A LEAN TRANSFORMATION OF
MATERIAL HANDLING & STORAGE

“Good Enough Won’t Do – It Must Be Right”
Founded in 1910, Danuser Machine Co. has humble roots as a proud family-owned business. Beginning as a blacksmith and repair shop, and evolving to its present-day 120-employee strong workforce, Danuser Machine Co. has sustained impressive growth in a competitive market.

They have maintained long-term partnerships with several OEM’s in the agriculture sector along with developing their own line of products. Even after 110 years, Danuser continues improving year after year, and shows no signs of slowing down.
Any manufacturer will tell you that “with growth, comes growing pains.” No matter how good your company is, growth comes with 3 ongoing decisions that could each have full books written about them:

When do we hire the next employee?  
When do we invest in more capital equipment?  
When do we invest in more floor space?

Over the years, Danuser has been fantastic at hiring & retaining quality employees when the time is right, with multiple people recently retiring after full 50-year tenures. Not very many companies can say that! Impressive, right?

Likewise, most recently Danuser put their confidence in the market and invested heavily in capital. With full trust in its workforce, they purchased a brand new 6kW Trumpf fiber laser from Tom McHugh at Icon Machine Tool; Danuser offers high quality products, and they wanted the high-quality equipment to match. It certainly wasn’t the cheapest option out there, but Danuser loved its speed, quality, and reliability, and wanted to set their employees and customers up for success.

However, investing in capital equipment often requires more floor space. After all, companies typically don’t re-invest so they can produce less. Danuser knew they would be needing more floor space, well beyond just the footprint of the machine. In order to achieve the ROI laid out in the CapEx requisition, the beam would need to be cutting... and it can’t cut what it doesn’t have! Do you see where we’re going here?
After its most recent building addition in 2018, the thought of knocking down a wall and expanding the building was a gut-wrenching thought. After all, they had just done that a few years ago! Was there any way they could hold more sheet metal inventory in less space?

Thankfully, Danuser veteran Noland Bartley was poking around on the internet and found a company that he thought could maybe help him with this. Within minutes of sending in an online request, Noland had a Lean Manufacturing project manager dedicated to his opportunity. At the time he didn’t realize it, but this was the beginning of a great relationship that will continue growing for years to come.
THE CHALLENGES DANUSER FACES

Challenge #1: How will we make enough room?

First and foremost, the NEED was to create space within the existing building. Noland walked out to his shop floor, and took pictures he was almost afraid to take – material stacked and sprawled throughout. But after emailing the pictures to Lean, Noland became more excited as he realized there was a golden opportunity in front of him. With material currently stacked 6-10 bundles high across the shop floor, and plenty of vertical space while staying under the crane beams, Lean could help Danuser by either: 1) Doubling the capacity within the same footprint, or 2) Reducing the footprint by one-half with the same volume of material.

With both options in mind, Noland went back to research inventory levels and see how many SKU’s he would be needing on-hand at any given time. Finally, his task was looking achievable. Could he avoid the dreaded build-out?

Opportunity #1: Creating space.

After Noland and Lean together reviewed facility constraints, Danuser’s specified LEAN sheet metal storage systems housed 17 material bundles where Danuser used to have 6-to-10. Simple math = reducing current footprint to ½.

LEAN designed Danuser’s systems within the constraints of the building, so the racks ended up having a max height of 13’, and likewise, LEAN custom-spaced the shelving so each cartridge could support 3-1/8” of raw material. Even with the ceiling constraints and the taller sheet bundles, Danuser could now reassess the floor space for equipment allocation.

Before Lean, Noland was wondering where he could buy/build more space, but now, he was able to consider what else he could put in his existing space!
THE CHALLENGES DANUSER FACES

Challenge #2: Will operators have access to the material?

Before the new fiber laser arrived, Noland had a pretty good grasp on material accessibility on the shop floor. For example, all 7ga within that yellow-taped footprint, and all 11ga in a separate footprint. But with more cutting capacity arriving shortly, they’d soon be spending more time unburying the material they needed to run next. Inevitably, 11ga would be due next, yet it would be buried under 5 bundles of 3/16ths. Does that sound familiar? It’s extremely common in many shops. Noland knew he needed to have access to each material at any given time in order to keep his operators & his machines producing parts.

Opportunity #2: Accessing Material.

To be a quick-response manufacturer, Danuser needed access to any given grade of material in a short time frame. If material was stacked on top of each other, it meant the required material could be buried 30 minutes or more below the other bundles.

Fortunately, after implementing the LEAN storage systems, each cartridge was independently accessible at any given time. This meant no matter which material needed to be pulled, it was only 60 seconds away. Huge improvement, especially for the unexpected “hot” or “rush” jobs... no matter the material type, it can be pulled at short notice.
Any supplier to a big-time OEM understands the stringent demands of controlling FIFO. Rightfully so, OEM’s don’t want old material to continue getting older while the new material gets used up right away. The process makes sense. So, what’s the big deal? It’s not easy to do if material is stacked on top of each other! Human nature wants to grab the most accessible bundle instead of the oldest. And from Noland’s perspective, more material would mean more stacks of buried material. After all, he isn’t able to take up more floor space by making more piles, and inventory levels certainly aren’t decreasing!

