

Lewis says he has 300 different vendors who supply parts for different makes and models.

"I started out as a gas engine guy and focused on the systems and how they work, including engine mechanicals, fuel system controls, spark timing, emissions, brake and transmission systems," Lewis says. "The diesel technicians back in the day were old guys with long fingernails and long white beards. These guys had been putting injector pumps on diesel engines for decades. Then along came electronic fuel systems and it was natural for me to learn about Powerstroke engines and what makes them tick. They're a lot different than gas engines, but many of the same principles apply. Our customers today want to make a great truck better with more power and better fuel economy," Lewis adds.

Lewis's performance modifications involve getting more air into the engine, using it efficiently, and then getting it out. "Ford and most others calibrate their vehicles to run clean, not necessarily good. By installing the right air intake system, the

right exhaust and performance tuning the vehicle, we can make the engine run better, have more power and get better mileage," Lewis says.

Tuning an engine is one aspect of performance, but getting that power to the ground is quite a different challenge. His company modifies suspension, braking and cooling systems to perform better, and they never use a cookie-cutter approach. "If a customer wants fuel economy from their diesel, I don't use bigger injectors and a 5-in. exhaust system. I've actually had that request and had to explain why those two things are at odds with each other," says Lewis.

Because of his extensive experience, Lewis is proficient in educating others on performance matters. He authored the Tech Tips section at the Power Stroke Registry for 10 years and is now an active contributor to The DieselStop Forum. He and his wife Liz have lent their expertise to the TV reality show Auction Kings. Lewis also puts his innovative ideas into practice on his own vehicles, having modified and custom-tuned a 2007 GT 500 to 685 hp while still achieving 24 mpg.

"I've been driving and working on Fords for more than 35 years and still find the work challenging and exciting," Lewis says. His headquarters is in Mableton, Ga., near Atlanta, but he'll consult with customers over the phone or the internet and sell products that customers can install themselves. The cost for performance improvements can run a few hundred dollars up to several thousand dollars and depends entirely on what a customer wants. "I can add 2 to 3 mpg, 4 to 5 mpg, or even possibly double their economy if a customer wants to pay for it," Lewis says.

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