2017 Hazard Control Award Submissions

Cedar Rapids and Iowa City Railway

BEFORE

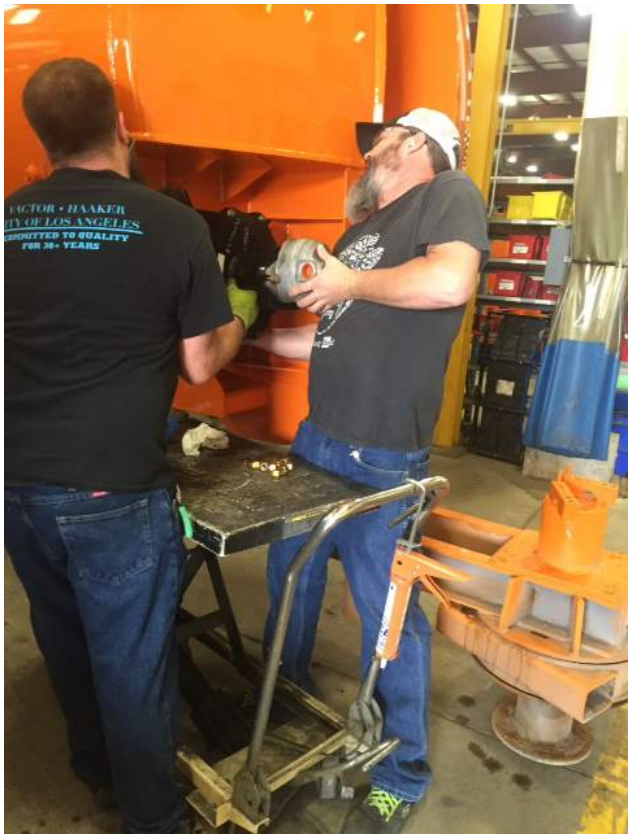
AFTER

The Cedar Rapids and Iowa City Railway purchased a used water truck to control dust on its gravel service roads. Our track maintenance department took the idea a step further: They recommended applying water to track ballast (rock) hauled in railcars to reduce the dust particulate to a level safe enough to eliminate the need for respirator use.

After comparing test samples in varying conditions and modifying the water truck so employees would not have to use ladders and hoses to apply water, their idea became reality. Employees fabricated a boom that swings out over the railcars and applies water to the ballast. This new tool has eliminated respirator use when dumping rock from railcars along the right-of-way. The task now requires only one employee to drive the water truck along the string of railcars, further improving safety and efficiency.

A trash pump weighing approximately 140 lbs. required two employees to lift, hold in place and secure with hardware. A fixture was designed and attached to a portable lift table. Now only one employee is required to attach the trash pump. An overhead crane is used to place the trash pump on the fixture / lift table.

Before



After

In the construction of oil tanks the parts are retrieved from racks and on various occasions the part has to be retrieved from the backside of the rack. When this occurs other items have to be moved and employees are required to reach for the parts. Solution was to place the parts on two different lazy-susans. The parts are rotated eliminating the reaching and extra material handling.

Before

After

Extra long parts extended beyond the edge of a storage rack creating a “head banger” situation. A portable rack was made to safely separate and store long parts, eliminating the “head banger” situation

Before

After

Employees exposed to heavy / vibrating impact wrench to stretch pump rods one at a time. Hydraulic system stretches all 4 rods simultaneously with no exposure to ergonomic risk factors.

Before

After

2017

- Hoist – We have a mezzanine that is accessed by a permanent ladder. This mezzanine provides access to a air handler where maintenance is performed. Prior to the hoist, maintenance would have to carry their tools/equipment with them up the ladder. In 2017, we had an engineering team rate a beam, and we now have a ½ ton hoist with a basket that can be loaded and then the hoist is used to lift tools/ equipment up to the mezzanine eliminating the risk of dropping items as well as not having to carry the materials with the employee up the ladder.