Opportunity #3: Managing FIFO.

In metal fabrication shops, managing FIFO is typically a “we do the best we can within reason” statement. However, as a highly qualified OEM supplier, Danuser knew they had to be better than an industry standard. Now, when they walk audits through their shop floor, they can proudly show that running the oldest material first is as easy as selecting which shelf to pull material from. Whether it’s the newest or the oldest, the operator spends the same amount of time, and it’s always traceable.
Challenge #4: With more material moving around, is it going be damaged?

Damage can come in a variety of forms:
Banged up corners and edges
Warped sheets from stacking piles high
Forklift scratches/markings on top surfaces
Rust footprints from wooden runners

A lot of times, the damaged material can be salvaged; programmers can work around damaged areas, or an operator can spend time grinding rust off before final operations. However, it all takes time. And remember, with Noland already spending time on these work-arounds, even more material would equal even more time. He knew he needed to minimize this time for his operators.

Opportunity #4: Protecting material from damage

Danuser primarily handles carbon steel, which ends up being powder-coated. So, surface scratches that may cause rejections in a more cosmetic industry do not apply to them. However, Danuser’s team still spent hours every week buffing out rust spots caused by wooden runners, and battling warped sheets at the pressbrakes. But after implementing LEAN’s storage systems, how could material even get damaged? It no longer came into contact with wood, the forklift tongs were always concealed inside the 3x10 tubes, and sheet edges/corners were always offset to the inside of the cartridge. A win on all accounts!
Challenge #5: How can Danuser prevent safety accidents?

As proven by Danuser’s extremely high employee retention rate, they care deeply about their employees. Noland needs to do his part to keep his people safe. With 5,000-pound bundles of material being driven around the shop floor, any little accident can be catastrophic. Again, as more material is handled, will accidents also increase? That answer needs to be a resounding “No.”

Opportunity #5: A safer workplace.

Shop owners and plant managers hate admitting that their employees get hurt on the job. It’s their job to put systems in place that protect them the best they can. The LEAN storage systems remove a lot of “danger” that comes with raw sheet metal.

Wooden pallets can bend, splinter, and break, sending full bundles of material across the floor. LEAN cartridges do not bend, splinter or break, which translates to safety, safety, safety!

Typically, carbon steel comes with a thin film of anti-rust oil, which does a great job of preserving the material. It also makes the material very easy to “slide” – so, if a forklift driver comes to a stop, the sheets can slide off like a deck of cards. However, with LEAN’s cartridges, the material stays trapped within the silver perimeter pins. Again, operators are saved from the safety risk.

Many job shops require arm sleeves and other PPE as a precautionary to avoid getting snagged by edges and corners of raw sheet metal. And now, with the LEAN cartridges, those same sharp edges and corners are offset to the inside of the cartridge, so if an operator bumps or grazes it, they contact the smooth, rounded edge of the cartridge… scratch free!
THE CHALLENGES DANUSER FACES

Challenge #6: How do I pay for this?

Money isn’t always the fun part. Many times, a manager can get all fired up about a great continuous improvement idea, but then take it upstream and get the wind taken out of their sails due to price tag. Stacking material on the floor is a next-to-nothing cost for racking, so it’s going to be a challenge to go from that to an industrial storage system capable of vertically storing 110,000 pounds in a single footprint.

Opportunity #6: Increased throughput & profit.

Danuser invests in capital equipment when it financially makes sense. The numbers need to support any purchase, and sheet metal storage systems are not an exception. Although there are countless areas to consider for an ROI, the bulk of the focus is applied to 1) time studies for accessing material, 2) square footage analyses of storage bays, and 3) throughput gains by increased machine uptime. And lastly, what would Danuser’s additional building costs be if LEAN was not able to consolidate their sheet storage footprint?

Challenge #7: Should we build racks internally, or do we use our CapEx budget on them?

Danuser has been very successful for a lot of years, and that success is largely due to its ability to support their improvements internally. So, wouldn’t it make more sense for them to have a few of their best employees spend some weekends in the weld booths and make their own new storage systems for their sheet stock. After all, they can trust their employees to get it done right since they’re the same ones that will be using it for the rest of their careers.

Opportunity #7: Trust LEAN as the expert storage specialists in the industry.

Danuser proudly makes agricultural equipment. However, they have all the in-house talent and equipment to build storage racks. But, if they dedicate their resources to building storage systems, they are not serving their customers that pay the bills. Further, Lean Manufacturing Products has fully developed the design, from the testing phase all the way through to welding and final powder-coat. In fact, all customers are welcome to visit Lean Manufacturing Products, as Noland did. When Noland arrived, he said, “I’m from the Show-Me state, so I had to come and see it.” And after that, Noland knew he could trust LEAN to do a great job at a very fair price. In fact, within a day of getting back to his shop, Noland had worked with purchasing and given Lean Manufacturing Products the green light!
After acknowledging these challenges, the first call to Lean Manufacturing Products, Inc. was very reassuring to Noland – he had found the right team that would help him capitalize on all the opportunities.