BY SHARON THATCHER

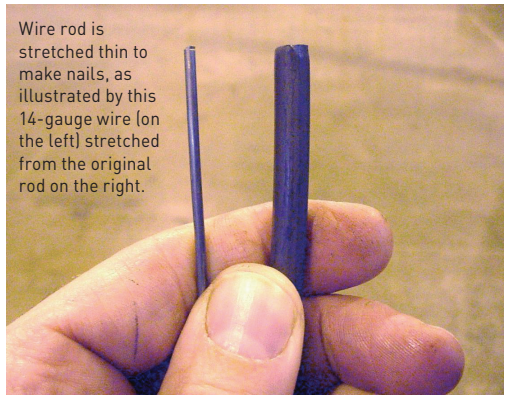
The Last Survivor

Largest Maker of Specialty Nails in the U.S. Holds Fast to the Future

NAILS ARE THE BLUE COLLAR WORKERS of the construction industry, working hard but remaining fairly invisible. So what's to know? A visit to Maze Nails, in Peru, Illinois, the largest surviving specialty nail manufacturer in the U.S., answers the question.

To begin with, the process of making nails does not, as one might think, include pouring hot steel into tiny molds. Instead, they're made from strands of wire, stretched to a desired thickness.

Roelif Loveland, a 5th generation Maze descendent and now the company president, explained: "we start the process with wire, about the size of a pencil, and have to make it skinny. We stretch that wire (in a process called drawing) by pulling it through a die that is a slightly



Wire rod is stretched thin to make nails, as illustrated by this 14-gauge wire (on the left) stretched from the original rod on the right.

smaller diameter than the wire. A dry lubricant is used to keep the wire from breaking. If you want it even skinnier, we send it on through another even smaller die."

Purchased from Keystone Steel and Wire, Peoria, Illinois, the wire (called 'rod') is delivered in large coils to an expansive outdoor yard where it is held for future use. Once ready for forming, the drawn wire is sent through machines that can crank out from 700 to 1,000 nails a minute.

LONELY AT THE TOP

Being able to claim that Maze Nails is the only 100 percent USA-made nail company to survive is not something Loveland relishes with any great delight. In fact, it's lonely at the top with most of their domestic competitors gone. Deniston Nail, Dickson Nail, Fox Valley Steel & Wire, Northwestern Steel & Wire and the longtime nail making mill at Keystone Steel & Wire have all been replaced by foreign competition. "It's really sad to see all these competitors, people we've known for years, close, but the fact of the matter is, the last man standing wins, and we're virtually the last man standing. We bought a lot of machinery from these guys as they went out of business," said Loveland.

Their biggest competitor now is China. "It's estimated that ninety percent of the nails used nationally come from China," Loveland said.

The U.S. goes through phases of placing tariffs on countries with cheap imports, but it never lasts. "The big importers in the U.S. will just switch countries: 'well, we'll just buy from some other (untariffed) country for awhile.' They're always jumping around," he said.

Post-frame builders have proved loyal customers. "We've got the best hardened and the best galvanized nails," Loveland said, "the two areas that are huge to post-frame builders.

"There are some post framers who will dabble in import nails," he continued, "but when you're up on top of a building and its windy and you have nails that regularly bends and you're so damned mad—then they come back to Maze."

The loyalty may also be due in part to the company's willingness to eschew convention by dealing direct with the top post-frame building companies in the country, companies like Wick Buildings, Morton Buildings, Lester Buildings, Cleary Buildings and others. Smaller post framers are better suited to purchase through retail channels: Menards, True Value, Do-it Best, Lowe's, etc.

"Post frame is a very important segment of our business … this seems like the center of the universe for post frame (the Midwest)," Loveland said.

MAZE 170th ANNIVERSARY 1848-2018

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Roelif Loveland, president of Maze Nails and a 5th generation member of the Maze family, helps continue the family tradition.

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How this direct contact developed is simple to understand. Maze Nails was already making colored nails for asbestos siding, so when colored metal became popular, post-frame builders went out to search for colored nails for metal. "They went to the lumberyards and were told, 'no way we're handling all these colors of nails for you guys,' so pretty soon, post framers were coming to Maze and saying: we know you have the nails and you paint nails for asbestos siding, why don't you paint rubber washer nails for us?"

This opportunity resulted in more SKU inventory at Maze.

"If someone will buy them, we will make them," Loveland said. "We will make small quantities if we have to."

Perhaps part of why Maze Nails has been able to survive can be found in its willingness to evolve with the times, and how well it has managed its incoming and outgoing resources. Very little goes to waste, with 90 percent of everything getting recycled.

GREEN ASPECTS OF NAILS

The green stream starts all the way back at the beginning when the rust is pickled off the coils of steel rod using sulfuric acid. The combination of the sulfuric acid and the iron in the rod creates a salt compound called ferrous sulfate—a compound which eventually weakens the acid bath. With specialized equipment, the ferrous sulfate is chilled, spun and saved as crystals. Water and a small amount of new acid are then added to the acid bath to replenish it and send it back to work.

What happens to the ferrous sulfate crystals? They are sold to various channels and eventually "repurposed" for use in snack foods, iron supplements and to neutralize hazardous materials in landfills.

