2019 Hazard Control Awards

Work. Home. Community

A Chapter of the National Safety Council

Chemical Distribution Pump Splash Protection

Employees were potentially exposed to corrosive hazard from diaphragm distribution pumps and lines. Protective see through splash control measures were installed as barrier in tank farm walkway

Daily Safety Mindset

5S Improvement: Chemical Closet

November 2019

Before

Shelves full-no organization

Chemicals on the floor

After

Signage-all items marked w PO #, date opened & expiration date

Acids on right
Bases on left

Plastic shelves have a spill lip & won't rust

Walls painted/area cleaned

Spill containment system in place

- Chemicals on the floor, not separated by type-no spill containment
- There wasn't a marking or tracking system on the bottles
- MSDS had a list of chemicals-but no expiration information on bottles

- Closet was emptied, cleaned, painted & new plastic shelves
- Each chemical bottle identified by keep or past expiration date
- Shelves & chemicals labeled, spill containment system set up

element
Des Moines

5S Participants: Brian Martin, Nate Mracek, Amy Suedmeier, Brian Escherich, Rich Luna, Adam Scarlett, Emmanuel Ondo Methogo

Employees were manually lifting a 75 lbs. fan on to a fixture. The vacuum lift now maneuvers the fan with the touch of two control buttons

Before

After

Employees were exposed to ergonomic risk factors having to lift 75 lbs. stainless steel tanks. Sky hook has completely eliminated exposure to lifting hazard

Before

After

Alliant Energy – Energy Delivery Hazard Reduction Project

Whole Body Vibration Reduction Project Summary

- AE Ergonomists coordinated with Fleet Leadership and accessed and measured WBV as a result of fatigue reports from employees
- Tandem axle line trucks measured were over the action level and in some cases limit levels for WBV (EU standard)
- Identify high risk machines and implement WBV reduction strategies which included tire air reductions, minor suspension modifications and an improved Sears Manufacturing seat solution (upper right picture)
- Installed Sears seating solutions (left picture) and created a standard seat specification to reduce WBV exposure
- Implemented new seat standard in all new tandem axle line trucks purchased in the future which reduces WBV by an average of 45% for new tandem axle trucks
- Cost of this hazard reduction project - 185K

Alliant Energy Ergonomics

Risk Reduction Project Action for **CRANDIC Railroad Operations**

- Rock dump process using current rock cars was evaluated by our Certified Ergonomists and Safety Professionals

Evaluation of load on shoulder and spine caused over 250 lbs. of upper extremity demand while in awkward postures to open manual doors (upper left picture) and slip and fall hazards while walking with the cars dumping rock (lower left pictures)

- CRANDIC Leadership took action and purchased new railcars (right picture) with remote operated dump gates and task went from demanding 7 employees using at risk postures at high force to manually open gates by hand to near no risk to re-rock railroad sections - Project Cost: $762,000

Ergo Fix

850L Crawler Ramp Project

Before

After picture & Video

The hazards were controlled with the construction of a ramp/pit area. The investment cost $125,000 and has been a huge ergonomic and safety improvement. Not only does this process improve the safety and well-beings of our operators, it has also proved to be more efficient and a quality improvement as well.

Brief explanation of Hazard

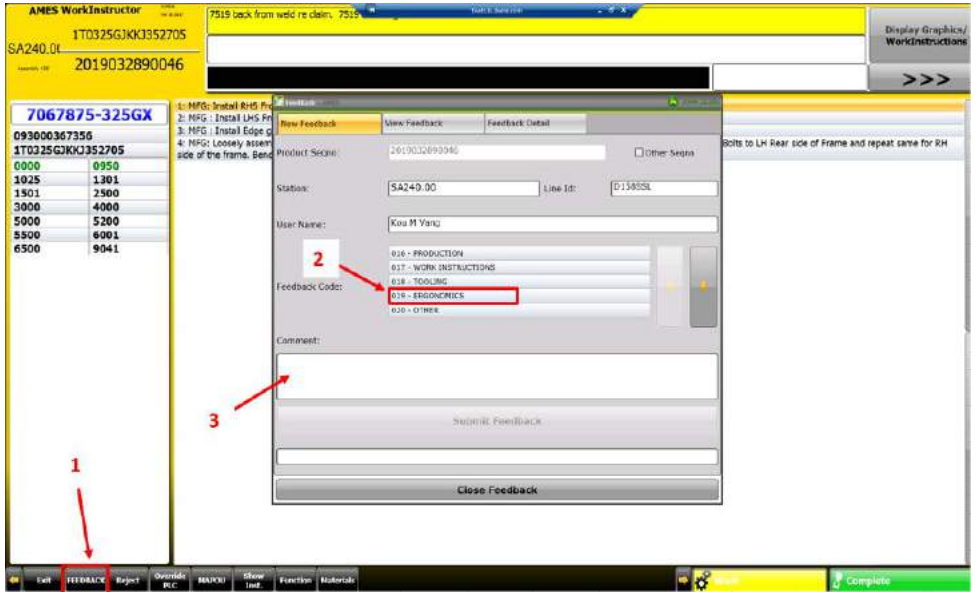
Assembling the steel belly pan plates underneath the crawler machines causes many potential hazards. This process has resulted in 3 prior injuries. The steel plates are heavy and can weigh up to 60 pounds causing ergonomic concerns. This process requires the operator to crawl underneath the machine using a creeper chair. Once the operator was underneath the machine, the operator would have to bench press the plate up and hold it with one hand while starting the hardware securing the plate with the other hand. There is a high risk of the plate accidently falling and striking the operator in the face during this process. There has also been an instance where the crawler machine was driven off the line because the driver was unsuspecting that there was someone under the unit.

Digital Ergonomic Feedback System

Before

The process for identifying ergonomic concerns and implementing solutions was usually very reactive and is a result of an was an incident or an injury.

After



Brief Explanation of hazard

Assemblers at Dubuque Works have different processes they can use to identify and express safety and ergonomic concerns. They can use CI Tags (continuous improvement tags), talk to their supervisors/manufacturing engineers, or through a yearly survey. All these methods are manual in nature and rely on how effective the communication was. A lot times, we're finding out for the first time during an injury investigation that there is an ergonomic or safety concern with the process.

Assemblers utilizes the AMES (Automated Manufacturing Execution System) to display work instructions. There is a feedback function where an assembler can communicate digitally and send a notification to his/her Manufacturing Engineer. Historically, this function is only used when there are tooling requests or to identify work instruction discrepancies. We have repurposed this existing function to proactively identify ergonomic concerns digitally. We created an "Ergonomic" feedback category which enables an assembler to digitally submit a notification to the safety department. The safety department can investigate the request and prioritize the concern using John Deere's SERA (Safety/Ergonomic Risk Assessment) system. Since its implementation in 2019, we have identified 40+ ergonomic concerns and prioritizing our efforts in mitigating these concerns using a risk priority number calculation.

Backhoe Custom Tire Rack

Before

After

- The backhoe tires were originally shipped from the supplier stacked horizontally on top of each other. This process generated multiple hazards listed below:
- 1. Tires would fall off the pallet when the fork truck transported the tires from the trailer to the assembly line causing the potential to strike operators nearby.
- 2. The potential of a tire tipping over would crush the assembler when the tire is rolled to the machine during installation.
- 3. Ergonomic concerns with working above the shoulders and using excessive force during the process of lifting the tire horizontally from the conveyor to the vertical position during installation.
- 4. Slip/Trip/Fall hazards with climbing on top of the conveyor to connect the lifting device to the tires.

- The hazards were controlled by the implementation of a custom tire rack. The tires are now sent in the correct vertical orientation. This rack eliminates tires from falling out during forklift transport because a chain secures the tires inside the rack. The rack also eliminates the manual manipulation of orienting the tires vertically. Lastly, the hazard for an assembler to slip/trip/fall with walking on the conveyor is eliminated.

Skid Steer Powered Cab Cart

Before

- The skid steer cab assembly cart created multiple ergonomic concerns affecting 9 different operators on the cab assembly line.
- 1. It required 83 pounds of force to manually rotate the cab into different positions depending on what components were being installed.
- 2. The raising and lowering of the cab cart was performed using an impact battery gun This took 1.5 minutes to lower or to raise which exposed the operator to vibration concerns.
- 3. The force it took to push and advance the cab cart from station to station required 63 pounds of force creating a potential for back and shoulder injuries.

After

- The hazards were controlled by the implementation of a powered cab cart. This powered cart can lift and lower the cab with a push of a button. The cart also eliminated the manual pushing of the cart. The rotating mechanisms were replaced with pillow block bearing which improved the force it took to rotate the cabs down from 83 pounds to 37 pounds.

Dubuque Works Machine Guarding Project

Before

Horizontal Saw

Mill

After

Horizontal Saw

Mill

- After conducting an audit of 174 machines and equipment for Dubuque Works, there were 52 machines that were identified that did not have adequate machine guarding.

Dubuque Works spent over $200k and retrofitted machine guarding to all 52 machines to ensure the operators operating them would be safe. A good portion of these machines were retrofitted with interlock systems so the operators wouldn't be able to bypass these safety mechanisms.

Works

Ergonomic Improvement to Boom Sub-Assembly (Department 30A – Sprayer Line)

Before:

After:

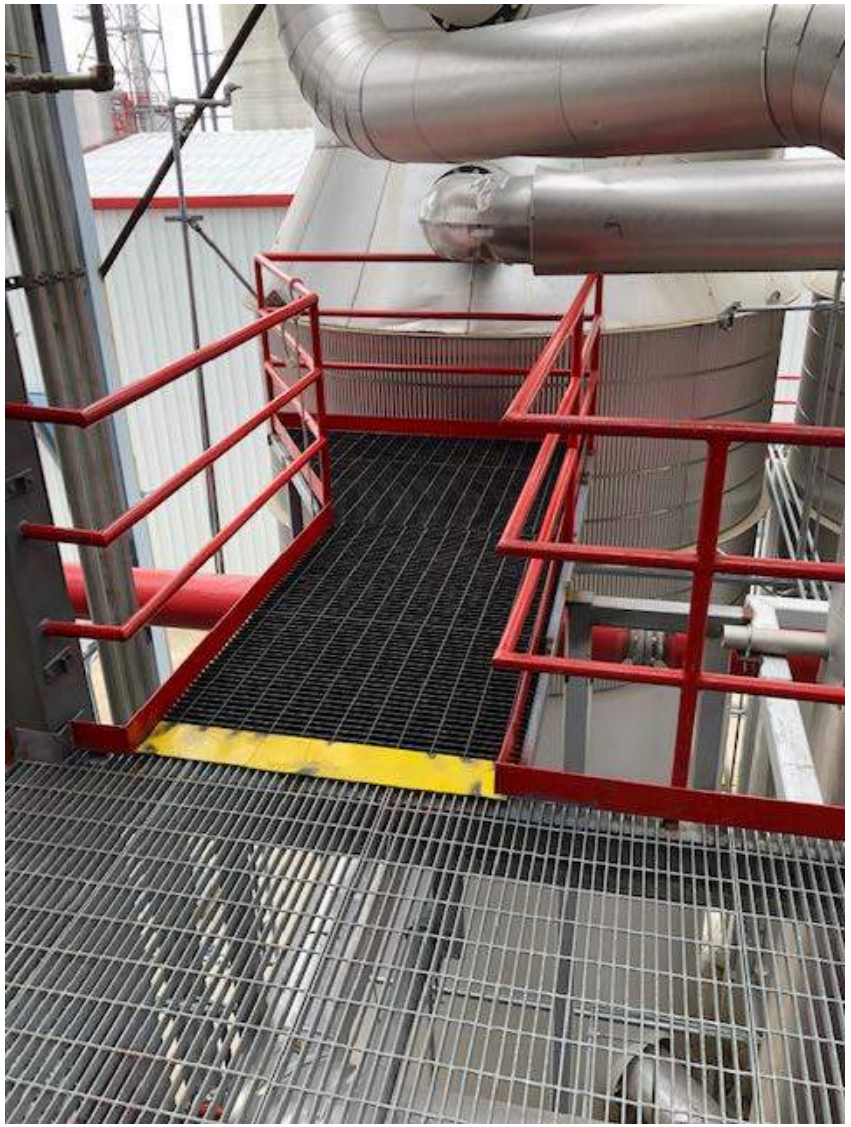
Issues:

- Fixed height cart creates work at a high elevation for the entire length of the boom, and forces long reaches due to the cart footprint
- Majority of 45 minute cycle spent working above 5th percentile female shoulder height
- 8 employees affected (left and right operators, 4 stations)
- Internal ergonomic risk assessment evaluated job at 57.1% higher than our high risk threshold due to height and reach

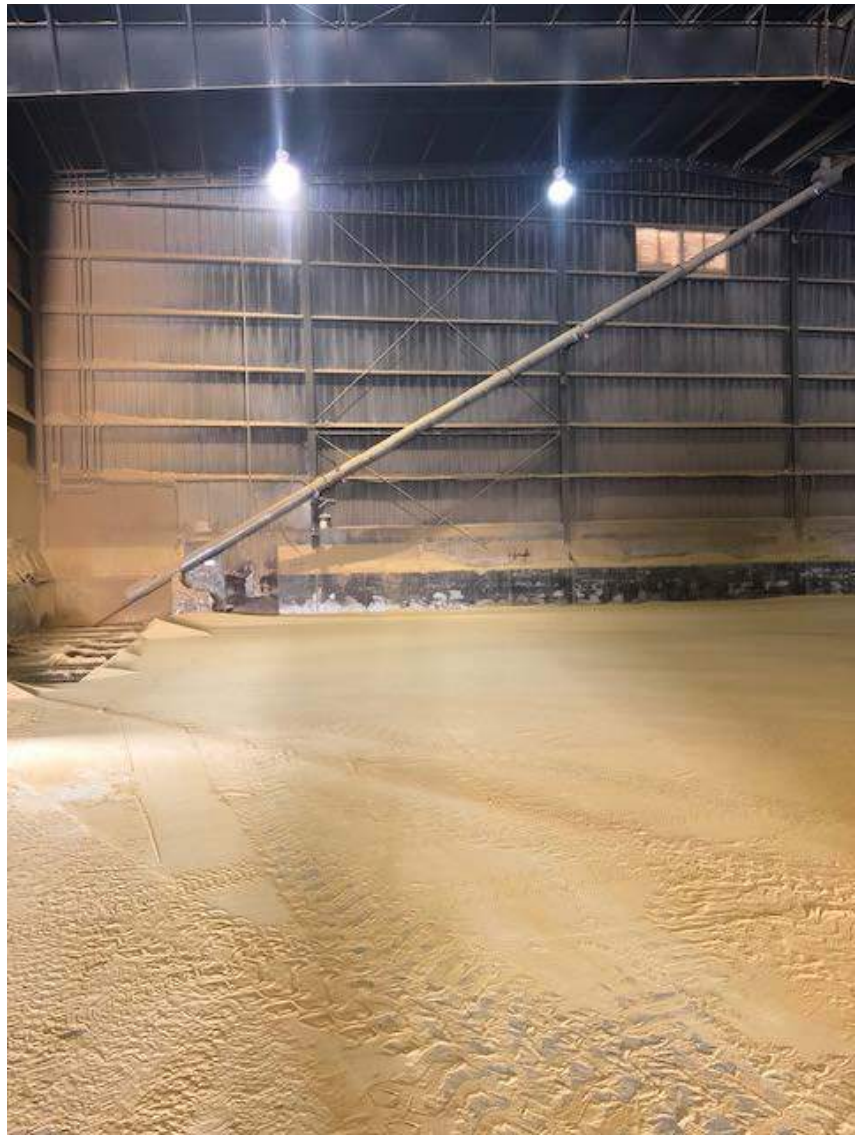
Solution:

- Adjustable cart allows most work to be done below shoulder (optimized by evaluating over 160 task/joint/position combinations)
- Electric linear actuator (battery operated with common tool battery) allows for smooth motion and ease of use
- Cantilever support design allows operator to get close to their work and reduce reaches
- Internal ergonomic risk assessment showed a 89.5% reduction in ergonomic risk
- “I love this cart.” – Boom 2 Operator

- We made wheel chocks available at our loadout and unload areas for all drivers. Operators are to ensure wheels are chocked prior to allowing the driver to hook up to our process.



- An operable valve was hard to reach for employees. A platform was installed so the employees did not have to use a lift or construct scaffolding to access the valve area.



- A chute/pipe was installed that our distiller’s grain goes through and enters the silo fill pit. This will help to reduce dust amounts in the building and also cut down on hours on our endloader.

- Before: We had a chuck guard that was cheaply made, was not effective, and was not used by the employees.
- After: A more durable chuck guard was installed that offers more flexibility for working with the press.

- Before: Employees had to check levels of chemicals that were being added to our boiler system. They were accessing by standing on a 5-gallon bucket.
- After: A platform was installed that the employees could stand on while checking levels of the tanks.

Before

After

ESCO Group client's facilities updated their work rules and everyone on site will be required to wear cut level 3 work gloves. Prior to using the leather cut gloves they are using now, employees were using regular pigskin leather gloves, which didn't provide the required cut resistance.

Before

After

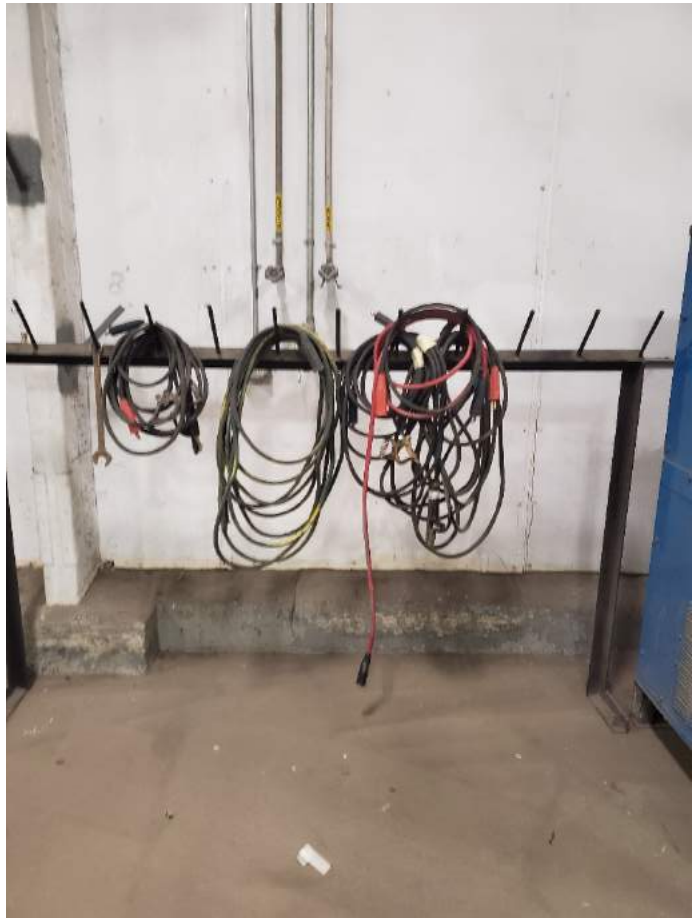
All ESCO Group employees are carrying an emergency escape respirator due to the higher chances of a gas leak at one of our client facilities. In the case of an acid gas leak, employees would remove the escape respirator from the convenient carry pouch and use it until they are able to make it to a safe area.

Before

After

All ESCO Group employees are transitioning from 100% safety glasses usage to 100% goggle usage at one of our client facilities.

Safety Slide 1 – L & M Ethanol – Cords and lead holders. We identified the need for cord and lead holders so that ours wouldn't be left on the floor and more likely to be damaged. So we built two holders. Thanks Justin Goodno

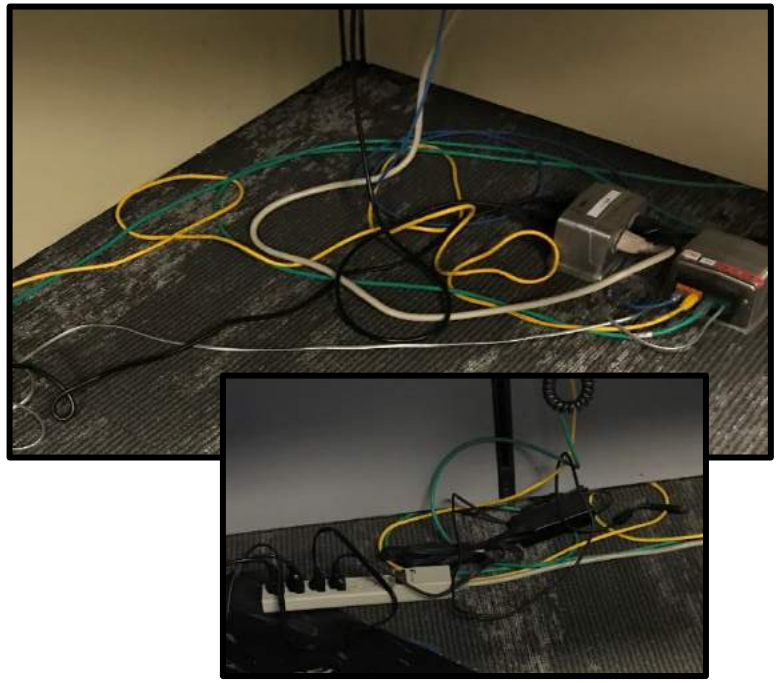


Safety Slide 2 – Plas table. One of the items used in the fab shop often is our plas table. Our old table was not easy to use or to work with safely. We purchased a new table and we are training all staff to use it safely. We will also be adding safety yellow boundaries around the table for awareness.

Wrecked trailers can require extensive repairs. Unfortunately, most of the tools used for repairing are extremely heavy and the jobs time consuming. This means a technician is required to hold onto the tools for long periods of time which can be physically demanding. At a dealership meeting our Operations Managers were shown a Counterbalance Tool Cart for use when clamping bottom rails on trailers as well as for using with other tools. The counterbalance assists the tech by eliminating having to lift the bulk of the tool weight themselves making it more ergonomic for them and reducing the possibility of lifting injuries.

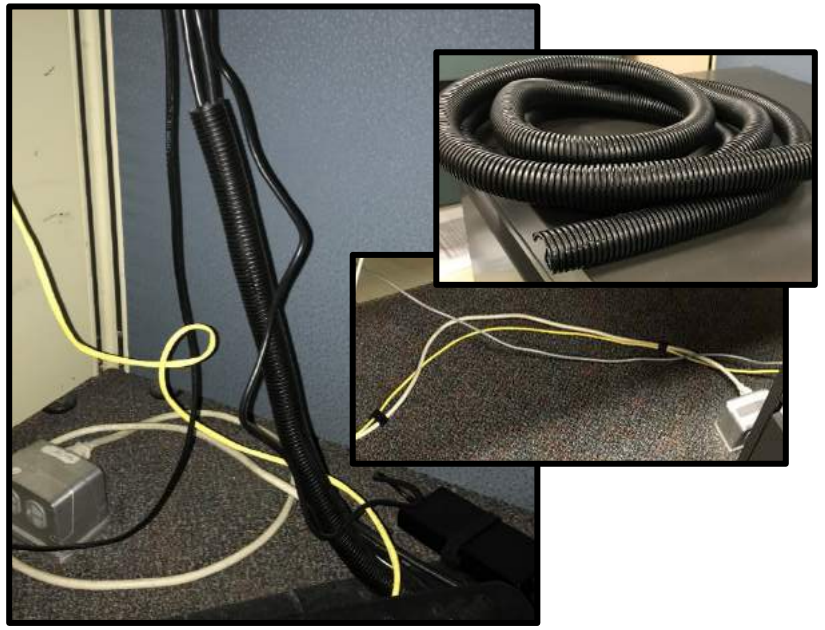
DATE: 12/24/2019
LOCATION: Hoover Building – 3rd Floor DAS Procurement , State of Iowa Capitol Complex
HAZARD: Trip hazard from unsecured electrical cords and cables under desks and protruding into walkways.

