



Heavy Metal Recycles Image

Under new ownership, Minneapolis-based **Kirschbaum & Krupp Metal Recycling LLC** trades out inefficiencies and treads lightly on the environment.

By Andrea Lahouze

“It’s a messy world,”

says Dusty Gibbs while walking past piles of copper wiring and kitchen sinks in the warehouse of Kirschbaum & Krupp Metal Recycling LLC. “But this is about as clean and organized as it gets.”

Gibbs would know. As the new co-owner of K&K—and a longtime co-owner of Residual Materials, another scrap metal recycling operation in Grand Forks, N.D.—he has been in the metal recycling business for more than 30 years. He purchased K&K in 2006 with Mitch, his brother, and Henry Wang, a business partner in China. In an effort to both improve K&K and drive industry standards into the 21st century, they have spent the better part of two years making the company as lean—and green—as possible.

It seems to be working. One year after purchasing the business, the owners saw revenues

balloon from \$48.4 million in 2006 to \$83.6 million in 2007. Current sales are as much as 5 million pounds of metal a month, and the company saves about 55 million pounds of nonferrous metals from landfills every year.

Diamond in the Rough

Founded in 1959, K&K was run by one of the founders’ sons, Barry Krupp, who saw sales exceed 2 million pounds a month by the time he retired. But over the years, the growing company’s processes and layout remained the same. “[The previous owner] started out small, and I have to give him a lot of credit. He built the business up to be something huge,” Gibbs says. “But the organization of the facility wasn’t conducive to the amount of material he was handling.”

By the time Gibbs entered the scene, K&K seemed bursting at the seams with metal—and

Opposite:
Co-owner Dusty
Gibbs stands
on a pile of
compacted
metal at K&K in
Minneapolis.

Photography by
Craig Bares

customers who would stand in line for hours to sell their metal scraps. On Saturday mornings, parked cars would extend around the entire block, Gibbs says.

In addition to reorganized processes, the building itself—an exposed brick and mortar from the 1880s, when it was home to Diamond Iron Works—was in need of a major renovation and expansion to accommodate the influx of metal scrap. Sorted piles of metal, some nearly as tall as the building itself, filled the old parking lot to the brim and sat exposed to the elements. Crumbling concrete floors paired with dim lighting and a single employee restroom added to the challenge.

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Gibbs, however, saw an opportunity. Overseas demand for nonferrous scrap metals such as copper and aluminum rose in recent years, particularly among large exporters of finished goods such as China, which first surpassed a record \$1 billion in scrap metal imports from the United States in 2003. In addition, the domestic marketplace is growing as more manufacturers seek recycled materials over new ones in efforts to conserve energy and reduce greenhouse gas emissions. In 2008, 60 percent of U.S.-produced metals and alloys originated from nonferrous scrap, and a third of its aluminum supply was derived from recycled materials.

Modern Metal

Undaunted by the scope of the project, the owners quickly worked through a massive list of process and technological improvements. The first step was to change the way metal arrived. Sellers used to wait in line outside the company, only to wait in another line to weigh their metal scrap at one of two weigh stations inside. They then waited in a third line to receive payment. The average wait time was about 1.5 hours. Prior to 2006, K&K relied almost completely

on paper records, reserving one computer in the office for use as a cash register.

K&K now invites customers to walk directly into its new receiving area, where one of eight computerized, interconnected scales weighs and prices each transaction. Checks are automatically issued from the teller station, and they can be cashed instantly if desired. Gibbs says the average wait time is now seven minutes, with a record of 360 transactions in four hours.

The weigh stations also serve as part of the company's security system. With the ongoing threat of buying stolen scrap, K&K's improvements have focused greatly on security. "One of the big issues that the scrap industry has is that

[some] people are thieves," says Linda Hull, CFO of K&K. "If Xcel Energy has a roll of copper that they will be using to conduct electricity that they haven't installed yet, but it is left on the construction site, a scrap thief will take it—just as a car thief will steal a car that has had the keys left in the ignition."

From September 2007 to March 2009, the Minneapolis area saw 372 crimes involving metal theft. To help curb the problem, K&K's system takes pictures of cars and license plates on the K&K lot. It photographs each piece of metal as it is being weighed, which the system then ties to each seller's ID. If the seller chooses to endorse the check they receive on site, a camera photographs them receiving their cash. As people sell their items, off-duty police officers stand by to discourage potential thieves.

The system also helps K&K work with police in solving existing metal theft cases. If police have a person's name or picture, the company can quickly scan digital records for photographs of the person, as well as the metals they have brought to K&K. "[Metal thieves] can't say, 'It wasn't me,' because we have all these pictures that show the whole thing from when they walked in the door to when they left," Hull says.

After metal comes in, it is sorted, baled, labeled with a bar code and scanned into a computerized inventory, which creates an up-to-the-minute view of every type and quantity of metal in the warehouse. Scrap inventory changes rapidly—for example, K&K buys and sells as much as 250,000

pounds of metal every day, exporting roughly 20 percent to China—and computerized organization allows for effective management of space, resulting in a more orderly appearance.