- Sidewalk – In 2017, we replaced 140' of sidewalk between our main building 1 and building 2. The sidewalk was broken in spots as well as did not provide an even walking surface. The sidewalk is also used to transport materials from one building to the other. The carts used to transport materials were difficult to navigate due to the condition of the sidewalk. We now have a safe working surface for personnel and carts.

Syngenta Seeds Jefferson, IA Storm Shelter Installation

While the chance of a tornado striking the Syngenta Seeds Jefferson facility may not be probable, the risk for fatality if it were to happen is great.

The storm shelter the site had been utilizing was the interior office restrooms that did not meet FEMA standards. On average, site personnel are sent to the storm shelter twice a year due to severe weather warnings.

Syngenta is in process of completing a company wide initiative to install high quality storm shelters at all sites.

Last summer, (2) thirty-one person capacity shelters were installed at our facility, mitigating the risk for severe injury or fatality in the event of a major storm event.

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Syngenta Seeds Jefferson, IA Box Wash Robot Installation

Upon completion of soybean planting, seed dealers return empty bulk boxes to warehouse from prior sales season. Syngenta Seeds at Jefferson cleans 20,000+ bulk boxes every summer in preparation of upcoming bagging season.

This process was previously done by having employees stand on an elevated platform and manually clean each bulk box using a high pressure washer wand. Performing this task posed many ergonomic concerns and slip hazards while working in an elevated heat stress environment.

With project funding and support from Syngenta Engineering, a robot was installed in May 2017 to utilize automated technology to perform the box washing task. Not only was site personnel safety improved, but plant throughput efficiency increased as well.

Old Method

Bulk Boxes

New Robot

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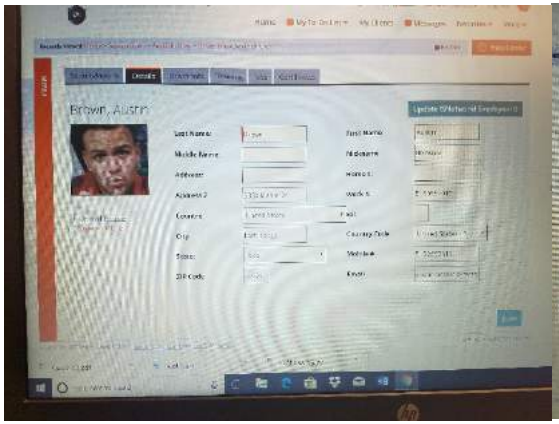
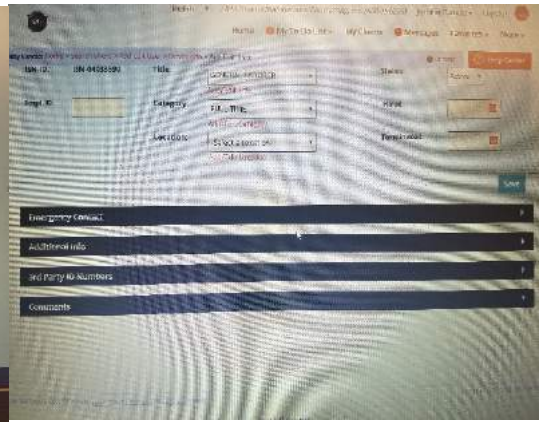
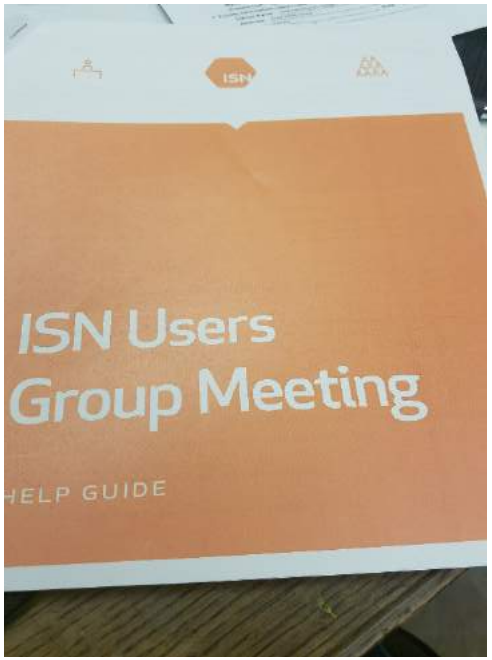
L & M struck a win-win safety deal with a local volunteer fire department. We had the need to purchase our own air bottles and a local volunteer fire department got a grant for new bottles with the understanding they would sell the old news instead of refurbishing. Some bottles were just tested a year before so when they asked we bought the old bottles so we could construct our own cascade system for filling bottles. One of the local fire fighters also agreed to help train our people on the system and help build it with us.