Before Photos



The DAS Safety Committee members conduct safety inspections several times throughout the year. Members noted that long electrical cords and cables were laying in piles under desks. Vacuuming and normal occupant foot movement caused those cords and cables to snake out from under the cubicle walls and create trip hazards in the office walkways.

After Photos



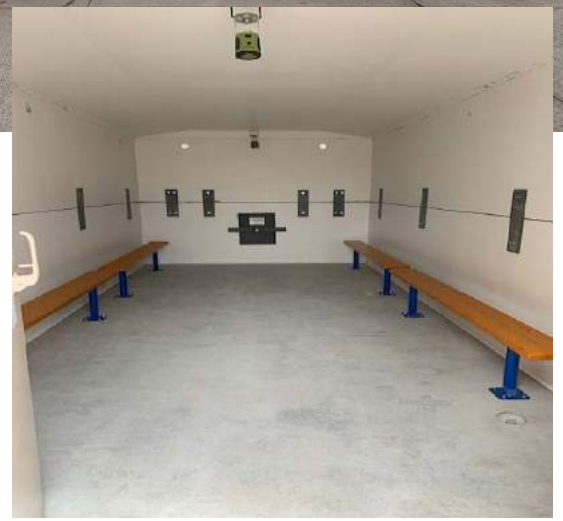
Safety Committee members consulted with the Capitol Complex electricians to identify a low cost fix to eliminate the hazard. Where possible, shorter cords were installed. When that was not an option, the cords were secured using variety of methods. Velcro strips and plastic cord coverings were easy to install and prevented the cords from migrating into the walkways. By securing the cords in this manner, the trip hazards in the walkways and under desks were eliminated without compromising the electrical cords and cables.

Before: Employees In our production plants would used the bathrooms in the plant as our tornado shelters which were not legitimate tornado shelters, after the tornados that hit the Vermeer Plant that was 1 mile away, we looked to upgrade our Tornado Shelters that would protect our employees better . **After**: Tornado Shelters were purchased and put into place .

Precision Inc, Pella Iowa

Before

After



Steel Shaft Cart SAFETY Improvement– **Before**: Employee would put shafts on top of cart and move around the plant unsecured. **After**: We purchased new carts to handle the weight of the shafts and put UHMW holders on top of the carts to secure the shafts so they would not roll off the cart.

Precision Inc, Pella Iowa

Before

After

Windsor Windows & Doors

Before

After

Before - employees within the Shipping Department had to manually push and pull large units onto trucks when being loaded. Sometimes units had to be manually transferred by employees adding stress to the body and creating hazards for accidents.

After – racks have been created with rollers easing the movement of units from one place to another. The units stay on the same racks from the time they are produced until they are loaded onto the trucks. Less stress on the bodies and employees are not transferring units more than once which can be a reason for an accident. Racks create a safer environment as well as adding efficiency to the department.

Before: Use to have to open mold with crowbar and inspect and repair while it set on the concrete floor.

After: Purchased Mold separator to handle molds safely. Helps to inspect, repair, and troubleshoot needles and coves.

Shift Team Meetings include Safety Updates everyday. Our methods of communicating with our Teams have evolved to insure we get our information out load and clear

Daily Safety Talks and information using TV's, PowerPoint Slides, to improve communications, we added a great sound system

From Safety Cards, to TV's using Safety PowerPoint Slides, and now, a Wireless Sound System

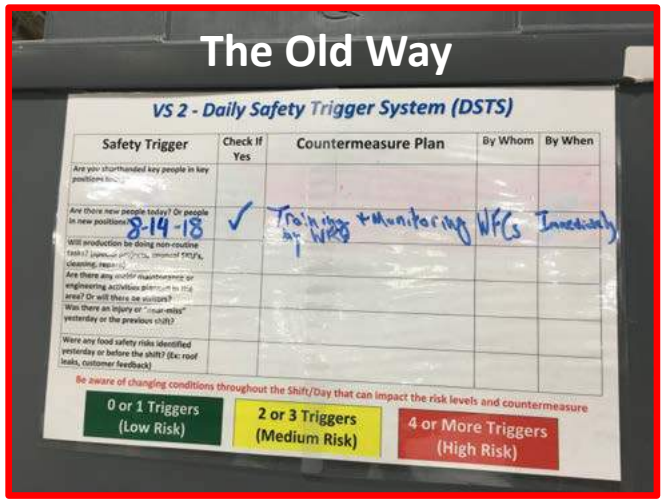
Machine Safety Guard Improvement

The opening to a case closer and sealer was large, larger that is should have been. The new guard was sized to allow cases in without causing jams, and the new guards allowed us to post safety warnings and caution tape to warn operators to stay clear.

Before

Improved

Safety Communication Improvements

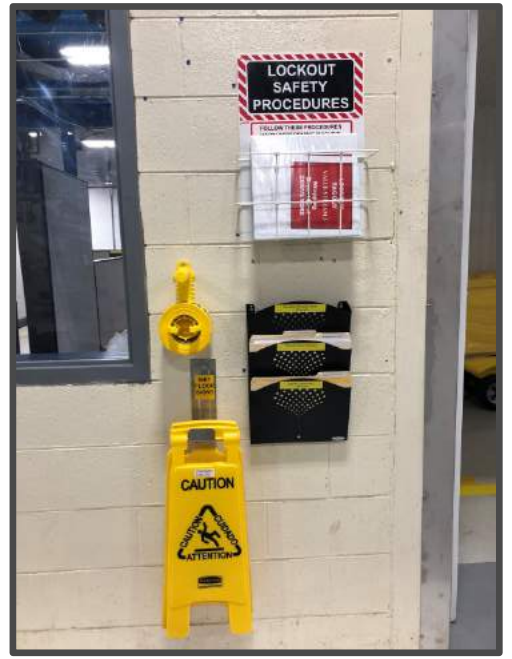


Communicating Hazard Information that people will actually read can be a challenge. WFC installed a powerful lazar projector to display important safety information right on the floor at the entrance to the Operations Departments. Information can be updated several times during a shift.

***Plus we have some fun with it*.**

SAFETY CENTERS

Safety Centers have been established in several areas thought the production and operations areas creating a know place, were safety tools and resources are made easily available to everyone



Adopted Behavior Based Safety

Behavior-based safety is the application of behavioral psychology to promote safe behavior in the workplace using employee involvement.

WFC adopted BBS and continue to conduct two observations from all of our operations employees each year. Employees use iPads to record feed back during observation sessions, this provides instant tracking of information and participation.

Following each BBS round of observations, feedback is provide to each employee participating. With the assistance of Safety Committee Members, Managers, Supervisors and Safety Representatives, corrective steps and recognition are provided.

Cardinal IG

Before

Behind our glass washers there were electrical cords and hoses on the floor. This presented a hazard when working behind the washer and having to navigate the stuff on the floor.

Cables on hoses on the floor creating tripping hazards

After

We installed catwalks over the cables and hoses so when working behind the washers our team members are no longer navigating around them on the floor. This was completed on 7 washers

Catwalks Installed over cables and hoses

Cardinal IG

Before

We have pumps that create a loud air blowback when they cycle through each stoke of the cylinder.

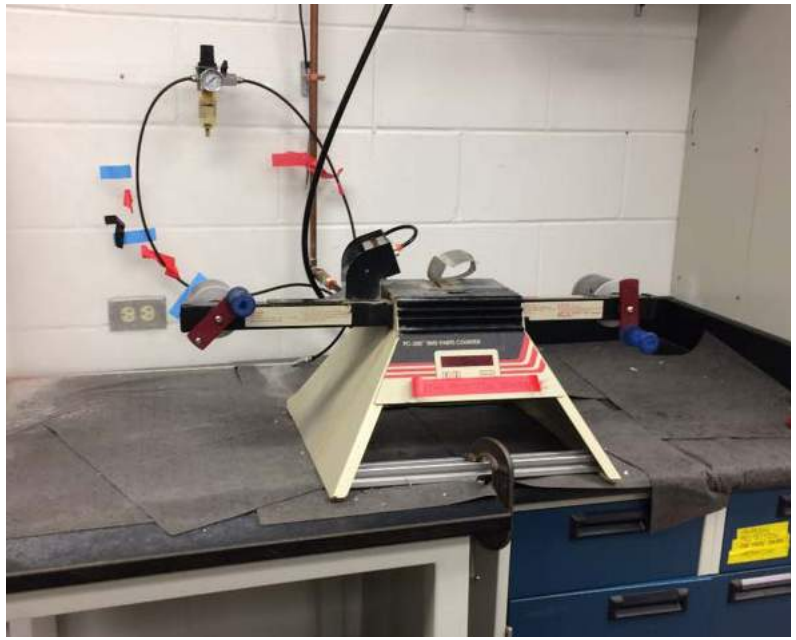
Pumps did not have any noise reduction on the cylinder when it went cycled so the air would create loud blowback out of exhaust port.

After

We added mufflers to all the pumps exhaust ports, drastically reducing the noise created by blowback.

Added a muffler system to all the exhaust ports, reducing the noise by 12db when the pump cycles.

Hazard Identification: Utilizing an antiquated tape drying device to dry ArrayTape (a linear polypropylene carrier for holding samples) in our genotyping labs. This device required a worker to manually feed the tape, past an air nozzle, using hand cranks. Turning the hand cranks created repetitive motion risks, and the device did not have a mechanism for collecting the water that was blown off of the tape. Absorbent pads were used to capture the water. PPE for hearing was required due to the high level of air knife noise.



Control Solution: The automation team designed a cabinet to perform this task. Now the worker loads the tape into the cabinet, shuts the door and the tape is automatically fed through the air blow off. The repetitive motion risks are eliminated, water is captured and piped to a drain, and the installation of three cabinets makes the operation more efficient. The cabinet is insulated with sound foam which removed the need to wear PPE for hearing protection.

Syngenta Seeds Jefferson, IA - Box Repair Ergonomics

Upon completion of soybean planting, seed dealers return empty bulk boxes to warehouse from prior sales season. Unfortunately, some of these boxes incur various types of damage during use by customers. These boxes are expensive to buy new/replace on annual basis so Syngenta Jefferson, IA site repairs non-structural damages via plastic welding.

The previous process required employees to climb up and over, inside of a bulk box to bend & kneel in difficult positions using an 8 lb. plastic welding gun and sawzall to complete the box repair.

Site Ergonomics Team completed a work place assessment that identified multiple risks & strains during this repair process. With support from Syngenta Engineering, lift/tilt/turn tables along with overhead swinging tool assists were installed to greatly improve employee work station.

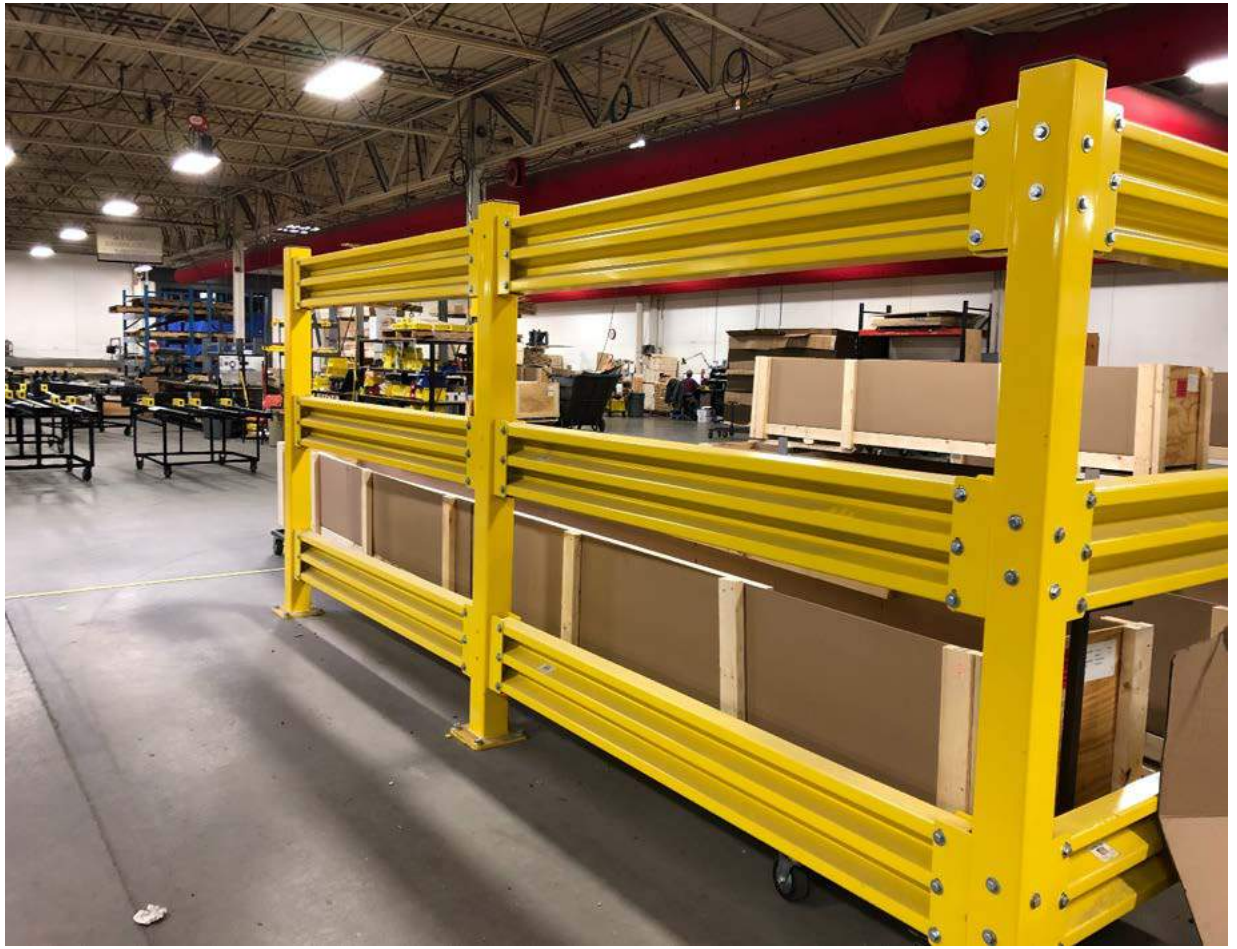
Over 2000 bulk boxes are repaired annually in a much safer and efficient manner by eliminating awkward positions with proper box placement angles and tool assist.

Before

Syngenta Seeds Jefferson, IA – Security Panic Button

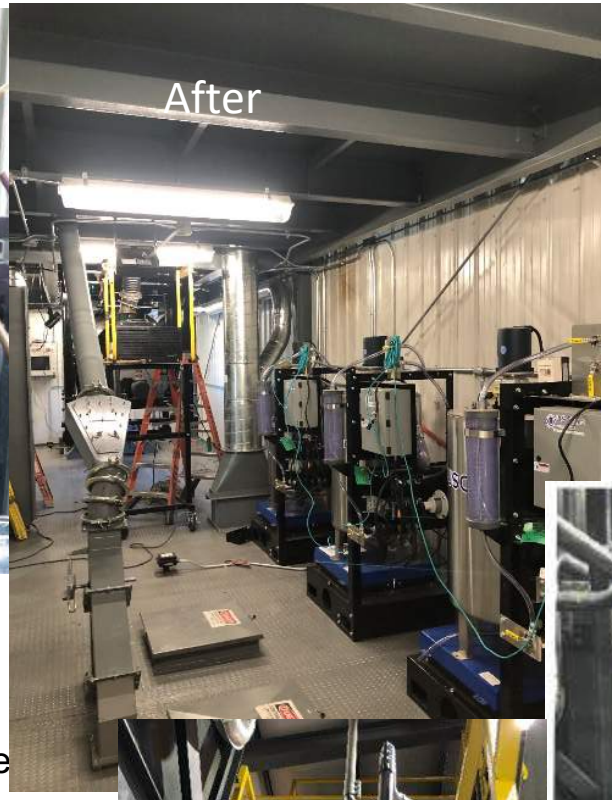
Site Security was part of the Jefferson Safety Team's objectives in 2019. One of the improvements implemented by the team was to install panic buttons in strategic areas of the plant. In the event where an active shooter or workplace violence would occur, pulling the switch will alert Law Enforcement, dispatching them quickly to the site.

Empty crates were stacked four high with limited protection if employees walked by. New railings were installed and crates are limited to 3 high, which is below the top rail height.



Syngenta Pekin IL Invests $750,000 to Expand Treater Operations with SAFETY at the forefront.

Adding an emergency escape ladder, new stairway access and increases egress around treater.



AFTER:

- Expanded treater room with added egress making it safer for entry and exit from the room.
- Added emergency exit escape ladder from the 3rd floor.
- Added stairway to allow for safer access to the platform vs. climbing.

BEFORE:

- Over the years the treater room acquired many additional tanks that crept into the walkway. This resulted in the room configuration and size to no longer mee code requirements for equipment access and room egress with one walkway less than 16 inches wide to the discharge end of the continuous flow treater. Per 29 CFR 1910 OSHA General Industrial Regulation an exit must be at least 28 inches wide at the narrowest point
- The 3rd floor did not have a straight exit route on the North side of the building. In the event of a fire, exit route is cumbersome.
- One location in the work space has a 10 ft vertical ladder that employees have to climb to access the platform, an at risk activity.

AGROPUR Hull Iowa
Chemical Safety

BEFORE BUMPER

AFTER BUMPER

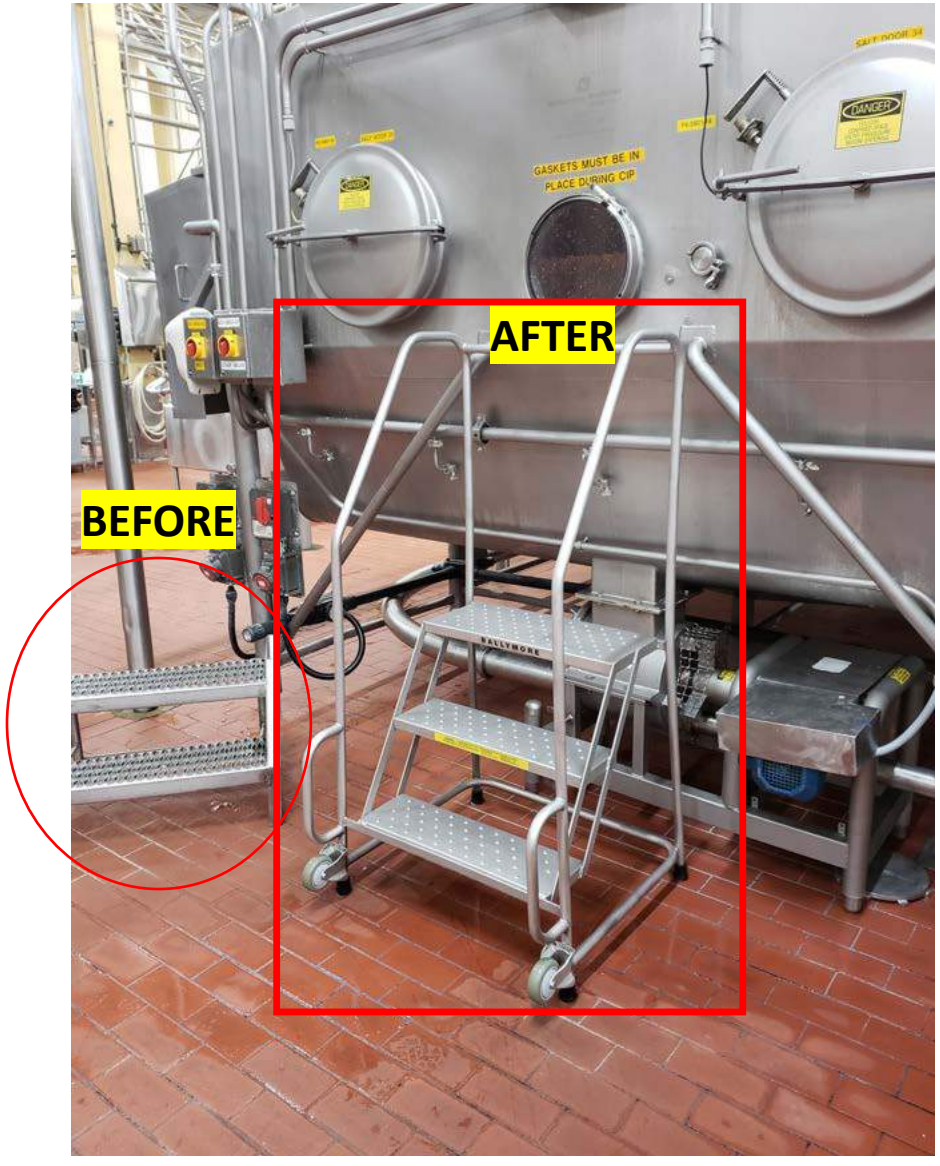
Before the bumper was added employees were leaning on the edge of the COP tank getting burned

Ergonomic Improvement

BEFORE

AFTER

Portable Steps Improvement



Caustic Tank Level Sensors

- Before – Employees had to physically monitor the fill level of the caustic tank
- After – Level sensors allow employees to work on other tasks as the caustic tank is filled

BEFORE - Loading of semi-trailer

Loading trailers took 4 people, 1 forklift and a scissor lift to execute. Using a boom to lift a supersack up over the trailer, the scissor lift operator pulled the ripcord on the sack to unload and monitor the fullness of trailer

- Safety Risks included:
  - The risk for injury to employees from
    - Crush by
    - Ergonomic
    - Fall
  - Dust generation, reducing visibility
  - # of employees working around forklifts in a tight area
  - Damage to product or trucks

Investment into building a load out area with a new building and automated loading system →

Safety risks addressed:

Removed safety injuries from

Crush by

Fall

Ergonomic

Minimal dust generated

Operator on a platform to easily see and move loading arm

Single operator can perform the task

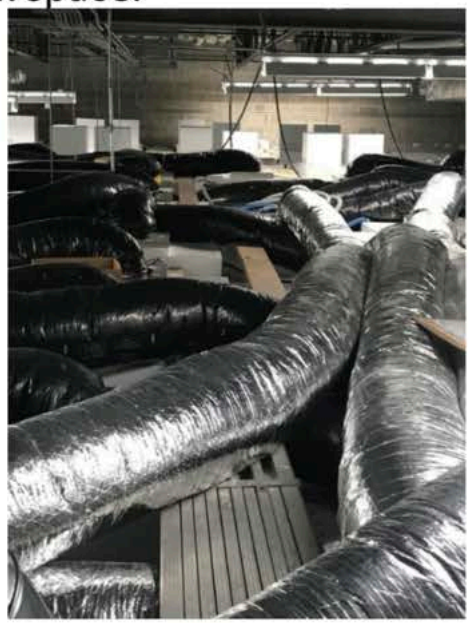
No damages to equipment

AFTER - Loading of semi-trailer

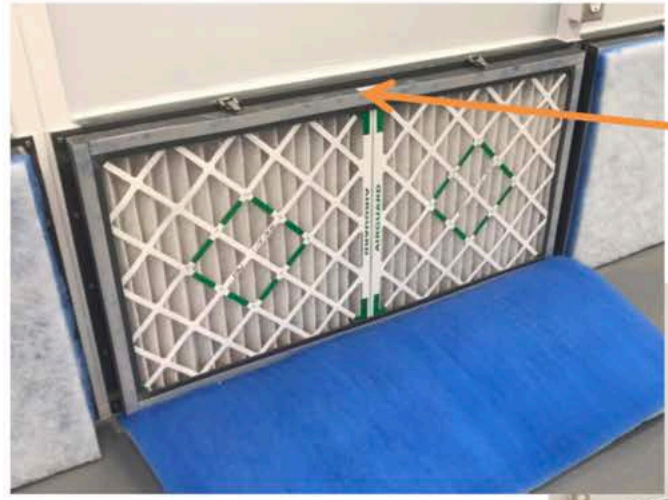
Re-Located Filter Housings

BEFORE

The task of replacing HEPA pre-filters on 48 Packaging Room recirculation fans required working above the ceiling, balancing on catwalks, and disassembling the fan housings to install new filters. This was a potential fall hazard with limited work space.