Channeling Lean 2.0

K&K's goal to maximize efficiency and eliminate waste also included the renovation and expansion of the company's building. As lean and green advancements become increasingly interconnected, K&K has made a point to incorporate environmental improvements from the outset.

For Gibbs, deciding whether to implement a green feature is much like considering any other building improvement. "It's all about efficiencies," he says. "I believe you could go way too far so the financial input would never be regained. You have to know when to stop—just like life in general. You need to know what gets goofy or stupid. You don't want to be stupid, but you don't want to do half the job either."

The first change was lighting. The company could not even secure competitive workers' compensation insurance due to its poor lighting conditions, Hull says. The owners switched to high-efficiency bulbs, which brightened the

building's interior while using less energy. To allow as much natural light into the building as possible, the company also opened up the existing skylights in the roof and added glass blocks in many of the walls to create a natural, bright environment without sacrificing insulation.

The company was equally judicious about the choice of materials used in K&K's new 17,000-square-foot addition, using recyclable concrete and steel. To ensure that there would be no contamination below the addition, 8 feet of dirt—which is more than 400 semi-truck loads—was removed and replaced with sand before the addition was constructed.

Within the addition is a "turnings" room designed to collect large deliveries of scrap metal shavings. Because turnings are often oily, the room features a floor engineered to slope away from the center toward two opposing walls. Drains on either side collect residue from the shavings into underground tanks, which are periodically emptied by another company. K&K installed a slanted rubber mat underneath its addition to make sure that no oils or other fluids seep into the ground through inevitable settling cracks in the concrete floor. The mat filters

Below: K&K's new computerized teller stations automatically issue checks, which customers can cash instantly.



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drainage fluids into additional underground tanks. “Just to make sure, we have test holes that we can put monitors down underneath, so that we can make sure that nothing is leaking down past our rubber,” Gibbs says. “That’s a pretty big thing.”

Perhaps the company’s most attractive green feature is a storm water drainage pond, which is centered in the company’s public parking lot. Rainwater is filtered slowly through 12 layers of specially engineered soil, which acts as a purifying filter before the water is released into the storm sewer. Storm water from the building’s rooftop is directed through pipes into the pond, which is also filled by run-off from the sloped company parking lot. The pond, which is filled with aquatic plants, provides a nice aesthetic element while serving an important environmental purpose.

“We went above and beyond anything we thought the city could ever require, because we wanted it to be something that we didn’t have to go back and address,” Hull says. “It’s amazing, especially when you consider how the yard

looked three years ago. The back area that’s now the pond and the parking lot, you couldn’t even drive a truck in there [before].”

For Gibbs, thinking green from the start has banished worry over any future state or federal environmental regulations. “Rather than fighting with everybody, rather than trying to do a little bit at a time, we were fortunate so that we could just go in and take care of it all—done once, done right,” Gibbs says. “I don’t know how much more [environmental updating] I’ll do in my lifetime, but [now] I don’t even have to worry about it, which is a very nice thing.”

Spreading the Wealth

Gibbs hopes the new, improved K&K will inspire more metal recyclers to pursue green projects. “The scrap yards in the old days used to budget about six figures per year for attorney’s fees to litigate with the Pollution Control Agencies,” Gibbs says. “That expense wouldn’t accomplish one thing. When we started [improving our building], we wanted to put that money to use.”

Below: K&K process improvements cut average customer wait times from about 1.5 hours to 7 minutes.



The company is teaming up with local middle schools to promote an understanding of the importance of recycling scrap metal. In April 2009, more than 120 Edina middle school students toured K&K’s facility. K&K’s “Target Recycling” educational program teaches students how to determine if metal is ferrous or nonferrous using magnets. It also serves as a school fundraiser. Students bring in metals from home such as aluminum cans or burned-out strands of holiday lights that have copper wiring inside. Metals are collected in a lockable steel container, which K&K picks up before writing a check to the school.

Hull considers the program a win-win for everyone involved and hopes to expand it to more local schools this fall. “[In these] economic times, it’s really hard for parents to buy the pizzas and the cookies and all the stuff [typical of school fundraisers],” she says. “They only get a little percentage that goes back to the school, too. Here, there’s no cost to the parent, and all of the money goes directly to the school. Plus, they get rid of the obsolete scrap that was in their garage without putting it in a landfill.”

In addition, K&K will work with the Recycling Association of Minnesota this winter to help people with disabilities with a fundraiser, which includes recycling broken Christmas tree lights that contain 20 percent insulated copper wire.

K&K has made great strides, but in the true spirit of continuous improvement, Gibbs insists there’s still more to do.

“It’s my human nature to make it better,” he says. “I don’t care how good it is, make it better—whether it’s your systems, whether it’s your marketing, whether it’s your people. Make it better.”

Andrea Lahouze is a Hopkins-based freelance writer.



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