L & M improved chemical safety this year by matching labels with chemicals on our shelves that also bring up a link to the SDS sheet for the chemical. Also, labeling chemicals in our chem cabinets.

L & M Committed to a project with ISN after finding out the potential safety help with info retention about employee safety training and contact info. This allowed all employees to have a card with their personal info with them and the ability to know when their training on different subjects was due. Info updated electronically and stored.







AGROPUR Hull Iowa
New 640lbs Cheese Block Inverter

- 640 blocks are now inverted inside of the caged inverter
- Light curtains at the entrance and exit protect employees

BEFORE

AFTER

AGROPUR Hull Iowa
New 640lbs Cheese Capping Line Railing

- Added handrails to the 640 line decking
- We have had several near misses on the 640 decking due to employees miss-stepping/ slipping off the decking or stepping off the decking and not using the stairs
- A portion of the railing also serves as a holder for the 640 block collars eliminating the need for 2 carts on the floor and making it easier to handle & wash the collars

AGROPUR Hull Iowa
New 640lbs Cheese Fill Station Guarding

- Added light curtains on the operator side of the fill station. The light curtains shut the auger off anytime they are broken

AGROPUR Hull Iowa
Warning Lights on the Shipping Dock

- Flashing lights have been added to the shipping dock
- The flashing lights will turn on when anyone proceeds through the shipping dock overhead door entrance
- The flashing lights give forklift operators an indication that someone has entered the dock area

AGROPUR Hull Iowa
Citric Acid Process

- **Removed/replaced the citric acid mixing process w/ purchasing pre-mixed citric acid liquid**
  - Eliminated the need to carry 50lbs bags of citric acid up a ladder and dumping them into a water tank.
  - This was a daily process and we did have a strain that became a recordable from this process in 2016

Forklift Under Ride Hazard

Hazard

Solution

Colony Brands – Clinton noticed a large concern with forklifts having the potential to under ride the racking in locations where the crossbars were higher than the 48 inch backrest/door (See the red arrow). After researching this has caused crushing injuries and even death and is a highlighted concern on the OSHA website. To combat this the facility added a pair of ANSI/manufacturer approved bars (see the gold arrows) to eliminate the chance of an under ride injury. This new additional accessory is now standard company wide.