AFTER



New Stainless Steel Filter Housing Frame

New filter housings were designed and constructed that allow for new larger capacity pleated pre-filters that can be changed inside the packaging room, eliminating the need to work above the ceiling. These filters not only allow for much safer work, but provide much more surface area, extending the filter life and improving the room airflow, thus reducing in process airborne dust.

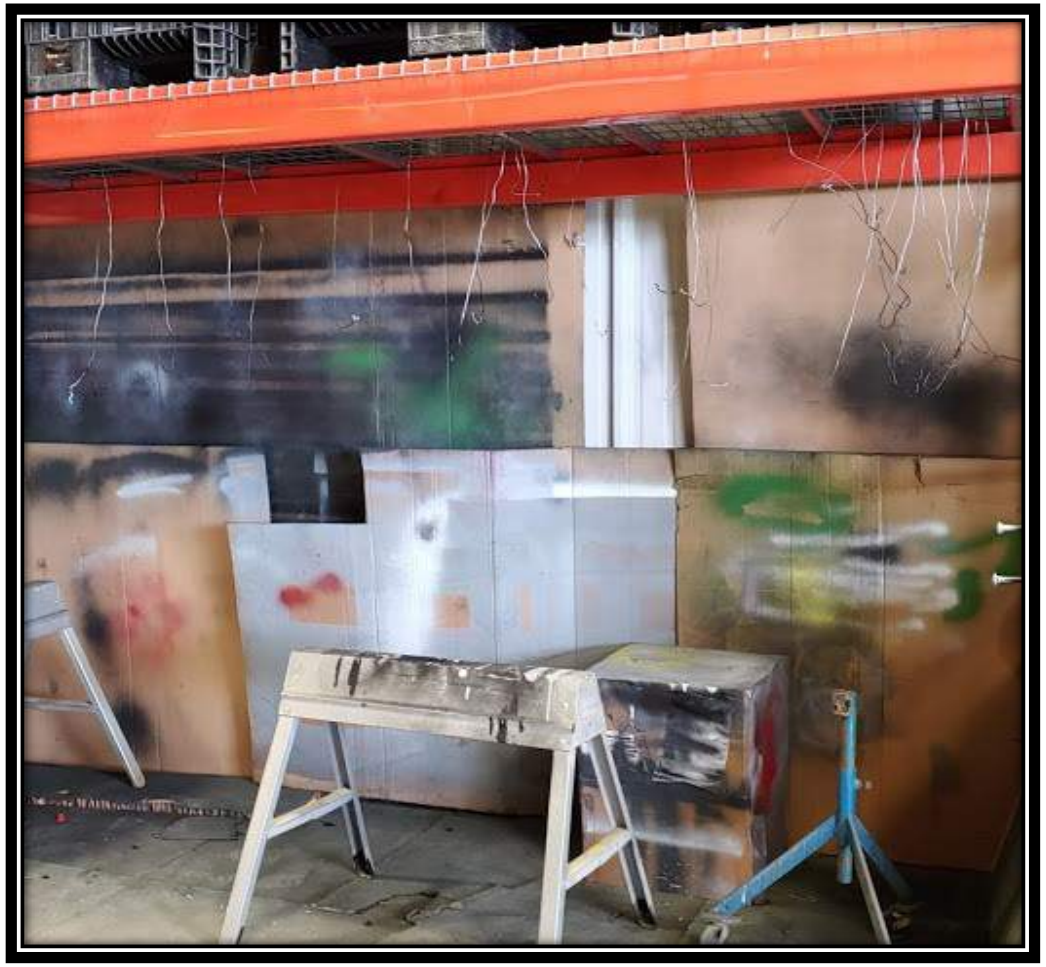
Proliant Biologicals, Boone, Iowa

In our packaging lines workers must pick up bundles of cartons to load into a machine. Hundreds of these bundles are handled each shift. Previously they were placed at the line on a pallet sat on the floor. This caused the worker to have to bend down when the last layers of the pallet were picked up. Sometimes they would stack extra pallets underneath to raise the top pallet up, however this created a reach issue when the pallet was full so not the best option either. We purchased air bladder scissor tables for each packaging line. The bladder can be filled with varying amounts of air to increase or decrease resistance to weight. When a full pallet is sat on the scissor table it will go to the lowest position and gradually raise as weight is taken off so the bottom layer is at a higher position. As a bonus the table also rotates as well.

As the volume for tanker loading/unloading outgrew our bulk loadout building capacity fall protection when hooking up hoses became more difficult to maintain. To increase the safety for our people and also allow for some flexibility on location we purchased two additional mobile staircases. This option is great because it provides fall restraint vs. fall arrest as well.

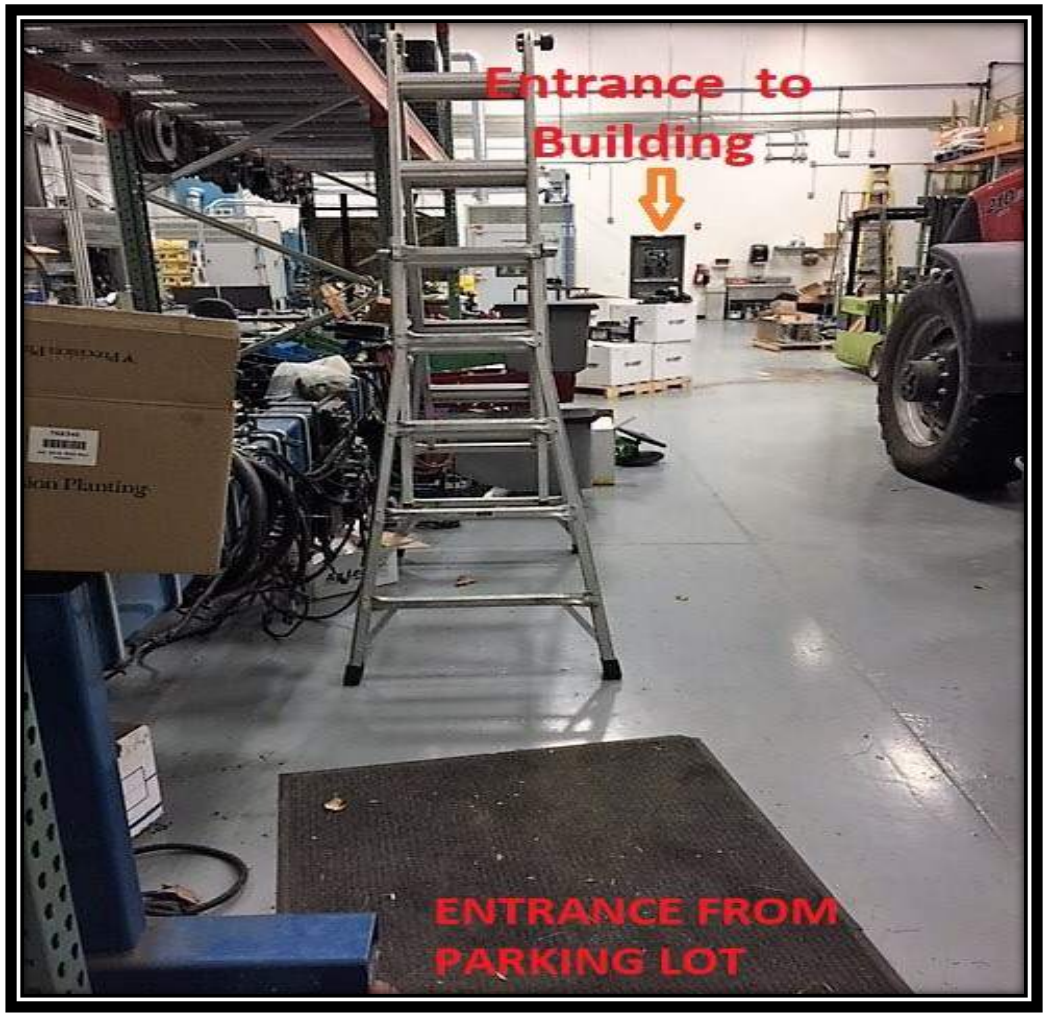
Employees had created a make-shift dry spray booth that violated CFR 1910.107 on many levels. The contents of the booth were taken down and replaced with an environmentally-friendly portable spray booth that conforms to EPA and OSHA regulations.

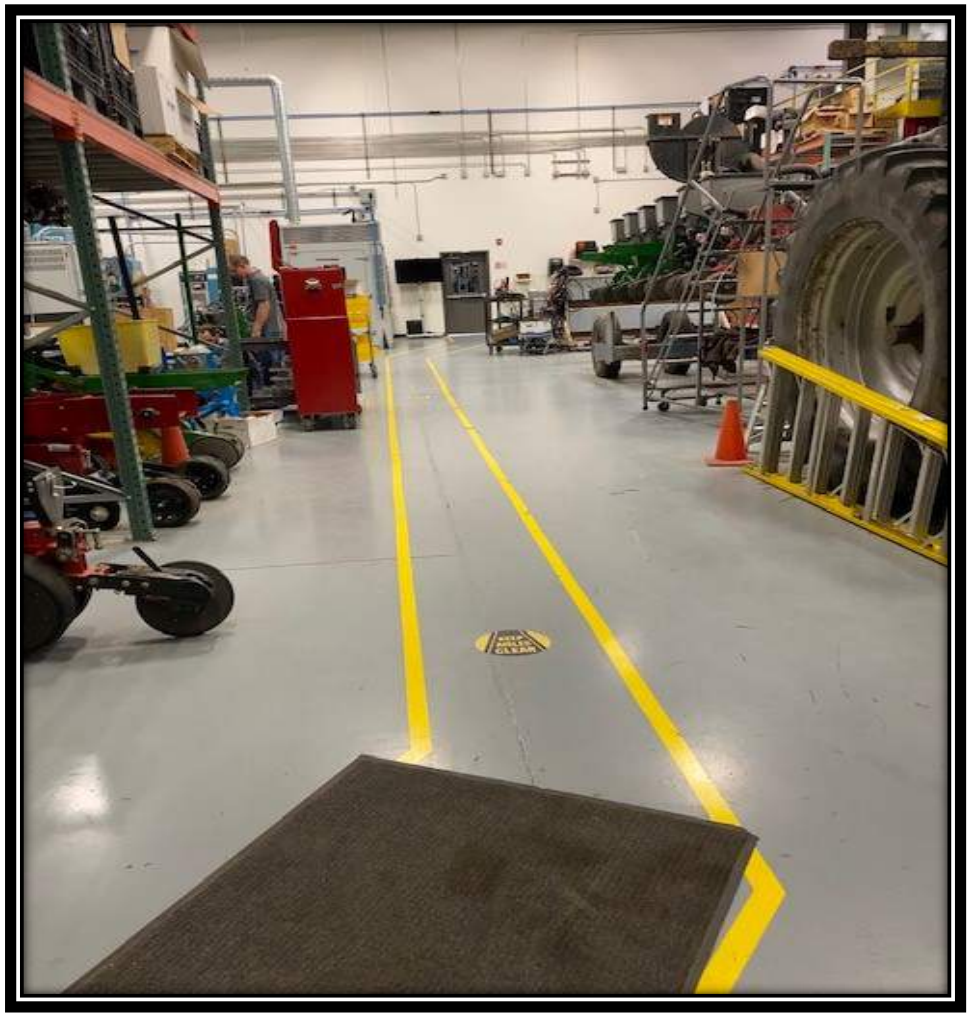
BEFORE



AFTER

Our employees had been using an entrance from a parking lot that opened directly into a “Safety Glasses Required Area”. Employees would quickly pass through the area, as a shortcut, to get to their departments. This exposed them to possible eye hazards since they were not wearing safety glasses and to tripping hazards. We corrected this hazard by marking off an ingress/egress foot traffic aisle way. Below are the before and after photos.





Ham Boning – Conveyor modifications

Before we had a decent sized gap between our skinning machine and the start of the main ham boning conveyor on 2 lines.
We extended the conveyors so they were closer to the skinners so the operators did not have to reach as far to feed the line gaining an ergonomic improvement.

Before

AFTER

Cut Floor Accusort – Replace 60# Line Conveyors

In our box sortation room we had 2 lines of roller conveyors that frequently had boxes jamming and not moving that our employees would have to handle. We replaced those sections with new rollers conveyors and eliminated the need to lift boxes.

Before

AFTER

Laundry – Lift Assist for Bag Collection Totes

Before we had our employee loading the laundry machines had to reach down into the totes to retrieve the bags of clothing.

We installed a spring assisted lifting device to raise the bottom of the totes up in order to make the easier to reach.

Before

AFTER

Cut Floor – Centercut Sirloin Bagging

Before our employees would bag the sirloins on a table and have to lift them up in order to put on conveyor belt to go to the cryovac. We raised up the trimming and bagging stands so the bagger no longer has to lift to put onto the conveyor.

Before

AFTER

Stack Yard Visibility: unsafe condition recognized and corrected

* Low visibility of people when they were outside of their equipment was recognized while one of our team members was walking in our stack yard and another was driving through. He took this picture and entered an unsafe condition.

* The unsafe condition was acted upon within the day and a requirement was put in place for everyone who enters the stack yard to wear a high visibility vest. Some vests were already on site so the change was implemented quickly.

* More vest were brought in, signs were posted, e-mails were sent, and the message was relayed during shift exchange meetings. Everyone is now safer because of this change and it will remain in effect for the foreseeable future.

Hazard Identification: The fountain auger in the grain tank of our combines is lowered for transport and raised again when the combine arrives at destination. When the fountain auger is raised, it must be latched into position while holding it into place. The fountain auger weighs 75 – 100 pounds. Each combine is transported 8 – 12 times each season. The fountain auger was designed to be raised and lowered manually, creating risk of operator back injury.

Before

After

Control Solution: Install an electronic lift in the grain tank to raise and lower the fountain auger. The electronic lift is operated by a switch in the cab, eliminating the risk of ankle and foot injury, due to the unevenness of the grain tank floor, back injury from lifting, and pinched fingers while lifting auger into place.

Hazard Identification: Sustainability and reducing waste is a top priority at Syngenta. A UCSC laboratory waste assessment showed that nitrile gloves make up a majority of laboratory waste destined for the landfill.

Control Solution: We implemented a new program with Kimberly Clark to recycle our lab Nitrile gloves. Each Department has a designated container to collect the recycle gloves. The gloves are consolidated in a pallet box/Gaylord box and shipped to Kimberly Clark. This reduces the waste sent to our local landfill and diverts those materials to be used in other products.

Hazard Identification: The flexible irrigation tubing in our greenhouses was creating trip hazards in walkways.

Before

After

Before

After

Control Solution: The greenhouse team replaced the flexible tubing in the main walkways with rigid PVC pipe, and recessed the flexible tubing in the pot rows to clean up the area and eliminate trip hazards.

As a company we are always looking to improve safety in our warehouse. Many times companies will install pallet racking guards to help protect the pallet racking if something such as a forklift would back into it. Problem is, most of these options entailed bolting the guard to the floor. This poses a risk in our warehouse considering we have in-floor heating. As a solution to avoid risk to the floor and still provide impact protection we purchased Sentry racking column protectors. These not only provide visible protection but also allow us to protect the racking without damage to our floors. In addition, because of the way they install, the system is flexible and can be moved easily if racking is changed or added.

Doosan Horizontal Mill Upgrade (2015-2019)

Original Doosan Mill

Necessity for the Doosan Mill to machine larger parts arose. A project launched to enlarge the doghouse and the worktable to accommodate large pieces, new hazards required safety controls. Pictured above is the Doosan Mill before and upgrades or added safety features.

Completed Upgrades

Main Door and Stairs

Main Door Safety Interlock

Expanded Worktable

Inside of Doghouse

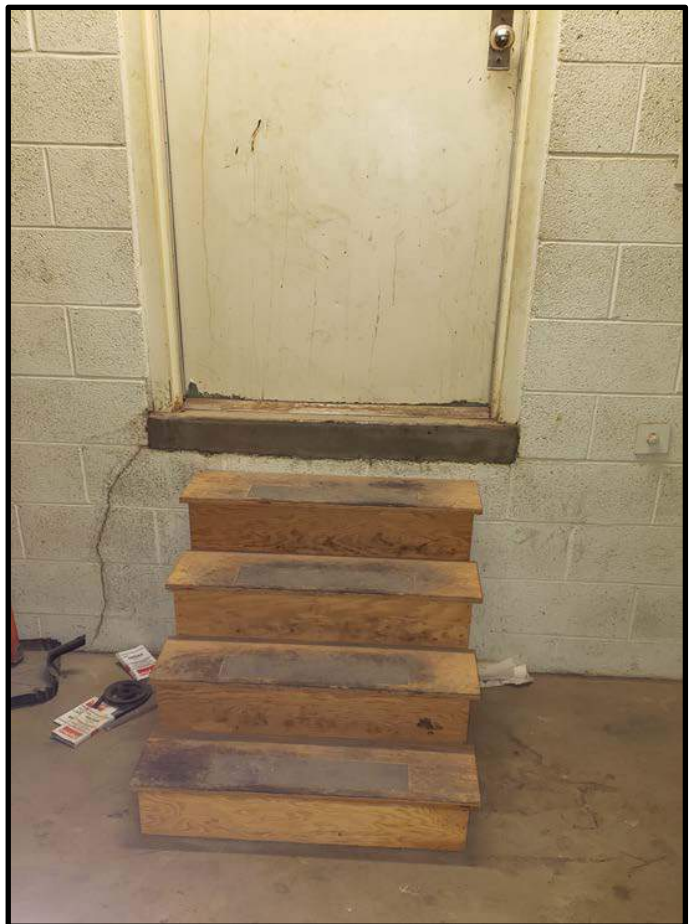
Custom Operator Stairs

The original shields were removed to accommodate larger parts throughout 2016. In order to keep metal chips and turnings contained to keep the area safe for work, temporary yellow curtains were hung around the mill while new shields were designed. In 2017, extensions for the table were designed and installed to safely handle the incoming larger parts. In addition to making the work table larger, the floor around was dropped to form a pit in order to catch turnings and coolant in order to move them to the proper waste area with minimal operator interaction. Yellow safety rails were then installed around the new pit so the operator may safely move about. The step up to the operator platform became out of OSHA standards after the mill was raised for the inclusion of the pit, so new stairs were designed and implemented by engineering to meet compliance. The 10-ton crane used to move parts in and out of the mill was modified to include a 5-ton slave to ensure safe handling of large parts in 2018. Moving in to 2019, the designs for new shields for the doghouse were completed and being installed. With these new walls, the main stairs were widened and engineered with hand rails, a safety interlocks were designed for the front doors and rear operator access door to ensure secure closures before operation.

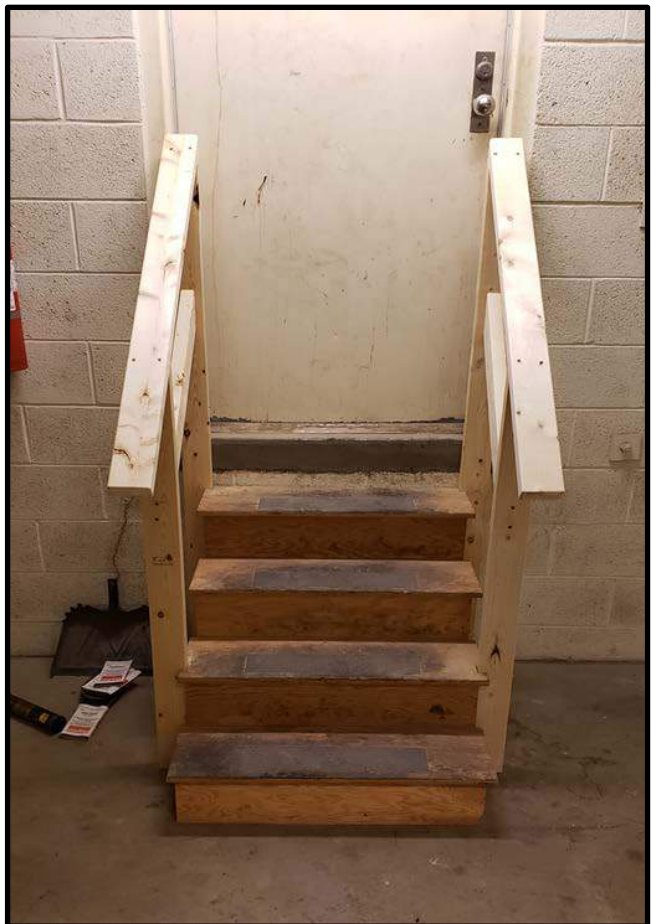
While not an initial goal of this project, but as a result of larger parts and increased crane capabilities, Industrial Training International (ITI) was brought on location to train all operators that would use hoists. In addition, Emerson sent seven employees through the ITI Master Rigging course to become qualified to coordinate large component hoisting plant-wide.

Stairway coming in off of the roof had no handrail since installation. Installed handrailing in accordance with OSHA 1910.28(b)(11)(ii) to ensure employees were protected from falls as they entered off the roof.

Before



After



During a roofing project on one of the buildings on campus the sidewalk began to break-up due to heavy rains and equipment traffic. This area is a major thoroughfare from campus to apartment buildings. Cones pictured in the before picture were used temporarily to warn employees and students of the hazard. As the damage progressed; damaged concrete was removed, filled with gravel, plywood covered holes, and warning tape and cones used to direct pedestrians through the hazard area until the concrete could be repaired at the end of the project. As slip, trip, falls were our leading cause of injury, this was a great job by our construction group to remedy the trip/fall hazard in a timely manner.

Before

After

In the before picture you see a tunnel access in a mechanical space exposing workers to a fall of about 10ft. To protect employees from falls from the unprotected edge and to comply with the walking working surface standard 1910 Subpart D we installed a swinging gate guard railing as you can see in the after picture.

Before

After

The drill press pictured below was identified as not being anchored down in accordance with the machine guarding standard 1910.212(b) and poses a hazard of falling onto workers when in use. Due to the nature of the use of this particular drill press, needing to be moved out periodically to accommodate larger pieces of material, our Maintenance staff came up with a unique way to anchor the drill press when in its position, which clamps the base to the floor protecting from tipping over but still allowing the ability to move out for temporary usage. Additional precautions are taken during those activities.

Before

After

The emergency exit in a welding area in a lab on campus becomes encroached upon by the welding screens at the right of the picture and also one of the legs to the screen creates a trip hazard in the walkway of the emergency exit route. The safety committee took this issue on and painted lines on the floor to show the path that needs to stay clear. They laid out the welding area to the right of the picture differently to be able to keep the welding screens away from the walkway and informed staff and students of the hazard and the requirement to keep the walkway clear.

Before

After

Hazard Identification: During a Management of Change review we discovered that we were installing a fixed height workstation, but would have workers of varying heights working at the station.