FERROUS SULFATE

Loveland said. "In the old days, when our acid got tired, we'd have a tanker truck come in and pump it all out and then we'd have to buy brand new acid. We buy far less acid now."

Similar stories of green practices continue all through the chain of nail creation at Maze Nails, including the process of hot-dipped galvanizing.

"The nails were solid zinc up until World War I and then the price of the base metals began to skyrocket," Loveland said. "We couldn't afford to make nails out of pure zinc. They needed the zinc for the war effort. So we had to figure out a way to make a nail out of steel, then dip it into molten zinc to give it a dependable galvanized coating."

It was 1916 when the process of hot-dipped galvanizing nails was developed by Maze to overcome the shortage of zinc.

In addition to hot-dip galvanized, some nails, such as metal lath nails and pole barn nails, need hardening. This is done at an accredited outside heat-treater. The nails are heated up until they are red hot, then dropped into an oil bath. The process, Loveland explained, "makes the nail extremely durable, so much so that you could drive a hardened nail into cement block or even into uncured concrete."

The same process helps post-frame builders drive Maze pole-barn nails into old, dried lumber and pressure-treated lumber.

In the dipping process for hot-dip galvanized nails, however, a lot of by-products can be created. So what to do with that waste, which is 99 percent zinc? Maze eventually had the answer. They shipped the sludge, or "dross," back to the smelter. "We get a very large portion of our money back. All waste zinc is recycled and nothing gets thrown away," Loveland explained.

NAIL WHISKERS

Even nail whiskers (the shavings created during the forming of the nail point) have found another use. Their value is too nominal to send back to the steel mill for remelting, so they are sold for other purposes.

You might think whiskers don't weigh much, but a standard-sized 55 gallon barrel holds about 1,900 pounds of whiskers and the company can generate up to two barrels a day. "Quite a few different companies want this type of really dense product," Loveland said, noting that he's known them to be used for "lots of weird applications" such as weighing down large speakers at rock concerts; as hull ballast in sailboats; and one customer, who creates firework displays for a famous nightly display, weighs down his floating fireworks apparatus with nail whiskers to keep the fireworks sticking straight up and not towards the crowd.

"We recycle basically everything. It's a wonderful closed loop. We have almost no waste stream at all," Loveland continued.

That green aspect helps to sell nails. "As far as I know, we're the only nail maker touting the fact that our products are certified as made from recycled content. If you look at an imported nail, that's mainly from freshly mined ore. The earth and land have been disrupted to get the steel they need. Ours is all

Kegs of Maze nails are rolled off a Rock Island freight train.

MAZE HISTORY

Happy 170th birthday to Maze Nails!

Ten years after his arrival from Ireland Samuel Maze started Maze Lumber on the banks of the Illinois River, where it is still located today.

In the late 1880s, cedar shingle roofs were common, but the nails holding them down were inferior. "People were coming in and complaining that the cedar shingles were blowing off because the heads of the nails were rusting off," Roelif Loveland said.

Samuel's son, Walter (Roelif's great-grandfather) looked for a solution. "He bought a little nail machine and started making nails that didn't rust."

At the time, Maze was still more interested in selling shingles and lumber than nails. "So his deal was, if you come down to Maze Lumber and buy shingles from us, we'll give you the nails for free."

Before long, other lumberyards came calling. "They were coming to him and saying, 'we don't want your shingles, but sell us some of those nails,'" said Loveland. "So the little machine that ran for an hour a week, suddenly was up to a couple hours a day, and eventually Mr. Maze was out buying more nail machines."

Due to flooding concerns down along the Illinois River, a new facility exclusively for Maze Nails was built on a bluff west of Maze Lumber in 1922. Today, the 250,000 square-foot factory employs about 55 people.

PACKAGING

When the company first started, all nails were shipped in 100 pound wooden kegs. "That's what they originally used for all the nails that were wheeled in and off the river boats that came up the Illinois river," Loveland explained.

In 1906, Maze started using 50 pound boxes instead of kegs. "Our competitors stayed with the kegs," said Loveland. "They were running ads: 'why lift a 50 pound box when you can easy roll a barrel right down the hardware store aisle?'"

But the boxes proved more practical and eventually the kegs disappeared entirely.

Peter G. Loveland is shown with a giant Maze nail that was featured at early trade shows.

from recycled, remelted steel from USA plants," Loveland said, adding: "Old motorcycles, lawnmowers, cars, washing machines—all that can be recycled, remelted ... and that's how we get our rod. The quality of the steel is outstanding, since the process to create dependable steel from assorted scrap is truly an advanced science."

A NAIL FOR EVERY PURPOSE

As a builder, you may know there are many different kinds of nails, but did you know that Maze has some 3,400 different nails? Nails for shakes, for metal, for wood, different colors, different nail points, different shank shapes and head shapes, and on and on. Maze itself has invented many types of nails, including both ring shank and spiral shank nails.

With up to 7 million pounds of inventory stockpiled, getting the right nail for the right job is seldom an issue. Loveland noted: "As an "accessory" item, we often simply follow the rest of the industry. When a manufacturer develops a new building product, we follow with a nail that can handle it with confidence." **RB**