Forklift Aisle Improvements

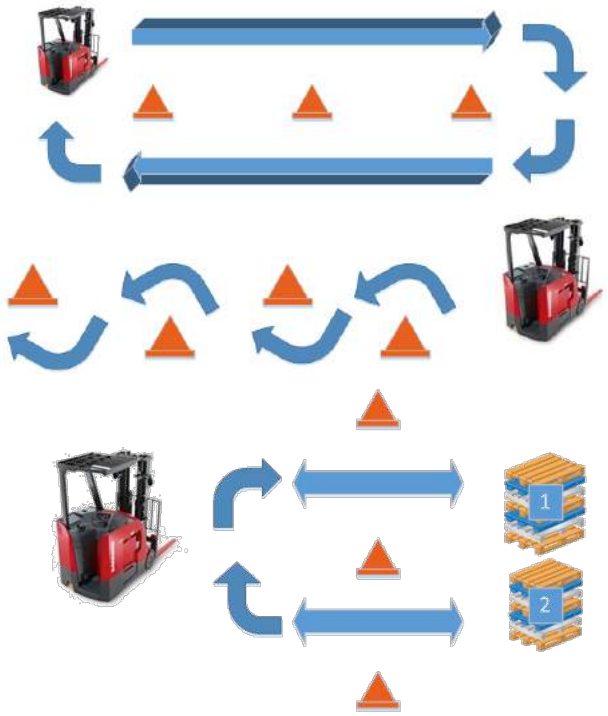
Colony Brands – Peosta noticed a significant amount of damage in their drop off locations for turret trucks. The reason behind the damage was the 10-14 inches of maneuvering room allotted at these drop off points for forklifts. One employee suggested turning every other aisle around so these drop off locations were back to back, increasing the area for maneuvering by over 4.5 feet per location. This both decreased damage but also eliminated the potential of a pinch point between the lift and the racking.