Shorter Worker On Stand

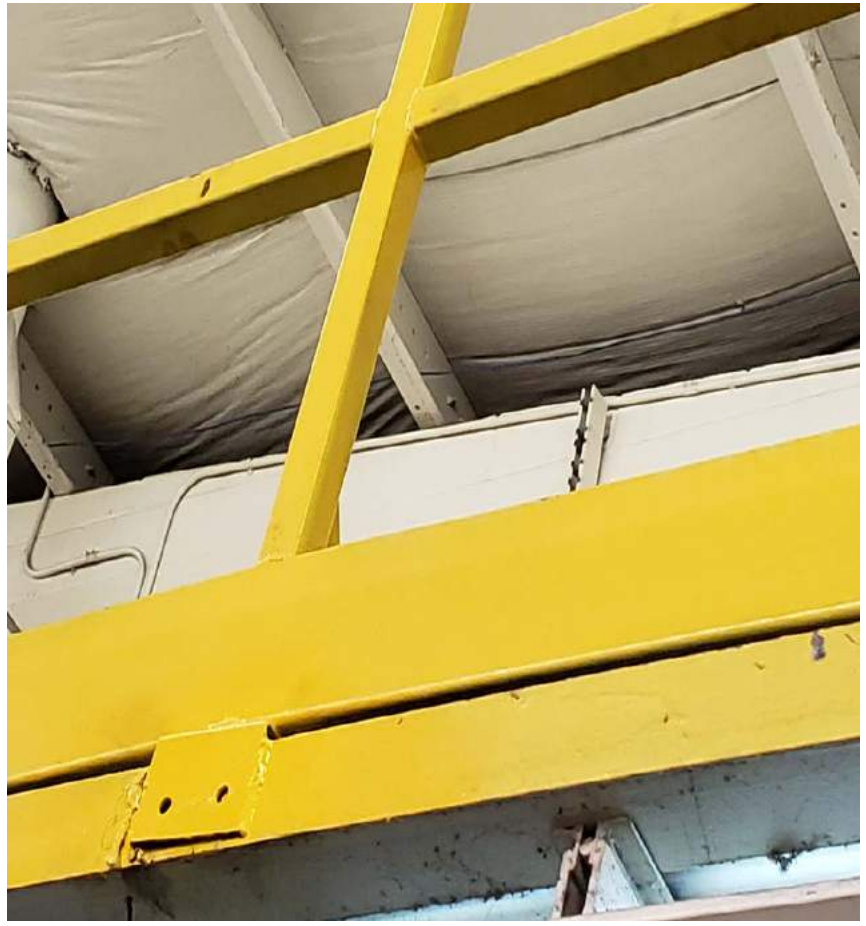
Taller Worker on Floor

Control Solution: We identified and purchased adjustable work stands. These stands allow workers to adjust the height of the stand to provide them a comfortable working height.

Improvements to the personal protective equipment used by workers: Winter gear

Drivers had been experiencing frequent injuries due to falls on ice and snow at locations along their routes. Ice cleats were purchased and offered to all drivers. Of the roughly 100 full time drivers, 26 have accepted the cleats.

Engineering control, redesign, guarding: Guardrail strengthening



Original installation used bolts to mount the guardrails. Bolts came loose and many fell out, leaving an unstable rail. Workers welded formerly bolted areas to stabilize guardrail.

Engineering control, redesign, guarding: Replacement of header

Previous header had rotted, making the large sliding door difficult to manually open and resulted in back strain. A new header was installed, and the door now slides open easily.

Engineering control, redesign, guarding: Improvements to dock area

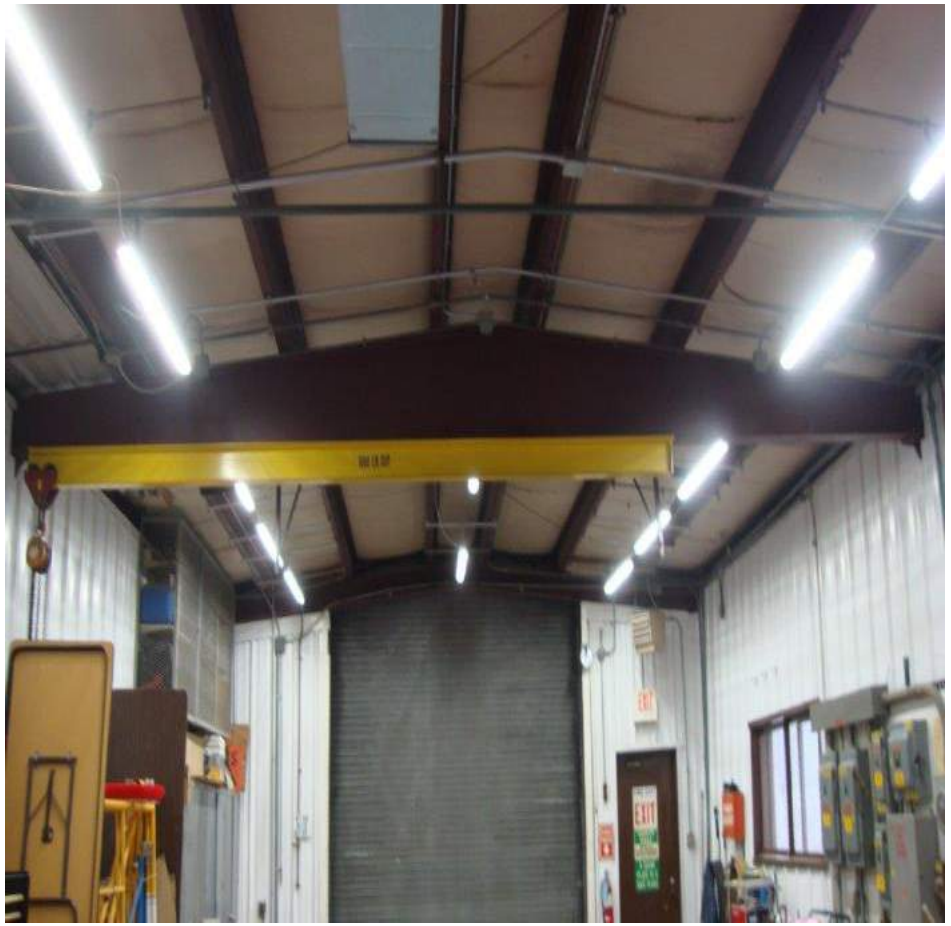
Dock area improvements include painting beams to identify the location of fire extinguisher and adding railings to the pickup dock ramp.

Engineering control, redesign, guarding: New shop overhead door installation

This unit was installed and off-set to the side in order to avoid hitting the opener when workers are working atop tanks and trucks - hoping to avoid any cuts, loss of balance, or bruises.

This unit was installed in order to eliminate the potential for back injury from the previous manual lift door. New door is a shaft driven unit and was set so as to be out of the way of workers atop tanks and trucks, reducing likelihood of cuts, bruises, or loss of balance.

Engineering control, redesign, guarding: Upgraded lighting in shop



Lighting improved to reduce likelihood of injuries by improving visibility.

Engineering control, redesign, guarding: Installed new pallet racks to replace outdoor trailer storage

Before: Parts were stored in trailers kept outdoors. Employees had to walk across sometimes icy lot and climb into trailers to get parts

After: Parts are stored indoors, reducing likelihood of injury from falls

Engineering control, redesign, guarding: Replaced and improved stairs and exit paths

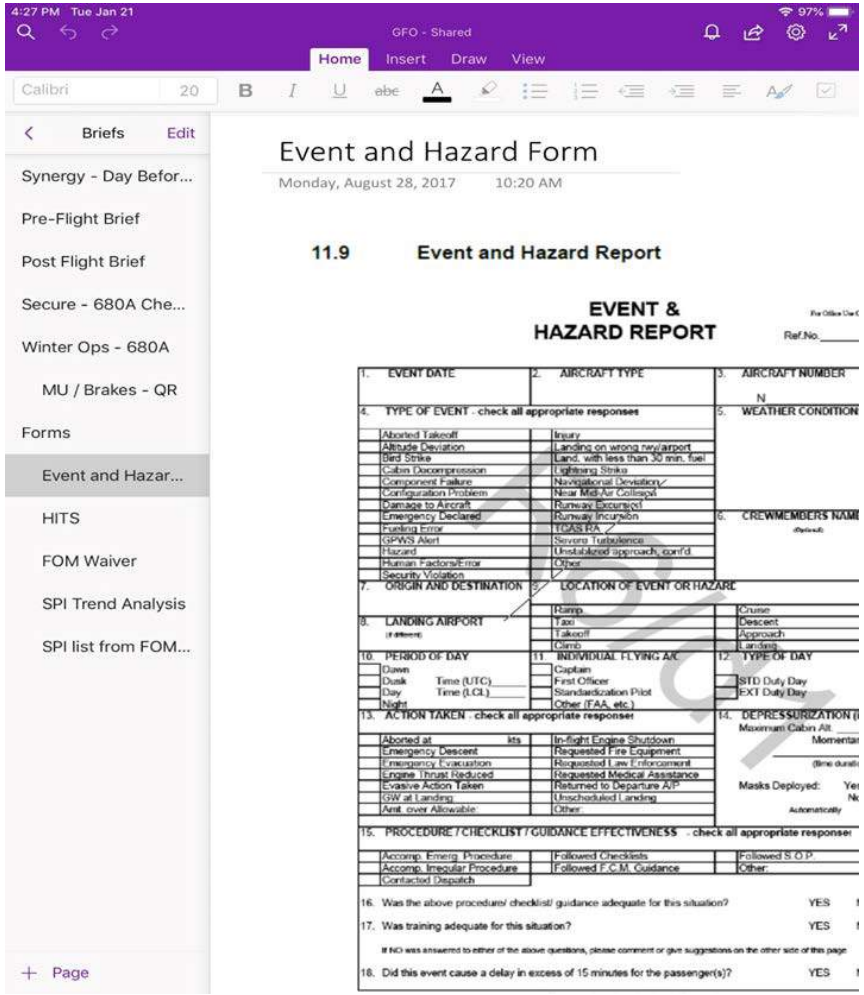
Previous stairs had large washout/drop-off after last step. Area graded and new stairs built.

Previous stairs had rotted and gave under weight of user. Area graded and new stairs built.

Engineering control, redesign, guarding: Removed platform to avoid tripping

Shrink wrap machine was formerly mounted on a platform, but employees often tripped over the corners while using the machine. Platform removed to prevent tripping.

Work practice changes that eliminate or reduce the risk to a hazard: Improved access to checklists and briefings



Flight Operations has completed a transition from various paper documents to the electronic app OneNote.

- All department members have access to the shared account.
- Maintenance/pilot preflight and postflight checklists and briefings are now shared instantly and are more easily located.
- All hazard reporting can now be completed electronically online and shared with all department members.
- The safety officer can have instant access to these reports.

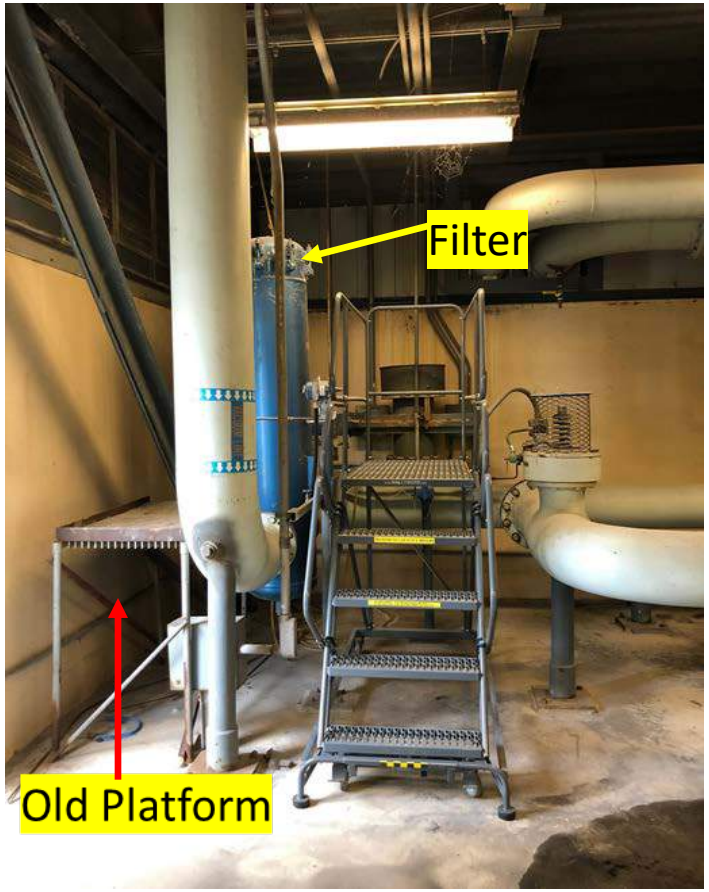
Engineering control, redesign, guarding: Repair of

Rail unloading building had uneven area of concrete creating a trip hazard. Concrete was removed and bar grating was installed in that area.

Work practice changes that eliminate or reduce the risk to a hazard: Monthly safety meetings

Monthly safety meetings have been initiated to increase in-person safety training and safety topic discussion. A recent safety meeting included first aid and CPR training.

Before –while performing filter changes at our Power Plant, employees made use of a make-shift platform. The platform was not tall enough for the task and did not have good access all while being unstable. This created slip/trip/fall hazards and ergonomic issues.



After – purchased a safer, user-friendly platform. The old platform was removed from service. This improvement has reduced risk to the employees while making the task easier.

Before –while repairing water main breaks on city roadways our Water Department is put at great risk from drivers speeding through work zones and not paying attention to the roadway. We have had police help in different ways and use traffic control devices in many forms, but we still could not slow traffic down.

After – purchased lightweight, portable speed bumps to place at each end of the work zone. These have rubber that grips the surface and does not need to be secured to the roadway. Speed bump warning signs were also purchased warning drivers. This improvement significantly slows traffic reducing the risk to our employees.

Handle Installation

Before: Installing cradle wood handles was done by laying the 2x4 flat on the work surface and installing screws from above which placed the team member's arm and shoulder in an awkward position.

After: 2x4's placed on edge with a backstop and a clamp, allowing team members to install screws in a horizontal position. This places them in a better ergonomic position and allows them to use their entire body.

Before

After

Stretch wrapper Platform

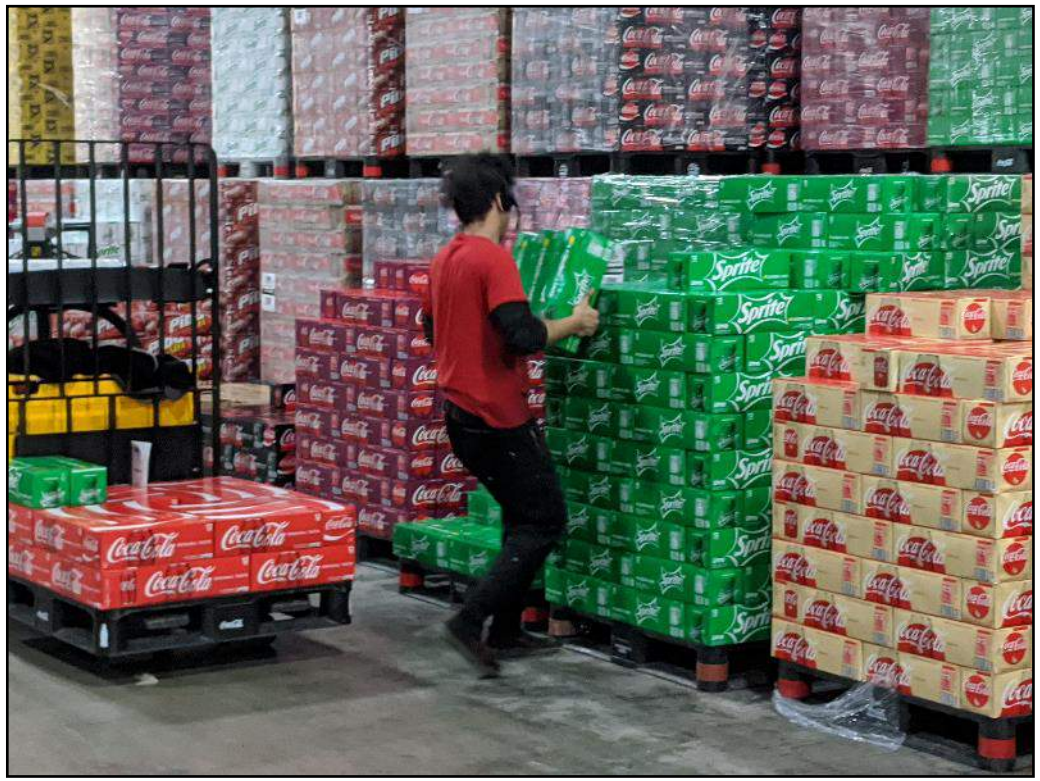
Raised platforms were installed on the stretch wrappers. With the platforms we have eliminated the need to pick up and carry the heavy finished units to the racks and it has eliminated various tripping hazards.

Before

After

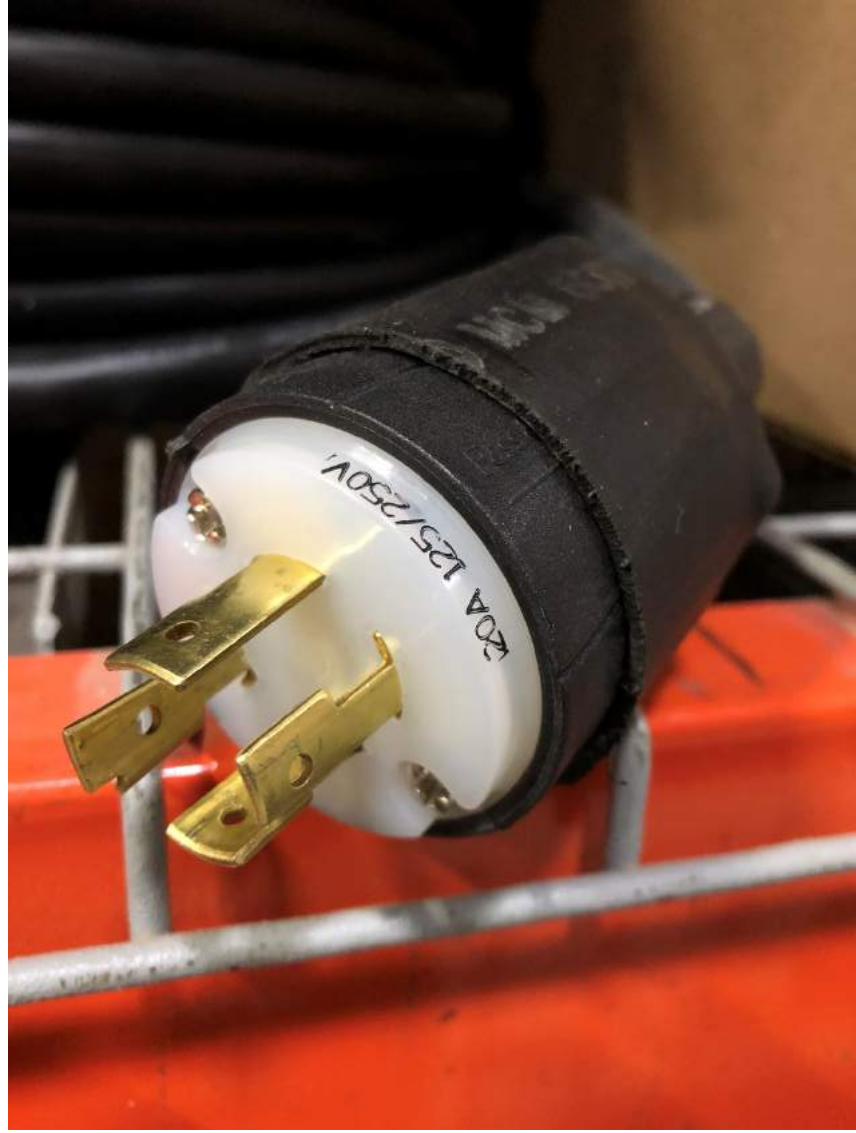
We had a tremendous amount of MSD injuries in our Des Moines Distribution Center from handling beverage products. Our order builders average 150-200 cases per hour. We wanted to reduce the amount of product handled, especially for our most sold SKU's. To reduce the amount of cases touched, we purchased a TyGard Claw forklift. This forklift layer picks product from the pallet it is brought to us on and places it on pallets to go direct to customers. It can handle between 1,100 and 1,200 cases per hour alleviating workload on our order builders. We have seen a dramatic decrease in injuries after implementing this.

Before



After

Electricians utilize arc flash protection PPE for authorized energized electrical work per NFPA 70E. Feedback was provided regarding the arc-rated face shields being worn during this work. All arc-rated shields in the past were designed with a green tint which made it difficult to identify wire colors at times. Also, the bottom chin cup restricted viewing. After research into new equipment and design, a new arc-rated face shield was discovered and implemented in place of the old ones. This contains a clear chin cup with unrestricted view as well as a light gray tint to help better determine wire color. As a result, potential for error is reduced therefore mitigating risk with this task.



OSHA requires all jobsite temporary lighting to be on its own dedicated circuit. In the past, light stringers and temp lighting contained the same cord plug as most other power tools and electrically-operated equipment on the job. This created issues with other equipment being plugged into the same receptacle as the temporary lighting. In response, all temporary lighting was redesigned to contain a twist-lock cord cap along with a dedicated circuit and female twist lock plugs on the temporary power panels. This will ensure that temp lighting is on its own dedicated circuit without the potential of being shared.

Material Handling Improvement

Original Processes

Employees would use awkward and heavy stapler to secure hardware cartons.

- Stapler weighs 6.4 lbs. (plus hose)
- Constantly applying force to the tool to embed the staples in the carton
- Repetitive motion on the trigger finger
- Use of air hose created a trip hazard
- Staples caused lacerations while attempting to open cartons
- Staples compromise the integrity of the carton

Recognized Hazards

- Muscle Fatigue
- Muscle Strains
- Repetitive Motion
- Fall at same level
- Lacerations

Improved Processes

Replaced staplers with WaterActivated Tape Dispensers.

- Single touch of button dispenses precise measurements of tape
- Effortlessly applied to cartons with two fingers
- Consistent and uniform packaging
- Water-activated tape penetrates and bonds to the surface. Pressure sensitive tape only “sits” on top
- Dispenser is stationary on workbenches which eliminated trip hazard
- Staples hindered recycling, cartons are easily recycled with the tape
- Allowed implementation of vacuum lifter

Material Handling Improvement
Replaced Steel with PET banding

Original Process

Awkward and heavy pneumatic tools are used to secure loads with steel banding.

Banding tool required dragging an air hose.

Pneumatic tool is not balanced.

Pneumatic tool requires constant gripping of "trigger"

Steel banding is a laceration waiting to happen

Steel banding coils weigh over 100 pounds

Recognized Hazards

Muscle Fatigue
Muscle Strains
Repetitive Motion
Trip Hazard - Fall at same level
Lacerations

New Process

Implemented PET strapping throughout facility.

Battery Operated tool **eliminates trip hazards**

Ergonomically designed, balanced tool

Single push button operation or automatic mode

PET strapping eliminates laceration hazard

PET strapping coil is 60% (60 lbs.) lighter. 2x the length

PET Banding is 37% $$$ savings (FAST ROI)

Visitor Management Improvement

Original Processes

- Visitors had uncontrolled entry into facility buildings
- No visible distinction between visitors and employees
- Visitors could not be accounted for during emergency situations

Recognized Concerns

- Visitors had uncontrolled access to facility
- No record of Visitors on site for emergency purposes
- Visitor could gain entry to 'restricted' areas

Improved System

Implemented Visitor Management System that notifies host of visitor arrival.

- Employees have greater sense of security
- Heightened employee awareness of unidentified visitors
- Visitors must utilize video phone in vestibule to gain entry in the facility
- Two dedicated sign-in stations
- Visitors must sign in/out for every visit
- Can account for all visitors on site at any given time
- Visitor name badge automatically prints
- Visitors are accompanied at all times while at facility
- Employees must badge in to gain access to the facility

Safety Team Development

ADVANCED SAFETY CERTIFICATE

The entire Safety Team participated in the NSC's Advanced Safety Certification Program.

The certification process was initiated by Sukup Manufacturing Co.'s Safety Department. The IA/IL Safety Council and local Community College helped facilitate the learning events by having classes at our facility. The Company Executive Officers supported the entire process.

Ergonomic concern with operators working on tank. Process was to do all work while tank was on the ground. New Tank Rotator brought tank to appropriate working height and ability to rotate as needed for work as well as time savings of work under tank on rotator instead of final line production.

Operator having to squat to install component on tank.

Operator having to reach to install component on tank.

These AC units are delivered on a pallet and in boxes of 8, so when operators get to the bottom row they are lifting from a very low and deep position to get the unit out and then carry to their work station. Purchasing this hydraulic cart, with foot pump, reduces the need for bending over and reaching by bringing the product up to an ergonomic height for removal.

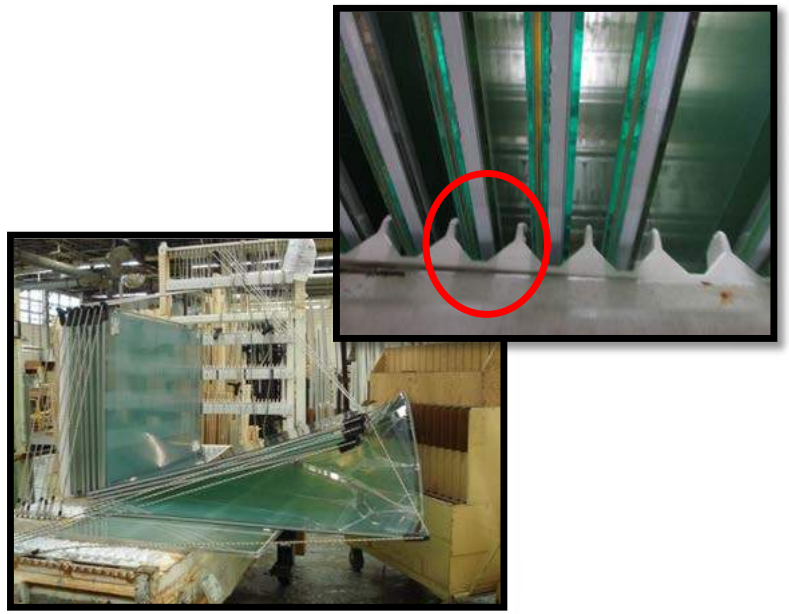
BEFORE

AFTER

GLASS RACKING IMPROVEMENT

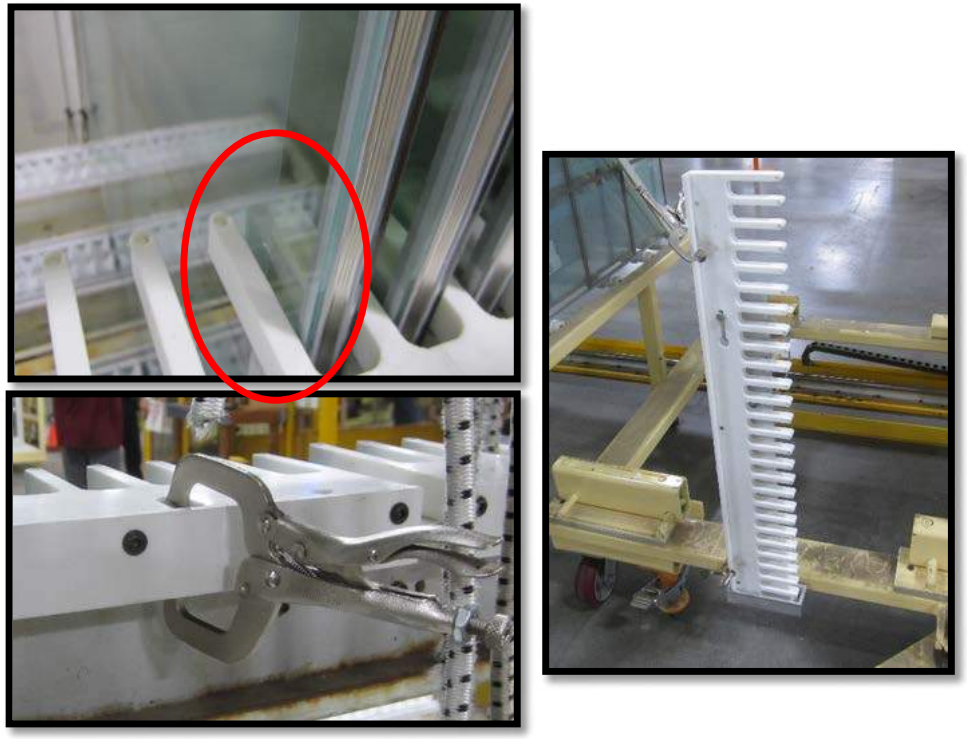
Before

- Units of glass would shift out of position in transport. The glass would have the potential to fall when the bungee strap was removed.



After

- Added removeable dividers to add length to hold glass in place



Opening Paint Drum

Before:

Operators had to open the cap or bung on a paint drum manually with a tool. Their hand had the potential of slipping and contacting the rim or bolt on the drum.

After:

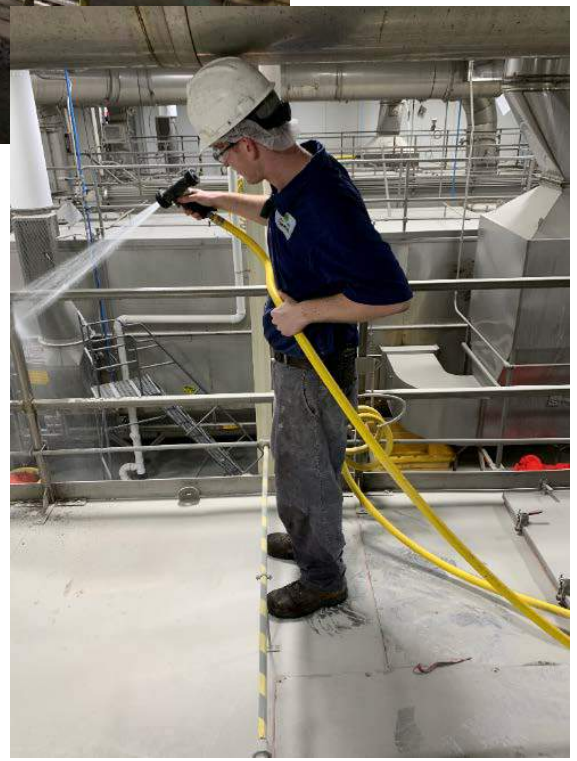
We improved the process by buying an attachment to a cordless drill. This eliminates the manual process. The operator no longer has their hand in the line of fire to remove cap.

Before Roaster Sanitation Safety Project

At our plant we conduct weekly shut down sanitation on our roasters to clean any dust and debris that accumulated during the week. During this process technicians would have to climb the 13 foot to the top of our three roasters all while carrying a commercial grade, bulky hose. Many times their feet and the steps were already wet, needless to say this process put our employees in danger of a slip, trip and fall.

After Roaster Sanitation Safety Project

To mitigate all of the safety risks that came with this sanitation process, we knew something could be done. Waterlines were run to the tops of all three roasters, hose reels then were added. Now employees are able to access water to perform weekly sanitation directly at the top of the roasters, making the entire process safer.



Elimination of Sampling through Technology

Material data collection historically has been a manual task that involves opening a process to collect samples exposing employees to several hazards. Prior to utilizing technology this was a procedural task requiring PPE such as long sleeves, long pants, work boots, heat resistant gloves, safety glasses, hard hat with face shield, and H2S monitor.

In-line Viscometers have eliminating the risk associated with obtaining samples. Through innovation and the use of technology real-time data for our testing and shipping is provided while eliminating the open process risks associated with material data collection. In addition less waste is generated reducing the environmental impact.

Identified Risk

It was identified that a non-fused disconnect required arch flash category 2 PPE when testing for deenergized during LOTO. This disconnect was a 100amp non-fused disconnect with 5.26 Cal / cm^2 of energy.

Solution

Replaced non-fused 100 amp disconnect with special fast acting fused disconnect reducing the arch flash potential energy to less than 1.2 Cal / cm^2. This eliminated the need for arc flash PPE when testing for deenergized during LOTO significantly reducing the risk to the employees.


100
150
200
250
300
350
400

Identified Risk

Our facility was built in the 1960s and most of our MCC's (motor control centers) are from that time period. The MCC's are found in various buildings of the facility and due to the electrical constraints, some of the MCC buckets energize several different sources in the plant. This makes it difficult for employees to identify power sources of equipment to perform LOTO.

Solution

Recognizing the need to update our electrical infrastructure, we decided to invest in a project to relocate the facility electrical into a new MCC building. This building would be the sole location for all the facility MCC's. The new system will give better reliability and allow for updated labeling/identification of electrical throughout the facility which builds consistency for energy control. By improving reliability, this will decrease the need for employees to perform electrical work by keeping them out of equipment for maintenance repairs.

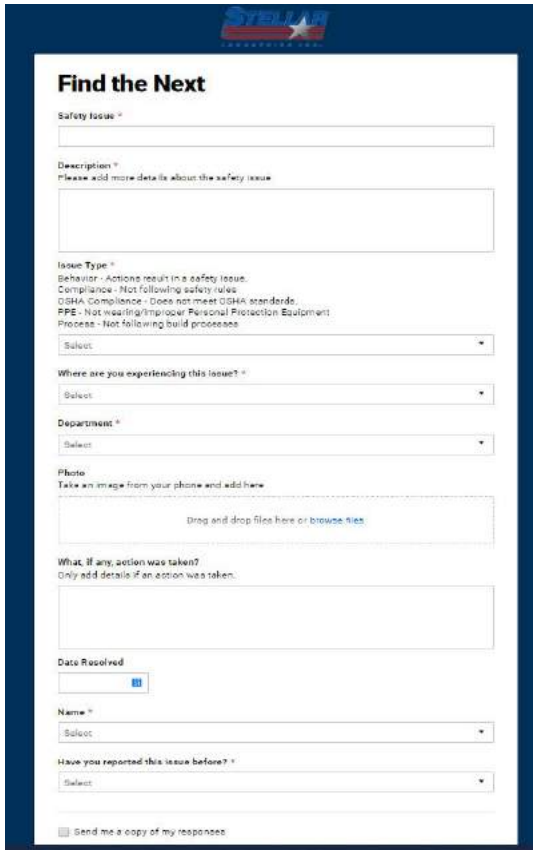
"Stellar Find the Next Program"

Prior to the program supervisors had limited access to report safety concerns and follow up was a problem.

With the design of our Smartsheet our supervisors have a simple one step method to report a safety concern.

These submissions help identify problems before they become incidents.

This is what each supervisor uses to fill out issues.



Find the Next

Safety Issue *

Description *
Please add more details about the safety issue

Issue Type *
Behavior - Actions result in a safety issue.
Compliance - Not following safety rules
OSHA Compliance - Does not meet OSHA standards.
PPE - Not wearing/improper Personal Protection Equipment
Process - Not following build processes

Select

Where are you experiencing this issue? *

Select

Department *

Select

Photo
Take an image from your phone and add here

Drag and drop files here or browse files

What, if any, action was taken?
Only add details if an action was taken.

Date Resolved

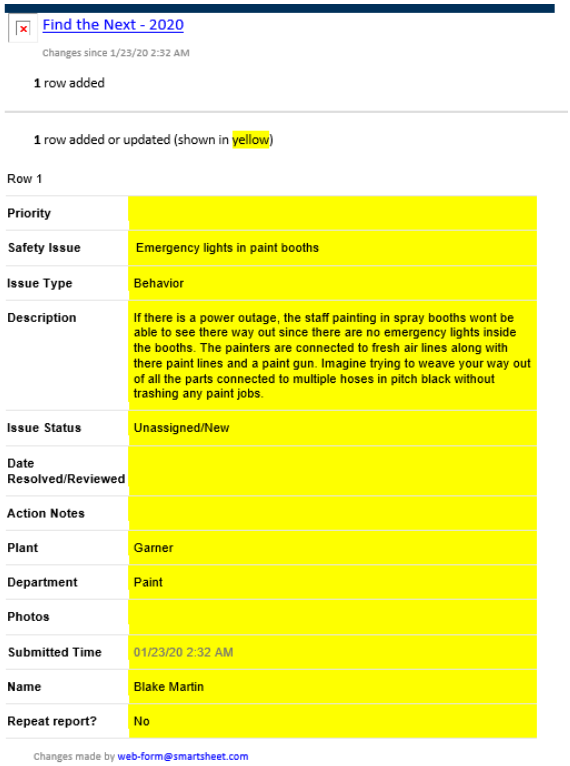
Name *

Select

Have you reported this issue before? *

Select

Send me a copy of my responses



Find the Next - 2020

Changes since 1/23/20 2:32 AM

1 row added

1 row added or updated (shown in yellow)

Row 1

Priority	
Safety Issue	Emergency lights in paint booths
Issue Type	Behavior
Description	If there is a power outage, the staff painting in spray booths wont be able to see there way out since there are no emergency lights inside the booths. The painters are connected to fresh air lines along with there paint lines and a paint gun. Imagine trying to weave your way out of all the parts connected to multiple hoses in pitch black without trashing any paint jobs.
Issue Status	Unassigned/New
Date Resolved/Reviewed	
Action Notes	
Plant	Garner
Department	Paint
Photos	
Submitted Time	01/23/20 2:32 AM
Name	Blake Martin
Repeat report?	No

Changes made by web-form@smartsheet.com

Issues then get updated when progress is made. An email is automatically generated and sent to the reporting supervisor. This alleviated the follow-up problem we were having.

Added handles to valves so ladder is not needed to reach them.

Deluge System

- Fire Safety
- If a fire would happen to start in a dryer this system will put the fire out inside the dryer.

Added Protection

- End caps could become loose and with the pressure come out.
- Bars were installed across the end caps so that if a cap would happen to come off it does not become a projectile.
- A “PM” was also implemented to check caps every month

Pallet Lift

- Hand stacking pallets above your waist.
- We installed a pallet lift that will lower into the ground so that the top of the pallet is always at waist height while stacking.

Ragan Mechanical, Inc. – Hazard Recognition Control
Before: When there were no guard rails in place to protect employees from
walking or tripping into the platform of the Automated Rotor Welder.

Ragan Mechanical, Inc. – Hazard Control Recognition

After: Ragan Mechanical employees installed removeable guards painted high visibility yellow. Employees are protected from walking or tripping into the Automated Rotor Welder platform. The guards are easily removeable in case it would necessary to gain full access to the platform.

Isolation of Energy Improvement

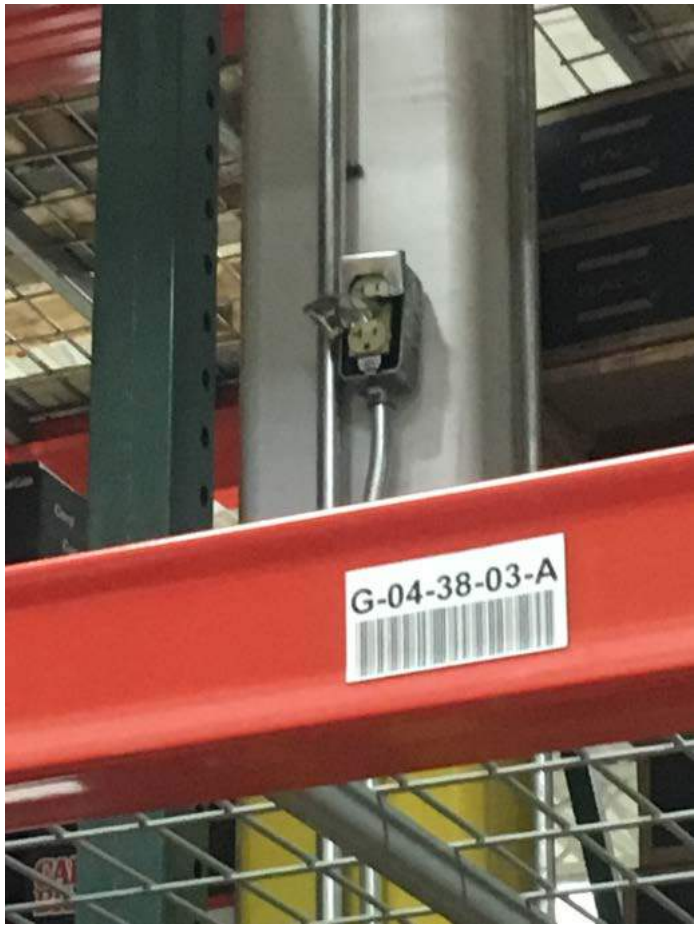
Problem (before improvement):	**Improvement:**
• **Corporate Standards & Corporate Plant Safety Teams requirements were not available on purchased lock out tags.** • **Inconsistency in adhering to expectations of including company name, date, and purpose of lockout being performed**	• **Designed individual lock out cards templates for each operator and seasonal lockouts for Maintenance** • **Determined 3 reasons that would cover all lockout procedures. Cleaning/Changeover (C/C), Preventive Maintenance (PM) and Repair & Maintenance (R&M)** • **Operator only has to enter the date using a white board marker**

Benefits:

- **Increased safety**
- **Increased efficiency during changeovers**
- **Increased morale as operators knew they are meeting all expectations during a lockout procedure**

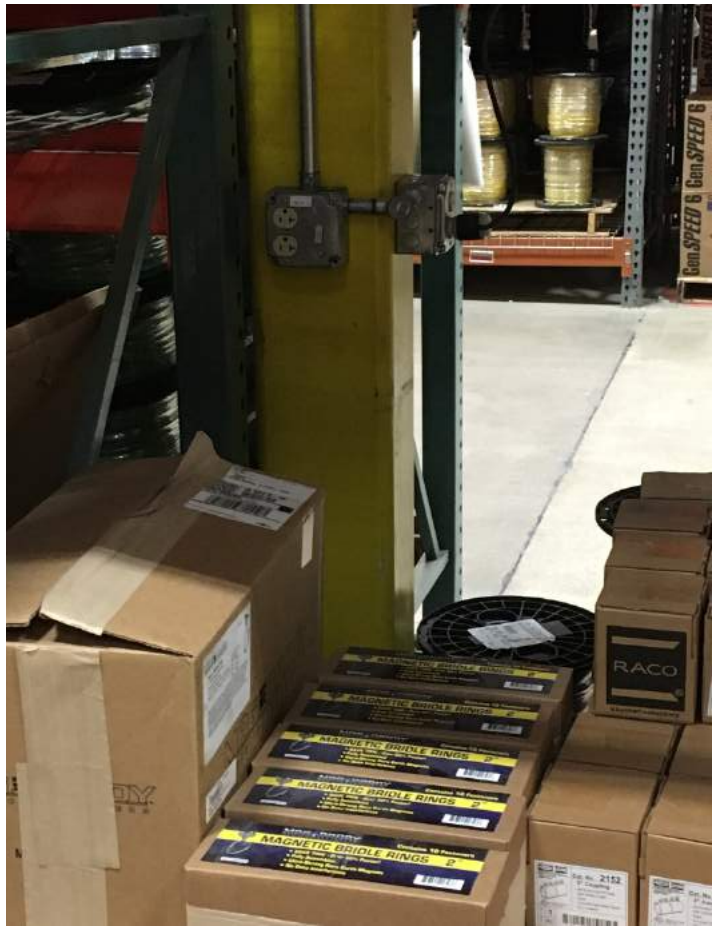
Problem

This is an example of some faulty outlets we had in our warehouse which presented a safety hazard to our employees who used them.



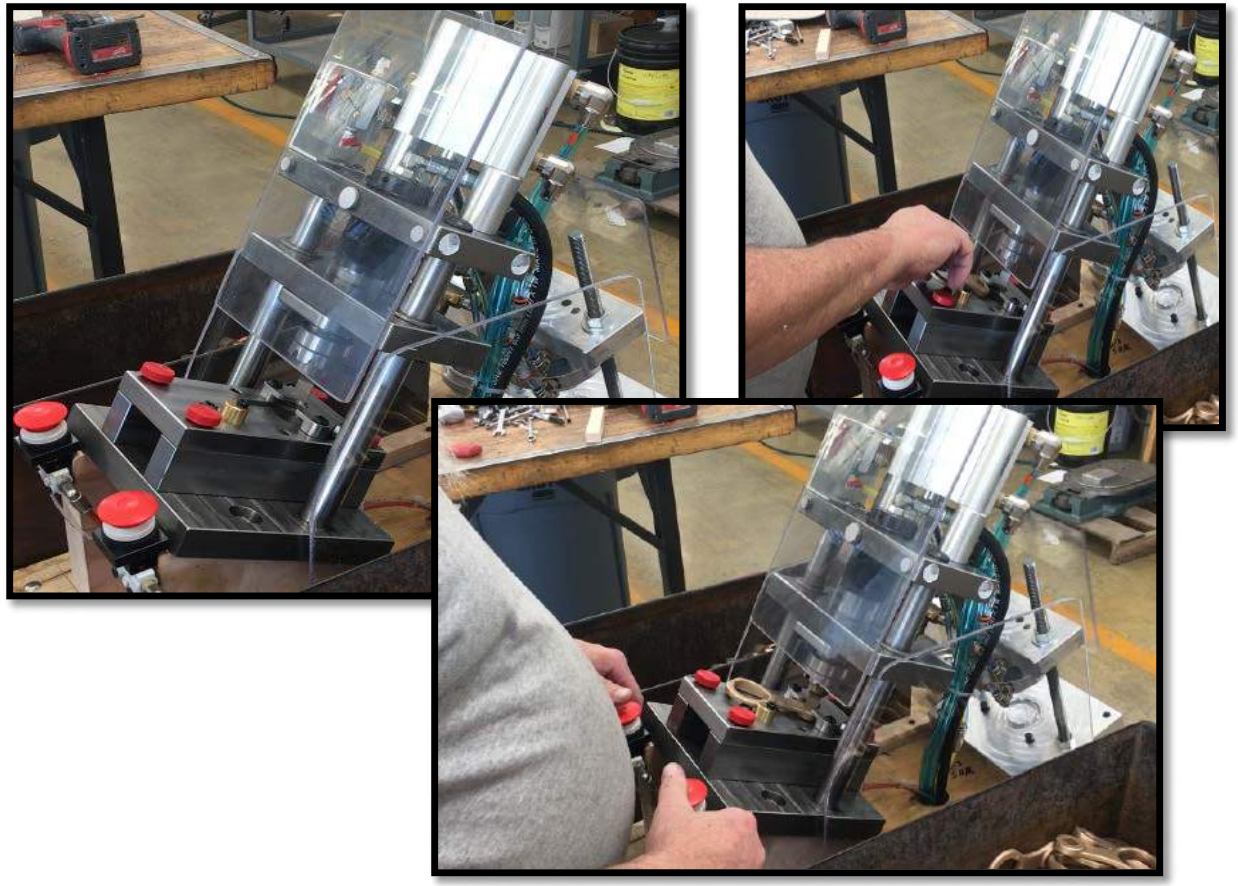
Solution

We not only moved this outlet to a safer location but also repaired it along with other faulty outlets in our warehouse.



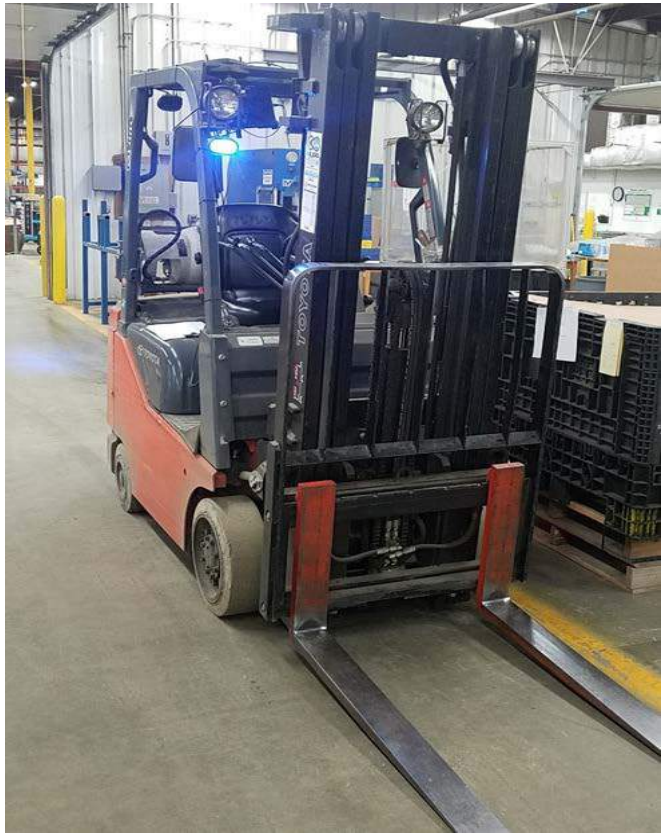
Before

After



Morrison Bros. Co. had an old arbor press that was used to punch out a variety of parts. Once you set the part in the rest, it has a large handle that you bring back and push down on with quite a bit of force to get the bit to go through the part. This creates a risk of injury, especially if the employee punches numerous parts per day. After a risk assessment was conducted, the Ergonomic Task Force Team got together and created a brand-new pneumatic press. Numerous holding fixtures were made to accommodate parts of various sizes. The employee can easily switch them in and out. The part is then placed in the holding fixture. The employee presses the two-hand controls and the bit comes down to punch the part. The employee then takes the finished part out. This removed the risk of injury in the process.

For added safety to all employees at Skyline Center, Inc. Skyline purchased Blue Forklift Safety lights to better enhance visibility in the forklift traffic areas. Blue lights were attached in the front and back of each Forklift. Forklift blue safety lights work by casting a bright blue light onto the ground in front of or behind the forklift while it is in operation. It's a simple concept, but also a highly effective one. The lights allow forklift operators to see where other forklifts are operating, even around corners and in tight spaces with less than ideal visibility. Observing the light will tell the operator where the other driver is coming from, where they're headed, how far away they are, and how fast they are going so that they have all the information that they need to make safe decisions. Blue lights are great for pedestrians, you will be able to see the bright blue light on the ground headed in your direction with plenty of time to become alert and move out of the way of the oncoming forklift.



Heat Treat Guarding

Before:

We installed a heat treat line over the summer and after it was assembled we saw a need for guarding to protect our operators that did not come with the machine.

After:

Our operators will occasionally need to go in-between the carts, now there are guards installed to keep them from being entangled in moving parts.

Straightening Press Guarding

Before:

We installed a new straightening press over the summer and after it was assembled saw a need for guarding that did not come with the machine.

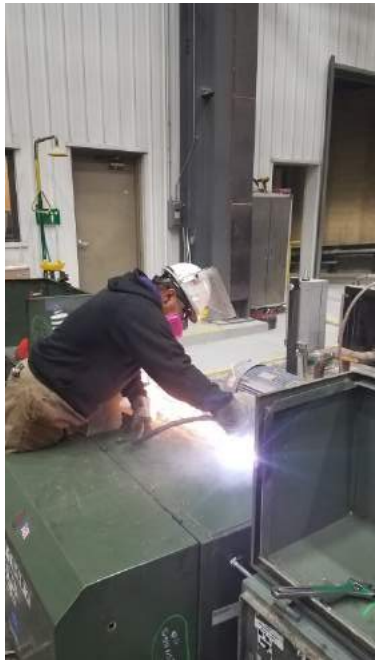
After:

Our operators will be moving blades on and off the press to get straightened and now we have guarding in place to stop someone from going in-between the press and rollers.

Environmental Spill Kit

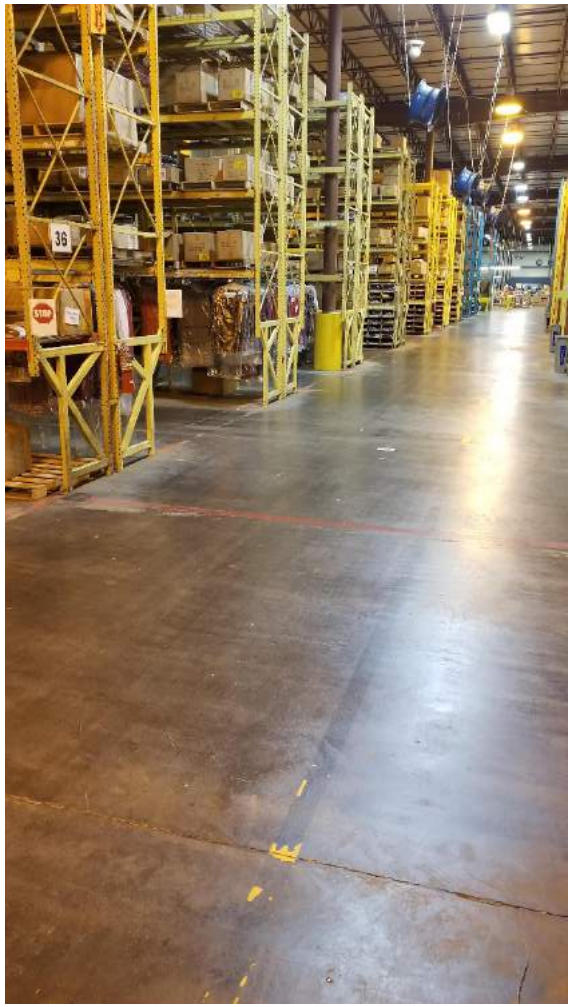
Maintaining spill kits on 50+ trailers was becoming a daunting and expensive task. Through collaboration with other petroleum transportation companies we designed a spill kit that fit nicely on the back of our trucks and contained all the equipment we would need for a small spill, or to begin defensive tactics on a large spill until an outside response team responds

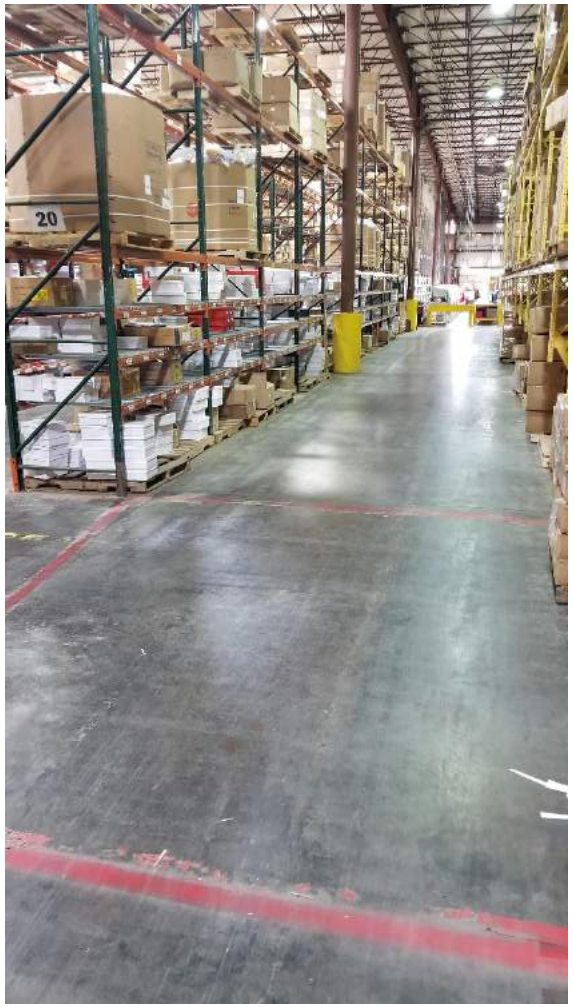
Lead Monitoring



When thermal cutting painted steel there is a risk of hazardous fumes from lead, hexavalent chromium, zinc, and cadmium. We have subcontracted with Industrial Hygienists to monitor and report these levels in the fumes of units we are demolishing. To date all of the reports have yielded results below the OSHA action levels, however we still require all our employees to wear respirators to protect them during these activities. We have also purchased our own equipment to monitor these activities and will now conduct air monitoring studies twice per year to verify that current engineering procedures are still effective.

Forklift Pedestrian Awareness & Mitigation





- Added an additional stopping point for forklifts in the pick area.
  - Forces the forklifts to slow down in the pedestrian area.
  - Forces the forklift and pedestrians in the area to communicate more.
- Prohibited pedestrian traffic through the last aisle of the picking section.
  - Separates forklift and pedestrians from interacting in a smaller aisle.
  - Standardized where forklifts can expect pedestrians to be, which is mostly a non-forklift zone.

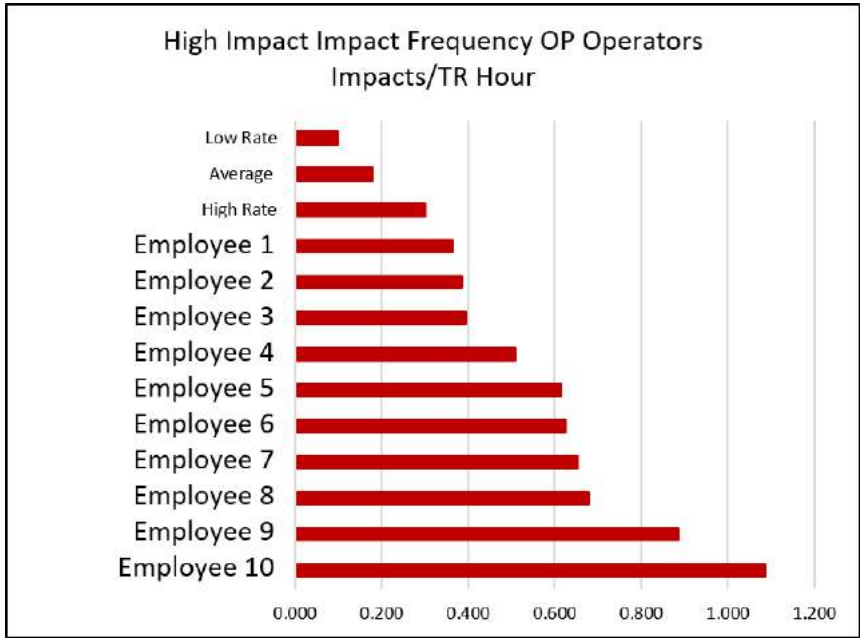
Personalization Slip, Trip, Fall Mitigation

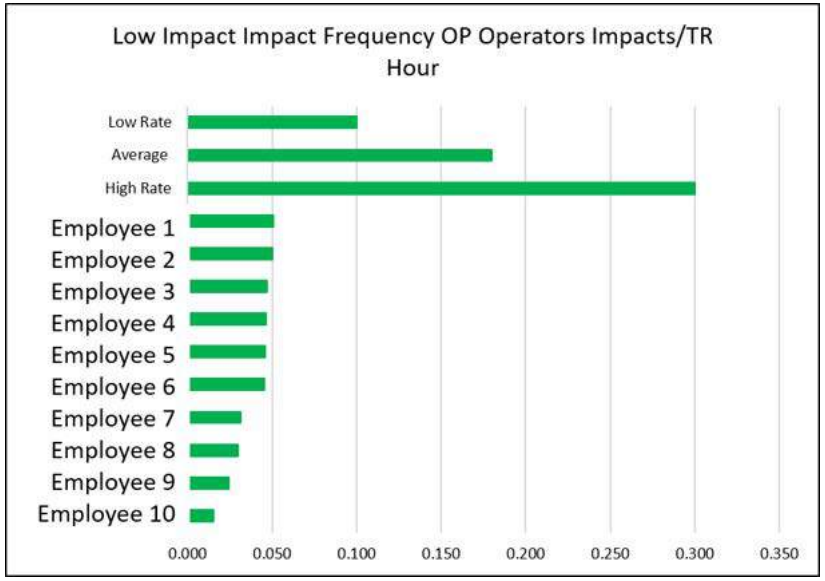
- Our direct to garment printing operation is set up in a second floor room to help maintain a certain environment for the equipment to operate in. These are the risks being prevented:
  - Forklift is able to supply a years worth of product to the second floor eliminating the need to carry product up stairs.
  - Employee has a chute to a basket for finished product eliminating the need to carry product down stairs.
  - Basket is on wheels for low stress movement of all finished product to the loading area.

Automatic Bagging Operation

- Colony Brands went from a manual bagging process that included frequent fine finger manipulation, large open hand grasping, lifting and stacking of the product and over reaching. This was replaced with an inline bagger that does the following:
  - Automatically makes the correct size bag.
  - Automatically seals the bag
  - Automatically labels the product
  - Automatically conveys the product into a hopper to be pallet jacked into a trailer.

Aggressive Driver Identification





Colony Brands in 2018 began using an impact tracking tool for powered industrial trucks called I-Warehouse. Although this tool has been helpful in identifying impacts, driver certifications, and problem areas, it lacks identification of aggressive drivers before they create a high impact. In late 2019 Colony Brands developed a tool that takes lift type, lift hours, and impacts both high and low into a database that determines which drivers have the highest impacts per lift hour by lift type and which drivers are the lowest. In 2020 these low performing (aggressive) drivers are being observed, tracked, and coached while the high performing less aggressive drivers will be complimented and rewarded for safer behaviors.

Baler Twine Pull

Before

Initial Process

Validating the knotter function required an operator to use a cumbersome, nine foot hand-tool for extracting twine.

The task was performed thirty times a shift with a manual force requirement of approximately 65 lbs.

After

Revised Process

Implemented an internally designed and developed automated twine puller.

A winch system is powered by a battery-impact and fitted to a tool that retracts the twine. The twine is spooled onto a drum and a braking system keeps it taught. This allows the knotter test to be performed safely and efficiently.

Hazards Identified and Mitigated

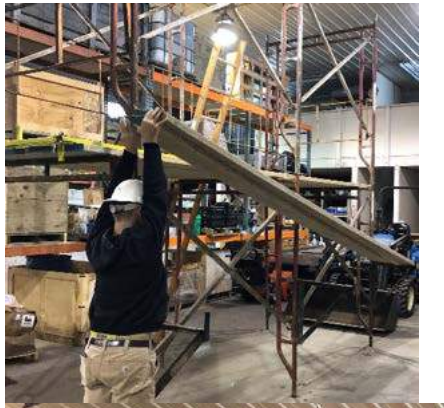
- ✓ Excessive Force
- ✓ Excessive Weight
- ✓ Repetitive Motion

- Window sills were well below a standard guardrail height which would expose workers to a fall hazard.
- Could not utilize conventional fall protection.

Designed a Fall Restraint System (After)

- **These fall restraint dead men were designed to withstand more than 2 times the expected force and can be moved from room to room.**
- **They were set up for use with a 6’ lanyard which prohibited workers from moving past the window opening.**

Seedorff Masonry, Inc. – Strawberry Pt, IA



Removing the Slip/Fall Hazard while raising Foot Plank and outriggers

<u>Before implementation of a Rope & Pulley System</u>

Raising the Foot Plank, End Guard & Outriggers exposed workers to strains and fall hazards. To raise to the next levels after getting off the ground, an employee would have to put on a safety harness, tie off, remove scaffold end guard, and hang onto a scaffold buck on the outside of the scaffolding while reaching down to grab the plank to raise them while another worker raised the outrigger.

<u>Modifications to Foot Plank End Guard, and an outrigger to add a picking hook point for a pulley was the solution.</u>

Modifications:

- added picking loop to top of Foot Plank End Guard
- added a pick point to the end of an outrigger

Hazards removed from the process of raising Foot Plank:

- No longer need to bend over to remove the safety pin to remove the Foot Plank End Guard, it stays installed and is used to hoist up the plank
- No longer remove the working deck End Guard Rail, to have employee suiting up in a Safety Harness climb outside the fully guarded Scaffolding working deck

Hoods for Painters

We upgraded the hoods that the painters wear in our powder coat booths. They were wearing a 3M soft sided hood with supplied air. The new hoods are RPB hard hats with supplied air. These hoods will help protect painters heads while moving around the parts to powder coat them. The users can now control the amount of air being forced into the hoods as well as the temperature. The mask flips up on the new hoods to allow for the employees to do a quick check on the parts if needed and then put it back down to continue powder coating parts.

Before

After

Vacuum system protecting employees against insulation

Before – Employees install insulation around the glass that goes in the doors of the fireplace units we make. There were some issues with the insulation causing irritation to some of the employees skin. We had them using Tyvek coats which helped but didn’t eliminate the irritation.

After – Our maintenance department designed and installed a vacuum system on the bench where the insulation is installed. The vacuum system helps to catch the loose fibers that float around before they can

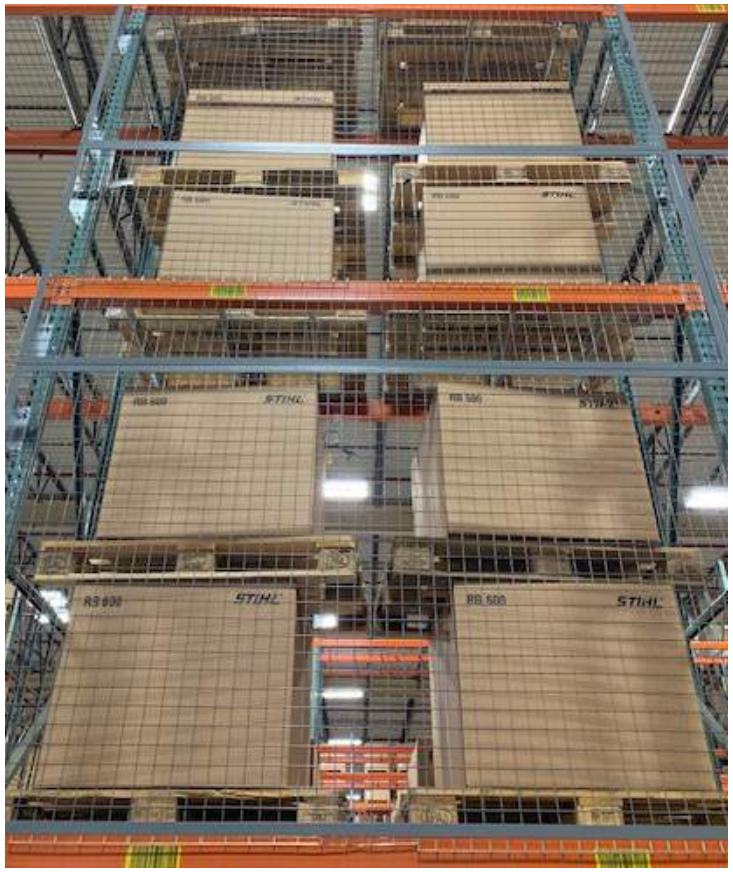
get embedded in clothing or the Tyvek suits.

Exhaust Fans in the Fabrication Building

4 large exhaust fans were added to the ceiling of our fabrication building. They were installed to help reduce the risk of heat illness for employees. The fans were placed in areas where during the warm weather the hot air gets stale from lack of movement. Even though the fans aren't cooling the air down, the employees noticed right away that the movement of air helped make them more comfortable.

Racking protection along walkways

We have walkways along racking where boxed product is stored as well as along work areas where parts are stored until they are ready to be used. These areas pose a hazard for employees if items were to fall off the rack. The safety department looked at various options to protect the employees. Wire racking panels were purchased to install so if items fall or are pushed during retrieval they will stop once they hit the panels.



Non slip floors in test rooms

Before – All of the test rooms had regular concrete floors that most warehouses have. If any liquid was on the floor it made it very slippery.

After – All of the test rooms have a greater risk of a slip hazard due to any water or liquids that could end up on the floor during the testing process. A non slip coating was applied to all of the floors to eliminate the hazard.

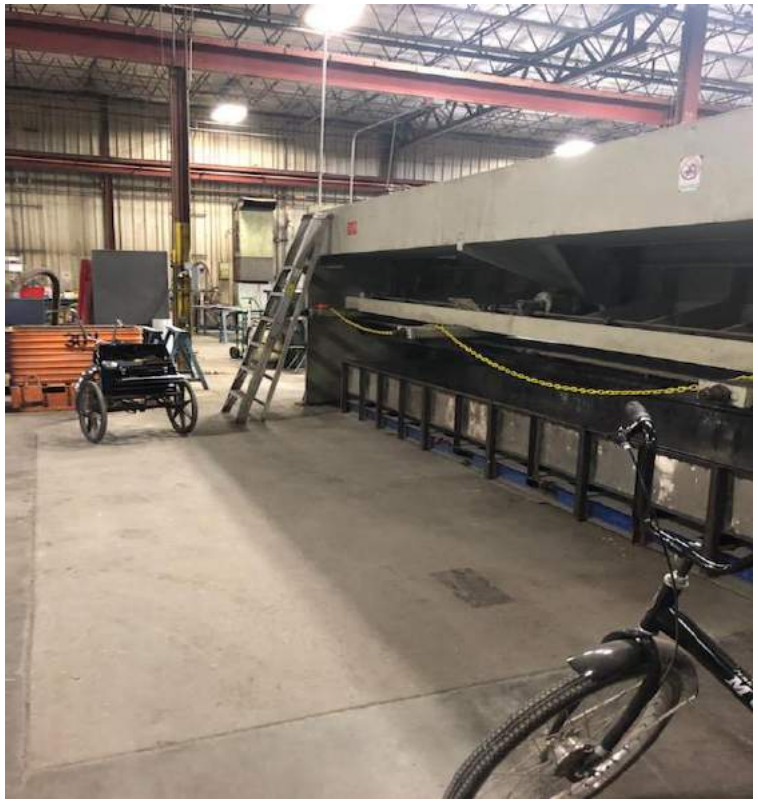
Our south yard did not have a railing around where our scrap hopper is placed. This was a falling hazard. The existing railing on this concrete pad was not OSHA compliant. We took out the old railing and installed new railing around the whole area to meet OSHA standards and prevent falls.

Before

After

During a Safety Sweep, it was found that this machinery had moving parts that was exposed to foot traffic. The Safety Action Team problem solved by extending the chain and painting a yellow box around the area of the moving parts to deter foot traffic when in operation.

Before



After

Paint/Stain Ergonomic Improvement

When processing channel through the stain application cell, it was necessary to hand sand parts between the 1st and 2nd stain coatings to meet our quality specifications. The team member would use a sanding block to hand sand each part between 4-6 times before it could be stained again.

Through team member input and ergonomic evaluations, an automated sander was designed and implemented. This sander applies the necessary amount of surface preparation to each part and reduces the need for hand sanding by 80%.

Before

After

Wood Processing Noise Reduction

Before

- Wood Pulverizing Hog which takes scrap material and pulverizes it into saw dust generates an 8-hr. time weighted average of 90.8 dB. Peak readings measured 97.5 dB. The hog is in ground surrounded by cement walls with a metal cover overhead.

After

- Brought hog above ground and surrounded by a new stainless-steel enclosure with sound absorbing material on the walls of the enclosure. 8-hr. time weighted average of 80.3 dB. Peak readings measured 88 dB.

Lifting/Handling Reduction

Team members had to bend over to load boxes that were to be packaged and sent out from our stockroom. These boxes would sit on top of a few pallets on the ground. Installed platforms that they can load their material into the boxes on the pallet. The pallet height automatically adjusts with the weight of the load. Team members no longer had to bend over every time. The pallet can also be taken, and the entire load be stored in racking if needed.

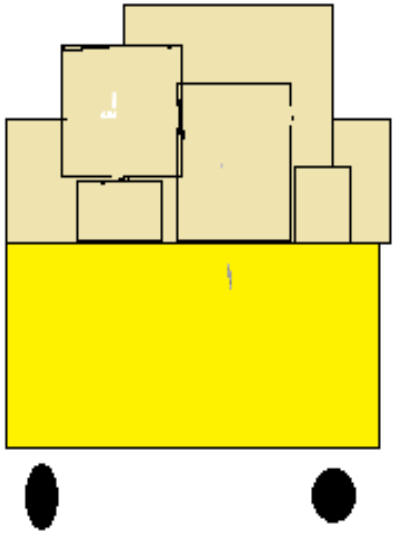
Before

After

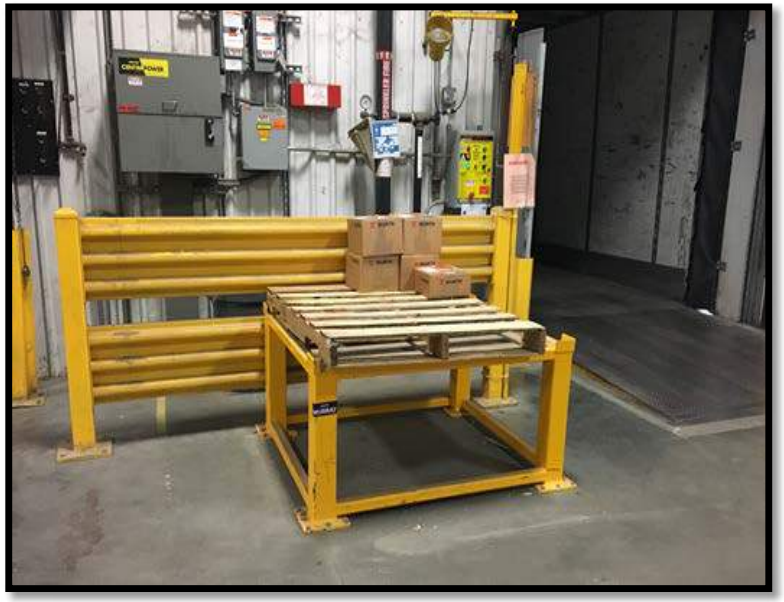
Lifting/Handling Reduction

Crossdocking occurs daily in our docks. The material was staged on a cart and then reloaded manually onto the trailer when it was ready to be loaded. Material is now staged on a pallet that sits on a staging rack. The pallet can be loaded directly into the trailer, eliminating the manual loading of each parcel onto the trailer.

Before



After



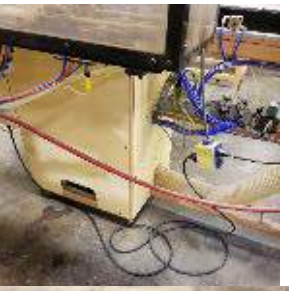
Improved Safety Culture & Safety Improvements Completion

Before

We relied on team members suggestions to identify safety items and report them. Many times it took a long time to complete any suggestions.

After

Implemented a Kaizen Event based approach where cross functional teams inspect specific areas of the plant and any safety issues that are identified, are immediately addressed by the team. This has reinforced everyone's responsibility in building our Safety Culture. Approximately 1/3 of the plant has worked on improvement projects driven from the Safety Focused Kaizen teams. In 2019, the teams identified 1060 safety issues, and have implemented over 830 improvements with more in process. 54 individuals have participated on the teams.



Weather-strip Install Ergonomic Improvement

Before

The weather-strip roller had a poor ergonomic design with a lot of added wrist movement and pressure while the wrist was at a poor ergonomic position.

After

A new roller was designed, and 3-D printed that was more comfortable for the team member to use.

Flywheel Lifting Device

- As an operator was moving a flywheel the hoist being used came to an abrupt stop and the lifting device dropped the flywheel.

- After investigations a new lifting device was made that has three points of contact on the flywheel instead of two to retain the part.

Turbo Cart

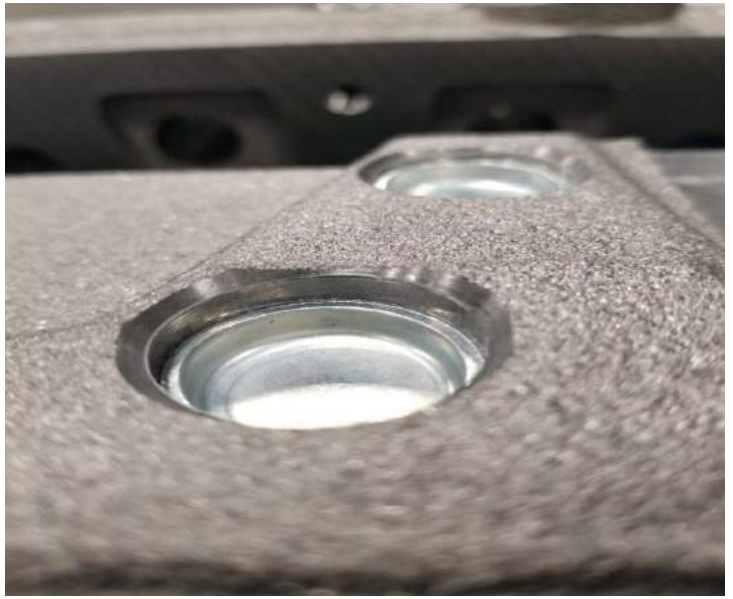
- The cart used to transport turbos had low sides that could allow the turbos to fall off, striking operators.

- A cart was designed with features that nest the parts, making them unable to fall.

Machining Chips

- A machining process for a cap plug produced shavings and chips that were potential cut hazards for operators.

- New tooling was designed. The hole now has a lead in chamfer that eliminates shavings and chips.



Plumbing Auger

- Plumbers were using corrosive chemicals to free clogs in urinals. The chemicals had potential to splash back towards the plumbers.

- A powered auger was purchased that eliminates the need for chemicals.

Grinding Wheel Changeover

During a review of the grinding wheel changeover process of changing two grinding wheels per changeover it was discovered there were multiple hazards. The first hazard identified while placing and removing the grinding wheels from the storage rack the employee had to kneel or bend over the rack while in a traffic aisle. Secondly the employee had to move the lifting fixture from horizontal to vertical four times per changeover. It was found the amount of force to push the fixture was greater than the recommended 50lbs. of force. The Tool Maker also had to climb a ladder while hoisting the grinding wheels five times per changeover.

Solution: Created a motorized lift table that would store two grinding wheels on lifting fixtures. This cart eliminated all the hazards that were found during the review. By storing the grinding wheels in a vertical position eliminated the need to move the lifting device from a horizontal to vertical position. The cart also eliminated the employee from being in the traffic aisle. By having the cart motorized eliminated the push force. By using a lift table eliminated the employee from climbing the ladder and hoisting the grinding wheel at the same time. It also reduced the number of times climbing the ladder down to two.

Increase Site Hazard Recognition and Awareness Acumen

Background: The site has increased headcount by 25% in last three years. As a result, the site population is at varying levels of risk perception and awareness acumen with new hires not being able to identify and anticipate risks due to lack of experience and knowledge, and more experienced workers complacent with risk factors because their perception and conscious awareness to these risks has eroded with time.

Response

- The site incentivized participation on JSA teams and used this as a leading KPI.
- The site developed and performed training workshops for the entire site population that were designed to explain:
  - What a JSA was
  - The benefits of performing a JSA
  - How to identify risks, controls, and confirm effectiveness
- The workshops provided an opportunity to break into teams and apply what they just learned immediately to improve retention.
- Participants were then challenged to take their drafts to the floor and observe the process and revise their JSAs if they noted differences.
- Side benefit was that people could see the difference between what they could recall or perceive from memory versus their actual conscious observations.
- To be considered complete, The JSA's required communication and confirmation of effectiveness between affected shifts and departments

Results

- In the first year of program, 75% of the site population participated on a cross functional team and completed at least one JSA
- Improved dialogue between shifts and cross functional teams
- The site now has an easily accessed electronic JSA database that can be used to provide reliable and standardize training materials
- The overall effect is that it has raised awareness, improved people's ability to recognize hazards and implement controls, encouraged sharing of best practices, and empowered staff to control their work environment.
- Phase 2 is in place in 2020 where people are incentivized to not only create JSAs, they are also reviewing existing JSA's for continued effectiveness and accuracy.

HC2-Loading new rolls of film for new triangle bagger

Background: According to the end users, the device originally provided by the manufacturer was difficult to use to get the heavy cylinders of plastic bag rolls moved into place, so staff ended up trying to manipulate the rolls by hand. There was no set technique so there were a lot of variables based on worker conditioning, technique, and risk perception.

Pre-JSA

- Workers were trying to tip the rolls over and control the descent of a 30” * 12” cylinder of compact plastic rolled onto a lift.
- As the roll was tipped, some people’s technique was either to left the roll fall on its side or try to hold it with their hands located where they could be pinched.
- Concern that a person could experience an acute MSD or similar injury
- Workers acknowledged that it was easy to lose control of material and be caught in the line of fire

Post JSA

- The JSA identified and implemented the use of a 5’ rigid bar that allowed people to use simple leverage techniques to gain mechanical advantage and keep themselves out of the line of fire as they tipped the roll onto an existing lift that was in the area. The roll could then be positioned easily onto the bagger and without issue.
- Site EHSS used the opportunity to review and promote wide stance lifting techniques with people to further decrease the risk of injury and further improve control of the roll throughout the entire process.

HC3-Die Pusher Method on GF Long Cuts side

Background: Large dies (300lbs) have to be pushed out using a mechanical ram and pusher rod when changing formats, cleaning, etc. Failure to have the die pusher rod properly aligned resulted periodically in the push rod being damaged, failing to push the die all the way out, or the die pusher rod falling out during the process, thus creating a line-of-fire hazard potential.

Pre-JSA

- The potential hazard was not identified until after a near miss when the pusher rod fell out during the process with a worker standing near by.
- When interviewed, staff could not consistently explain what prevented the rod from going out of alignment, or what prevented it from falling out.
- Several pusher rods had been provided and damaged because the were being used incorrectly or wearing prematurely.

CAPA

- The team performing the JSA identified that there were ears on the press and corresponding fins/ribs on pusher that needed to be lined up and used to prevent the rod from falling out and called this out as a critical task.
- This was called out on the JSA as a critical step.
- Since the JSA has been used, they have not experienced any further near misses, or required work orders to replace/repair the pusher.

HC4- Unplugging Regrind Pipe

Background: Additional production lines and increased WIP capacity has increased the amount of material returning for regrind/reprocessing at any one time. This creates the potential to clog the regrind system with extra material that has to then be removed by hand.

Pre-JSA

- This is a shared process between the Mill and Production Departments, but decision rights and communication requirements were not established the same between shifts.
- As a result, at some point a production team would end up feeding back too much material at once, without it being monitored on the mill side, which caused the clogs to occur.
- This resulted in the regrind system having to go off line to be cleaned which created the potential for acute MSDs from workers digging out the pipes, wasted effort moving material, loss productivity, and increased waste and rework

Post JSA

- The teams identified certain steps within the task where increased communication between the departments could decrease the potential for clogs.
- When the departments communicate as required, it greatly reduces the chance for a clog, resulting in improved productivity, less waste, and greater job satisfaction.

HC2-Accessing and removing jams from Collector

Background: The collector is the point in the conveyor system where all of the conveyors from the various lines converge before material is sent out to the packaging robots. When cases get out of alignment, they can jam up, causing a bottleneck in the material flow process, requiring 1) someone to intervene, 2) loss of flow, and 3)material that has to be rejected.

Pre-JSA

- Additional conveyor lines had been routed into the area consuming room on the platform and dramatically impacting workers ability to access various conveyors.
- The existing platform and stairs could not provide the required access and contributed to creating obstacles with the new foot print.
- There were spots on the mezzanine that could not be accessed after the expansion that were inaccessible.
- Rejected materials were being left on the platform because of the hard to navigate travel paths, further compounding housekeeping and safety concerns.
- No one could agree on a final solution that benefited everyone equally.

CAPA/Results

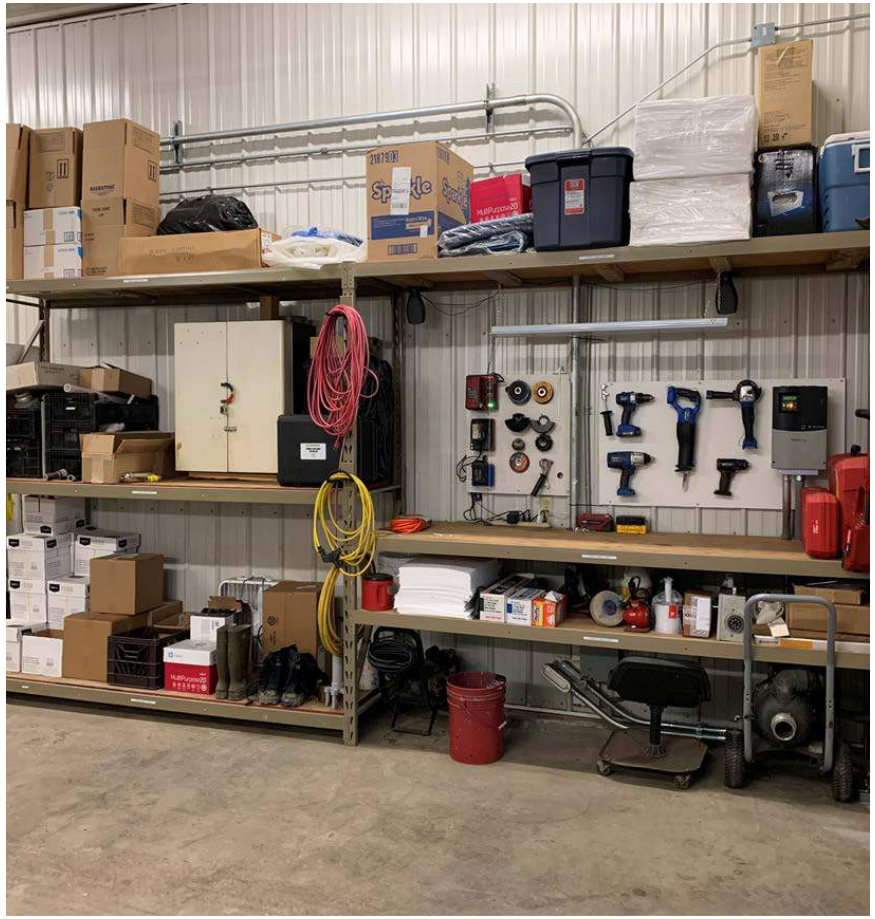
- The Safety Committee worked to identify the critical use needs of all the stake holders.
- Various designs were drafted and evaluated by the end users to get their input and feedback.
- The final stair additions and catwalk installed provided the required access without increasing or impacting the foot print by tying into existing stair landings, and fabricating a catwalk system with articulating ladders so that they could be raised up and down to provide the desired accessibility to all of the points on the conveyors.
- The final design took into account future upgrades including the installation of a gravity spiral conveyor to ensure that rejected material can be quickly and easily removed from the area.

New lighting

- To improve visibility in the shop, fluorescent tube lights were replaced with LED fixtures. Improving visibility and energy efficiency of the lighting system.

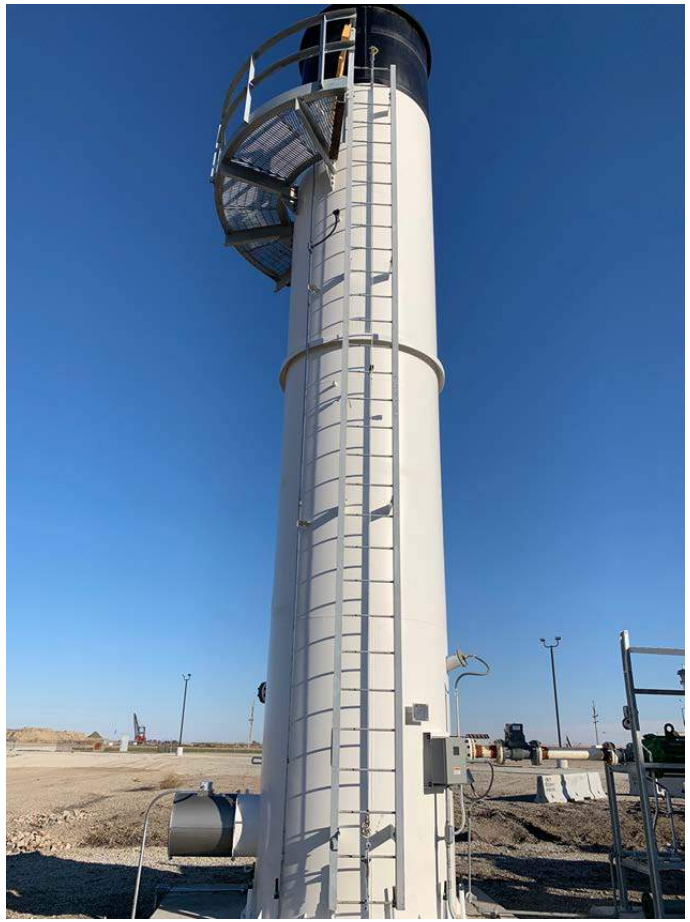
New Shelving

- An internal hazard assessment determined that shelving should be properly rated. Plywood shelving was replaced with properly rated industrial shelving.



New VCU-Ladder Safety System

- During the design phase of a facility upgrade, a ladder safety system was included on a fixed ladder. The ladder safety system improved compliance and employee safety.



Updated and Revised System Markings

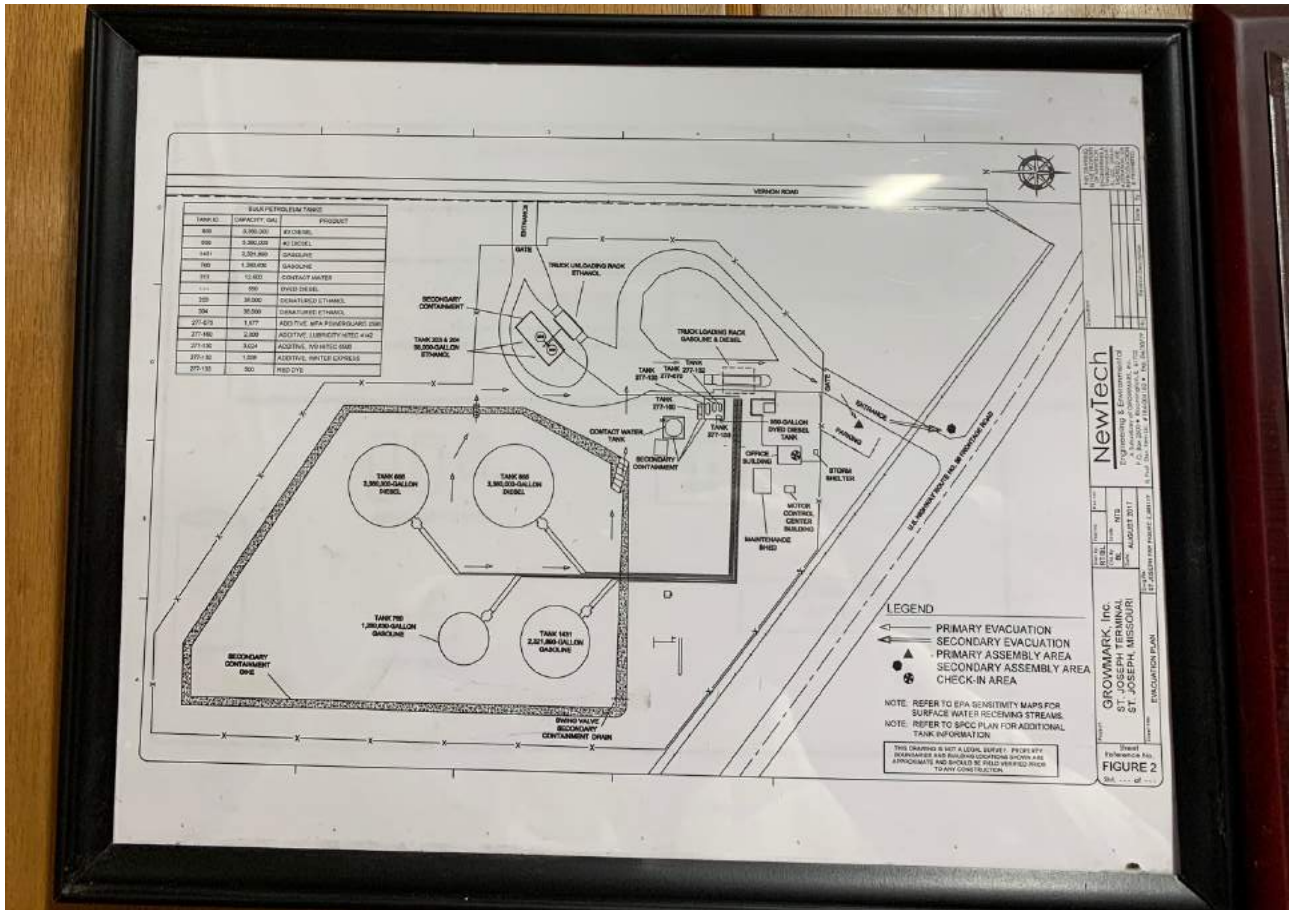
- An internal assessment of the facilities equipment and components needed uniform tagging systems.

Gauge Replacement

- An equipment inspection identified the need for gauges to be replaced. Gauges improve the safety and operability of the system when its use is necessary.

Updated Emergency Route Diagrams

- The facility updated emergency route diagrams throughout the facility. The updating of the diagrams throughout the facility ensure drivers and employees are aware of emergency response actions.

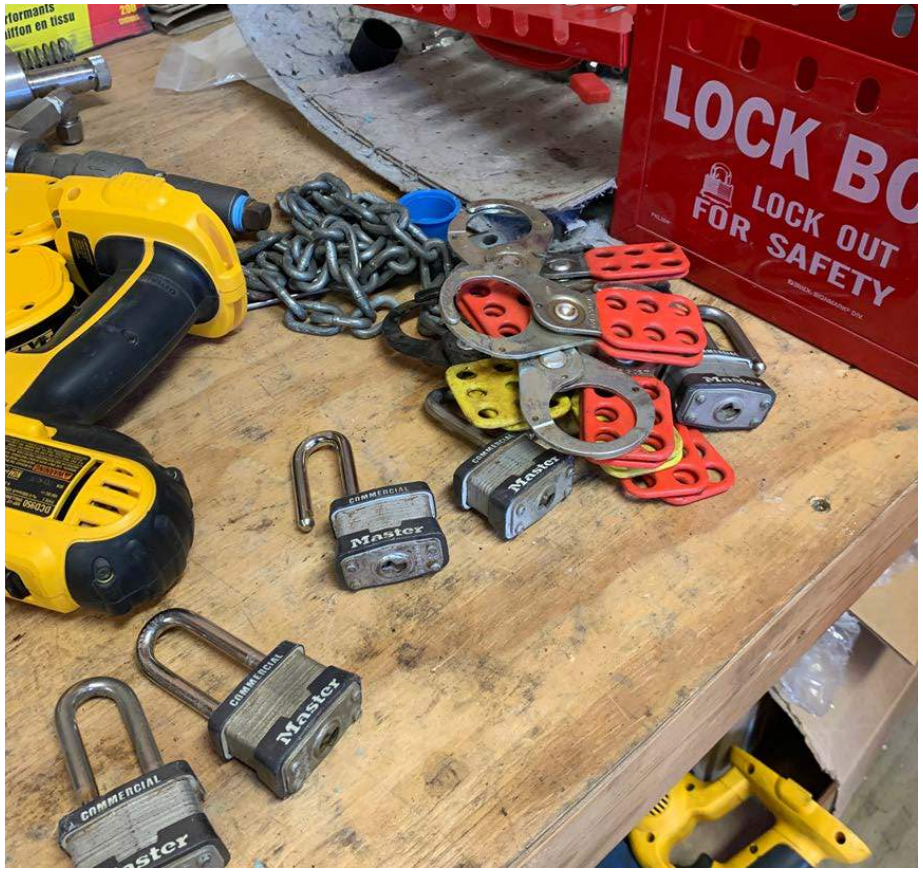


Safety Shower

- An internal hazard assessment identified the need for an emergency eye wash station and shower. The installation of the shower improved our emergency response in case of a chemical exposure.

Lockout Tagout Update

- A hazard assessment identified that a newly acquired facility had Lockout Tagout (LOTO) Locks that were all keyed the same. The LOTO locks were replaced with individually keyed locks.



Spill Response

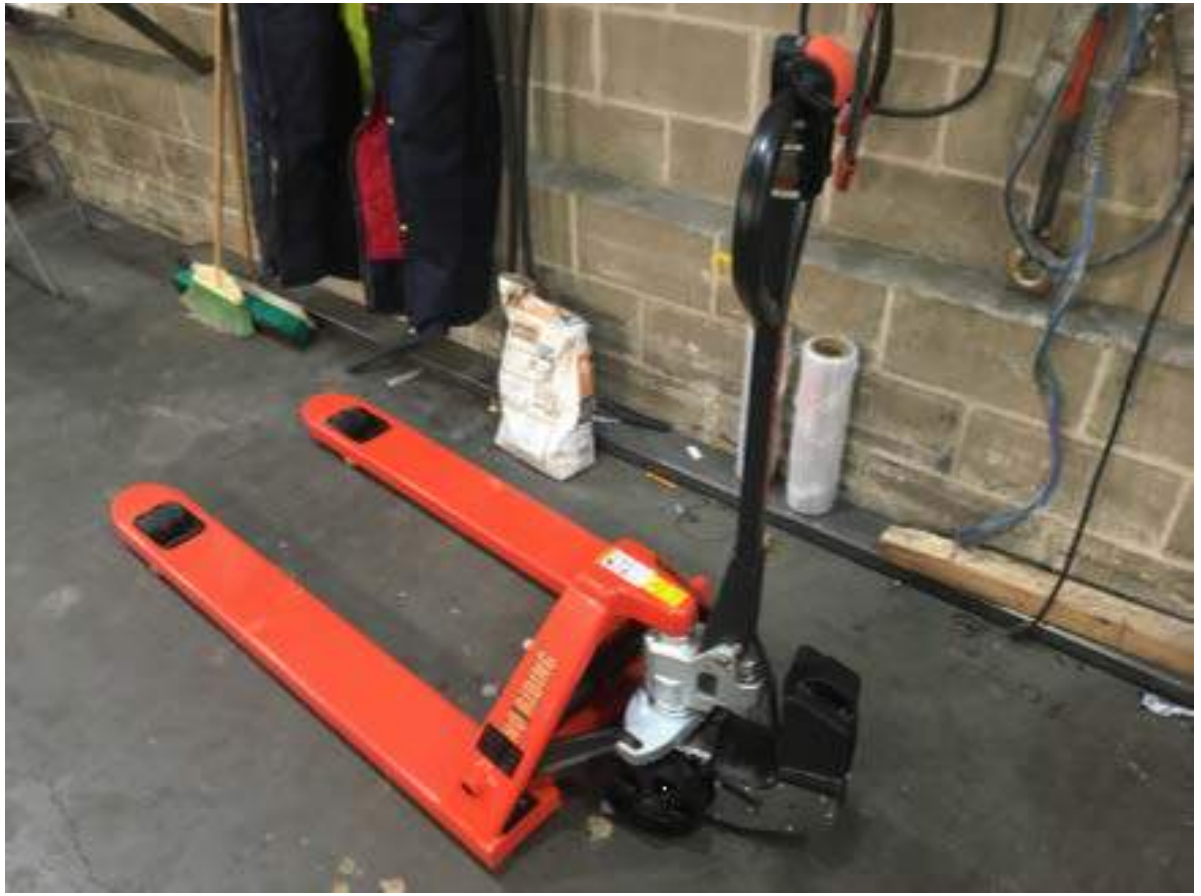
- Our operations established a relationship with our local emergency response dive and rescue team. Through training with the dive team the facility and the county will be better prepared in case of emergency.

Job Specific Lifting Test for all New Employees

- **Before:** Employees with a tenure of less than one year were experiencing a disproportionately high amount of repetitive motion injuries.
- **After:** We partnered with a Physical Therapist to develop a pre-employment screening that accurately tests the ability to perform our specific job duties, by mimicking actual job conditions. The old test measured tolerances only.
- Only 3% of employees who took the test have reported a repetitive motion injuries.

Self-Propelled Hand Jacks for Routes with Lift Gates

- **Before**: Certain new routes can only be delivered using a trailer lift gate, and only manual hand jacks can be used to unload. This put drivers at risk of strains and overexertion.
- One in particular fell from the lift gate and experienced an injury.
- **After:** We begin using manual hand jacks with self-propelled motors. This gives the operator much needed assistance when unloading heavy pallets, all while staying within the space & weight limitations of the lift gate.

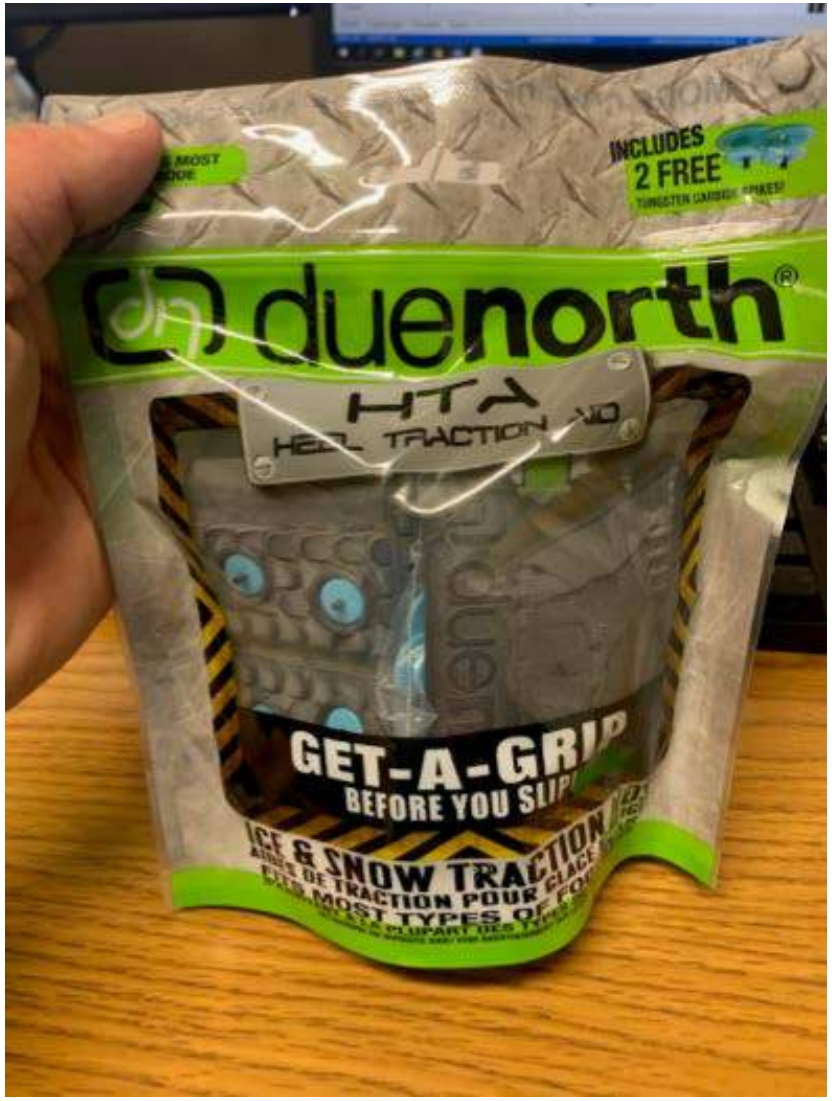


2019 OSHA Consultation

- To continuously improve safety conditions, we utilized OSHA's consultation services.
- The OSHA consultants determined emergency exit routes were not always plainly apparent.
- We remedied this deficiency by installing over 100 new exit signs throughout the facility so routes may be clearly determined from all warehouse locations.

Traction Aids for Boots

- **Before:** Snow and ice during the winter months put drivers, and warehouse personnel working in the truck yard at risk for Slip, Trip, Fall incidents.
- **After:** Traction Aids were provided for all drivers and placed in the warehouse offices for warehouse personnel to wear outside.



John Deere Module Manipulator

- Tractor Cab Assembly Operations | Waterloo, Iowa

- **Before**
- Hazard: Ergonomic risks to back and work above shoulder
- **After**
- All existing safety projects associated with this task were reduced to acceptable levels as defined by John Deere Ergonomic standards.
- **0 safety incidents** since positioner implemented (7 months)
- Operators shared that they feel **noticeably less fatigued and sore** at the end of the day

Ergonomic Impact Improvements

Impact guns that were being used in the assembly cells had bare metal handles causing concern in regard to levels of impact and vibration.

New impact guns with rubber grip handles have replaced the bare metal model impact guns which provides approximately 80% reduction in vibration.

Before

After

Contractor Management

Problem - over 200 companies can have their employees on our site performing work for us at any point in time.

1. Risk of the work to be performed by contractor on-site is evaluated using a 1 to 3 scale.
2. On-line contractor training is required for all contractor's employees and is based on the risk category of the work that is to be performed.
3. A contractor handbook with the site work rules is issued to contractors and agreed to in writing by the contractor.
4. A single point of contact is used for oversight of the contractor and performs documented periodic inspections.
5. A documented checklist is used to evaluate non-routine work activities and changes to the work scope prior to starting work.

Mobile Fall Protection Anchor

Occasionally, the electric motors on the top of thermal chambers fail and need to be replaced. Since these chambers are approximately 8 feet high, the use of fall protection is required when working on the top of these chambers. Because of their location in the building, it was difficult to locate adequate fall protection tie off points for several of these chambers.

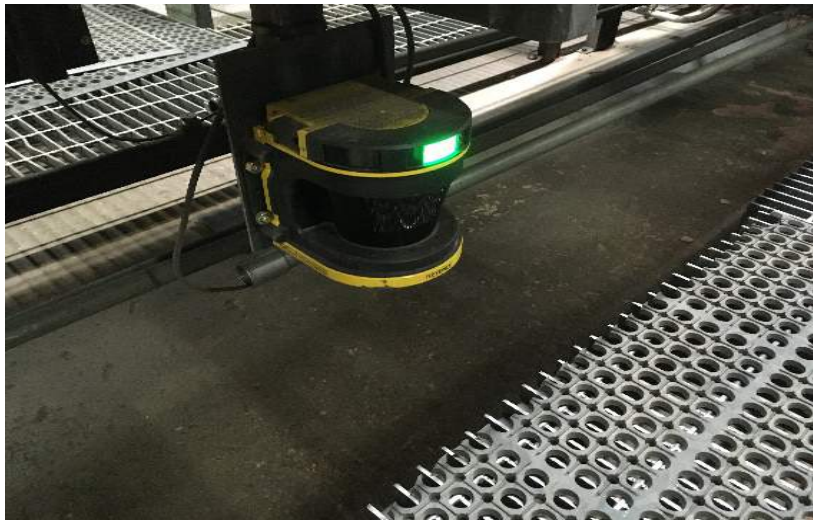
Solution:
A mobile fall protection anchor was purchased for thermal chamber motor change out.

John Deere Waterloo DTO
Collaborative Robot Adhesive Dispensing System

Hazards: Poor wrist posture and repetitive motion by applying adhesive to parts could result in an upper extremity injury.

All safety and ergonomic related risks associated with adhesive application were removed in this installation. The robot and its attachments were all designed to meet stringent ANSI/RIA guidelines for human contact, which removes all risk of injury to an operator. The system removes the operator from applying all adhesive at this station, eliminating the ergonomic risk.

John Deere Waterloo Works Foundry
Core Machine Guarding

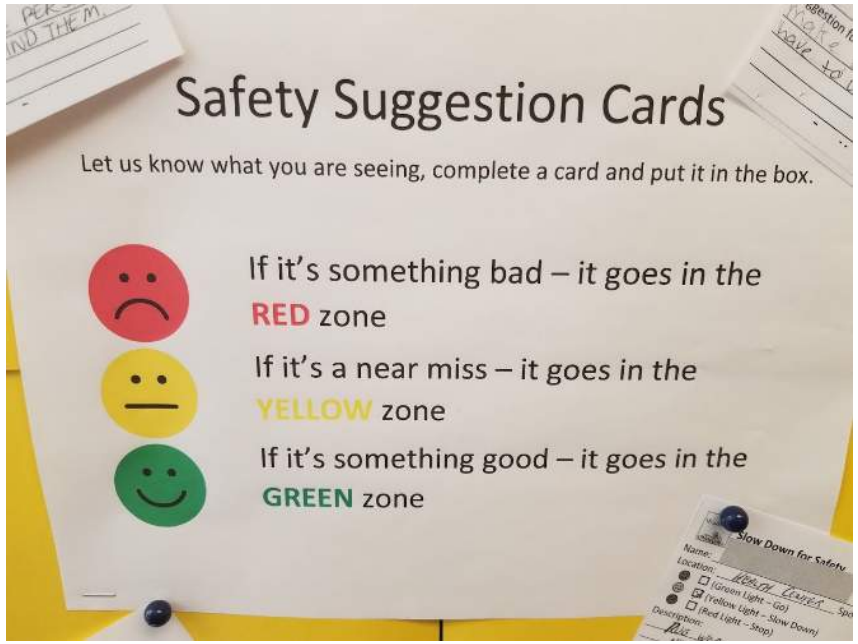


- Solution enhanced existing machine guarding to include scanners that define a safe zone around the hazard area keeping operators away from moving equipment
- Two hand controls were installed ensuring our operators hands and arms are not in the line of fire when the machine is in motion.
- Safety rated hydraulic valves including spool position feedback as well as blocking function were installed. This ensures that any equipment failure will result in the machine stopping in a safe state.

LCS FALL AWARENESS & PREVENTION CAMPAIGN

Last year alone, LCS health centers, had over 3,800 falls……233 of which resulted in significant resident injury and/or death. As our senior population increases by the day, so do the incidents in these high risk areas. Last year, the Risk Management and Health Services departments identified startling trends in these areas and together they strategized to increase awareness among our **staff, residents and families** in hopes to mitigate future risk.

LCS formed a Company-Wide/Community-Wide Fall Prevention *Awareness* Campaign. A Fall Prevention Awareness committee was formed to include many LCS employees, from various sectors of our organization. The "Company-Wide" Campaign officially kicked off on September 22nd (the first day of Fall). Communities were encouraged to develop a program or update their existing program. The committee provided a full Tool Kit of resources, including education, advertising, promotional items, messaging, data collecting templates, etc. for all LCS Communities. This is a top-down /bottom up LCS initiative that requires full participation in *moving the needle* to decrease the number of falls in our communities to residents, staff and visitors.



HAZARD RECOGNITION* NEAR MISS* SAFETY RECOGNITION - SAFETY SUGGESTION CARDS

LCS, a Des Moines based company implemented a hazard recognition and near miss card program throughout it's many locations. Key components of this system include hazard recognition, employee involvement and fun. Each community involved in this initiative develops a card /form that incorporates a fun safety theme, slogan, mascot, etc. All employees are encouraged to get involved and offer solutions. The cards are reviewed as they come in and again at the monthly safety committee meeting(s). Hazards, solutions and deadlines are established and documented on a hazard log. This fun "Stop Light" approach by Essex Meadows has already led to numerous hazards being identified and mitigated, near misses being reported as well as plenty of employee recognition.

The safety committee also recognizes at least one employee monthly based on the quality of the near miss and/or solution offered. All employees are followed-up with as to the status of their card, what is being done and why. The cards are oftentimes displayed on the safety bulletin board before being given to the supervisors for additional follow-up and recognition. Benefits include; prevention of future incidents, opportunity for employee recognition, helps strengthen the safety culture & captures ample data for trending and performance measurement.

LCS Job Observation Card

Date and time: 1/22/2018
Department: Dietary
Task: Cutting vegetables
Shift: Day

Factors	Safe	Risk	N/A
Eyes on task	X		
Assistance from others			X
Pinch points	X		
Rushing	X		
Complacency		X	
Fatigue			X
Frustration			X
Stress			X
PPE		X	
Walking/working surface	X		
Elevated work			X
Proper tools	X		
Ergonomics/lifting			X
Housekeeping	X		
Other			X

Description of task and risk: While preparing and cutting vegetables for dinner service employee did not have on cut-resistant gloves.

Solution/Action: Perform an in-service for all employees that use, clean or sharpen knives as part of their job description. Purchase cut-resistant gloves for each staff member that uses, sharpens or cleans knives. Create a cut-resistant glove policy for training and in-service purposes.

Observer: John Doe

Job Observations

Many LCS communities are performing job observations. This is a great way to get employees thinking about safety before, during and after a task is completed. This process is fairly simple and offers many benefits such as hazard recognition, self-awareness (good and bad behaviors), and the opportunity to recognize people on many levels. This is a hands-on process that has the potential to include all staff and allows for focus in certain areas if need be.

Guidelines

- ✓ Always ask the person or people you want to observe if it is okay to observe them.
- ✓ Do not record the name of the person you are observing.
- ✓ NEVER punish for performing a task wrong.
- ✓ You do not have to watch the entire task.
- ✓ Always give feedback, both positive and corrective.
- ✓ Always thank the person(s) you are observing.

Hazard/Before

Food and beverage employees at many of LCS's retirement communities were getting cut using, cleaning and sharpening knives.

After

A cut-resistant glove policy was created that incorporates:

- ✓ Training/education
- ✓ In-services
- ✓ PPE use & selection
- ✓ Quizzes
- ✓ Demonstrations

Training & selection of proper PPE included in new policy.

5S Improvement: Outdated Chemical Disposal

January 2020

Before

Separated & boxed per labels for disposal

Various chemicals for disposal

Labels per Metro Waste

- Chemical Cabinet was updated, cleaned & organized in November
- Large volume of outdated chemicals needed to be dealt
- Chemicals have environmental complications & safety concerns

After

A shelf is established in the Chemical closet for expired chemicals.

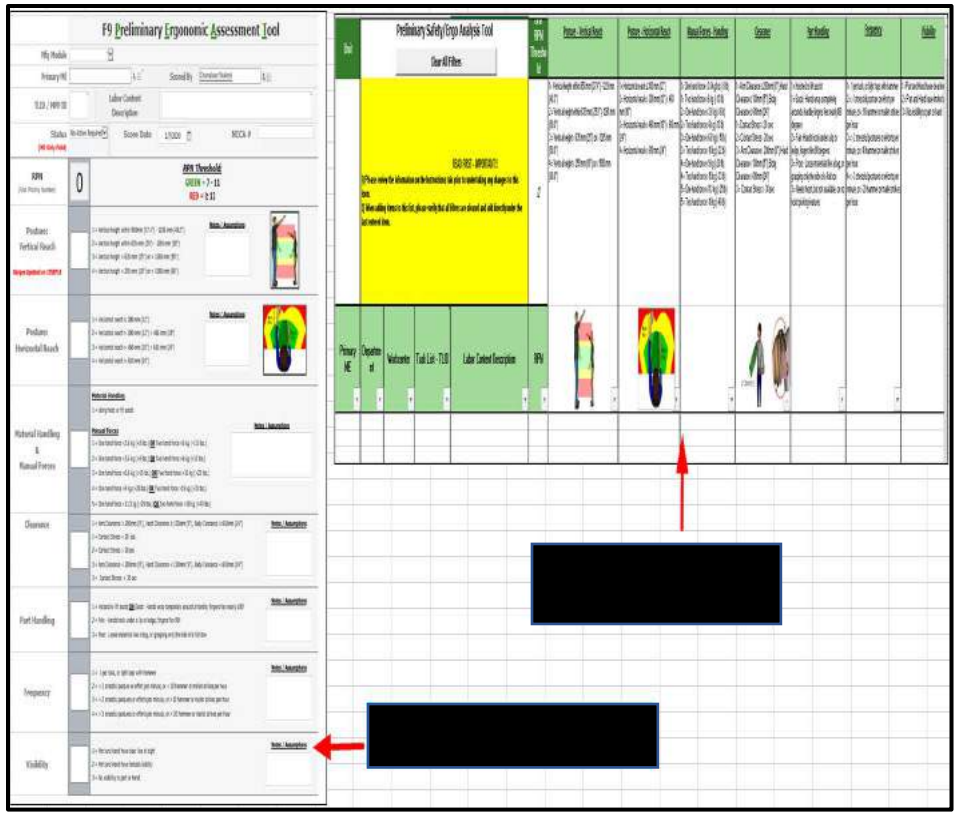
- Contacted Metro Waste-organized list of chemicals
- Boxed them according to type & delivered them to Metro Waste
- Chemical safety hazard has been eliminated by removal of chemicals & a space has been set up for newly expired chemicals moving forward. New chemicals will be labeled when they arrive-PO, expiration date, date opened to track shelf life.

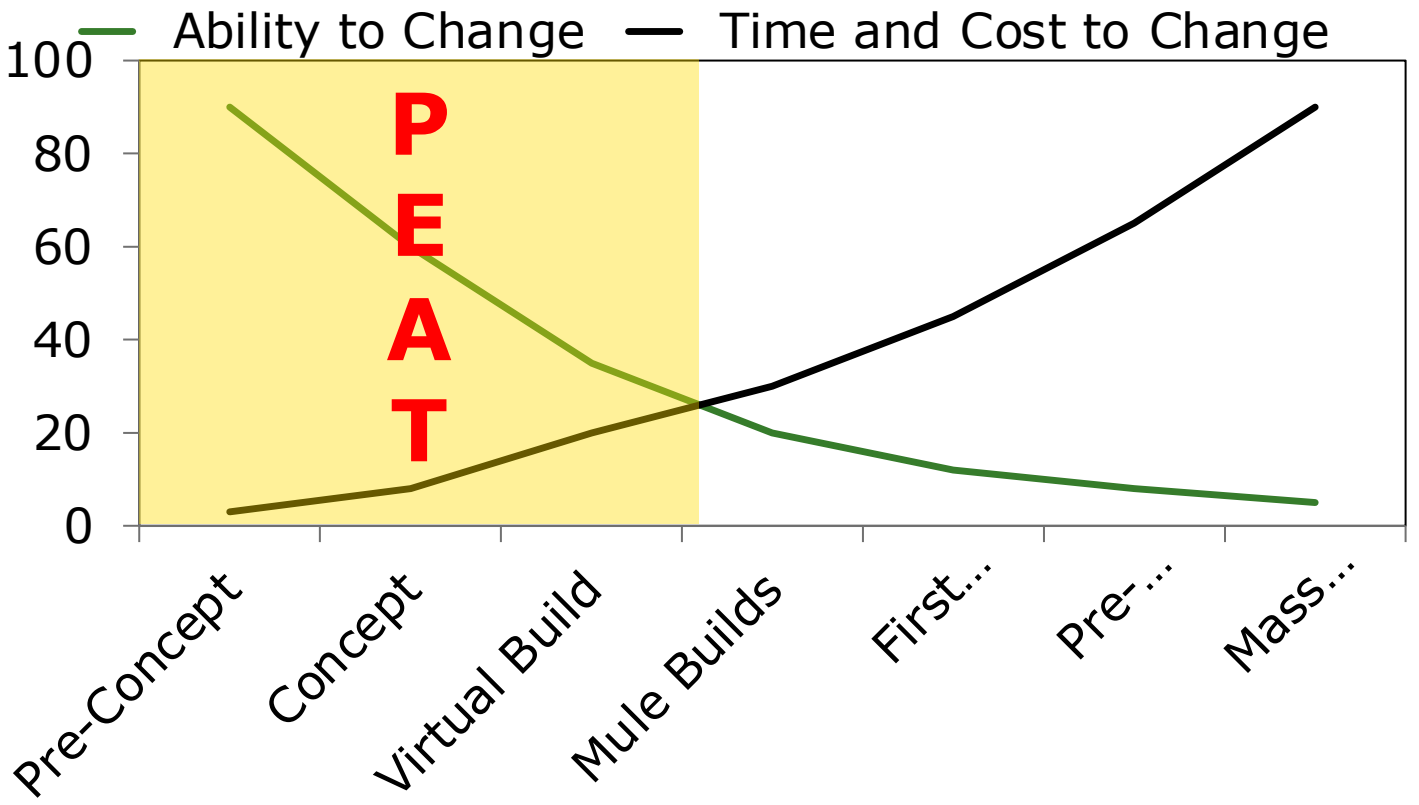
element Des Moines

5S Participants: Amy Suedmeier, Nate Mracek, Brian Martin & Rich Luna

John Deere Waterloo Works Product Development Preliminary Ergonomic Assessment Tool (PEAT)

This tool enables an efficient way to identify new product manufacturing method ergo risks associated with all "**6 Too's**" (ie. Too High, Too Low, Too Far, Too Much, Too Long and Too Many) early in the product development process where the ability to change is high and the cost/time required to is low.





Iowa Select Farms

- Iowa Select Farms has always thought employee safety was paramount to the success of the company. The company never had a way to emphasize this to everyone inside and outside the company.
- Now safety is part of the Select Care system within Iowa Select Farms. By making People Care equal to the other levels, employee safety was placed on an even field with production.