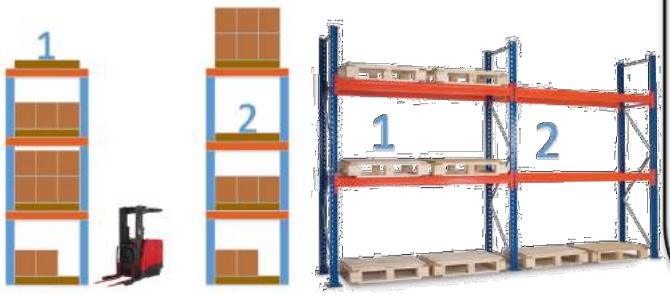
Old Rack Layout

New Rack Layout

Forklift Training Improvements

Example Drills



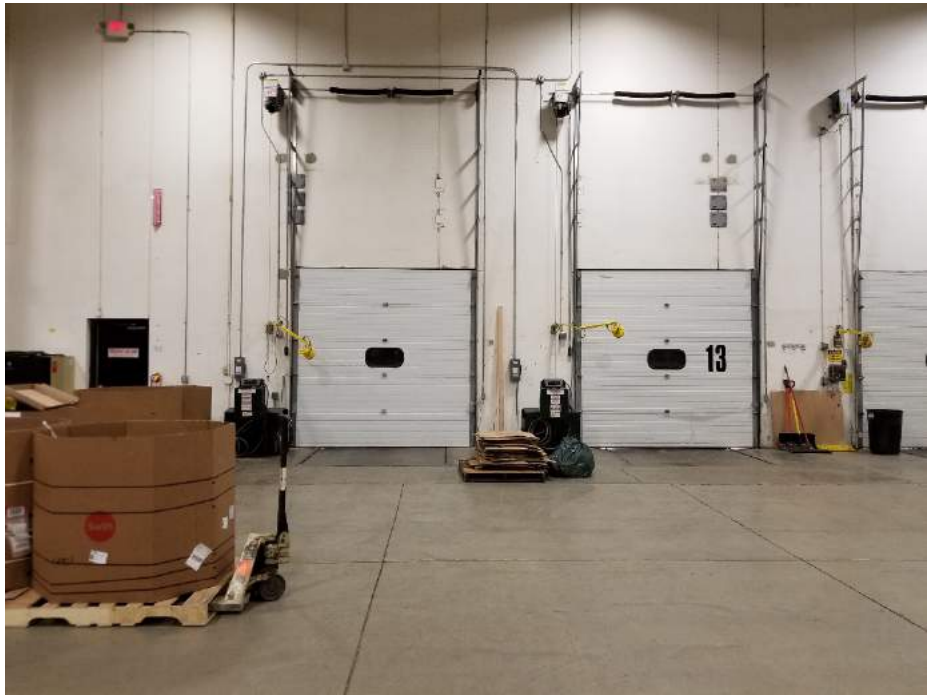


Colony Brands – Peosta has a large temporary workforce for the Christmas season including temporary forklift drivers. During this short term period, forklift drivers are expected to get up to speed in a hurry. Colony Brands Inc. was looking to prevent rushed training, forklift damage, dangerous interactions, and improve forklift training quality. To accomplish this, forklift trainers decided to decreased trainees forklift speeds by 33%, changed the training period from 1 to 2 weeks, and implemented progressive lift specific drills. This allowed drivers to learn to drive in a straight line before learning to turn, learning to drive before learning to use the forks, and learning to operate in coned aisles before ever operating in a real aisle. This training layout has decreased property damage, decreased potentially dangerous interactions between new forklift drivers and pedestrians, and has created an overall better forklift training program.

Cardboard and Trash Compactor Move

Old Location

New Location



Colony Brands – Peosta had an overly cluttered area due to the packing, shipping, trash and cardboard compacting process all being in one location. This created housekeeping and slip trip and fall hazards. The facility decided to move the cardboard compacting and trash compacting to the other end of the building. This created a less cluttered and safer work area.

Pushing cores into our splitter in wood parts making area caused strains to shoulders of operators. We added rollers to the back of infeed table. The force to push into machine was at 23 # and after we made improvements, it dropped to 12#.

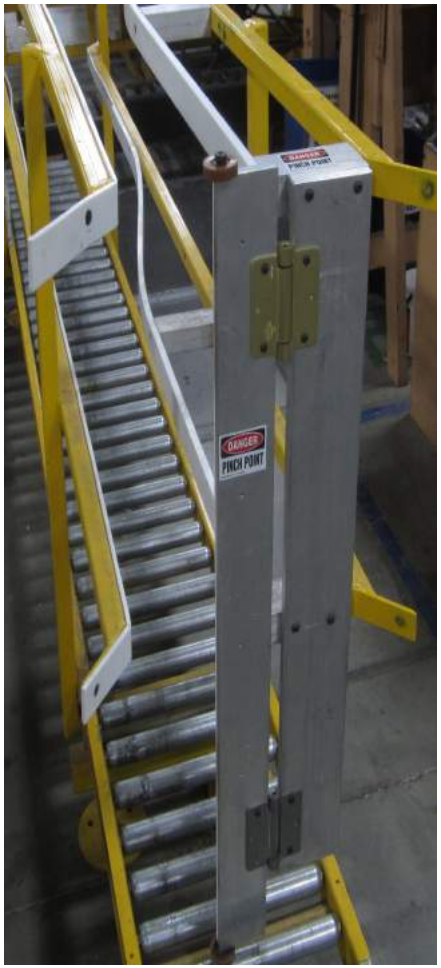
VALUE ADD AREA IMPROVEMENT

Before

- Units would roll off end of rollers. They had the potential to strike a team member or receive damage in the fall.

After

- Built a flip gate at the end of rollers so units cannot slide off the end. Units will not fall off onto team member or be damaged in the process.



FALL PROTECTION IMPROVEMENTS

Maintenance needed to access the equipment on top of machines but had nothing to tie off onto and no railings around the machines.

We had railings built and installed for the different areas where they were in need. Maintenance can now work on the needed equipment safely without risk of falling.

- This motor is on an elevated platform. Maintenance personnel needed to use a step ladder to access the bearings in order to grease them.
- A permanent set of stairs was installed so maintenance personnel could access the elevated motor and bearings without having to use a step ladder.

Before

After

- Lights on our rail movers were not very bright and created a hazard in our rail yard.
- We installed LED light bars on each end of the rail movers to help illuminate the rail yard, making rail operations safer for everyone involved.

Before

After

- These two tanks did not have platforms at the lower manway door. Any confined space entry had to be done from a ladder.
- A ladder and platform was installed at each door to ensure safer entry and exit from the space.

Electrical rated tools, as well as other common tools, were placed on shadow boards in MCC rooms and around the plant. This will help to keep the plant organized and be easier to locate tools.

Added Permanent Fall Prevention Railings and Roof Egress

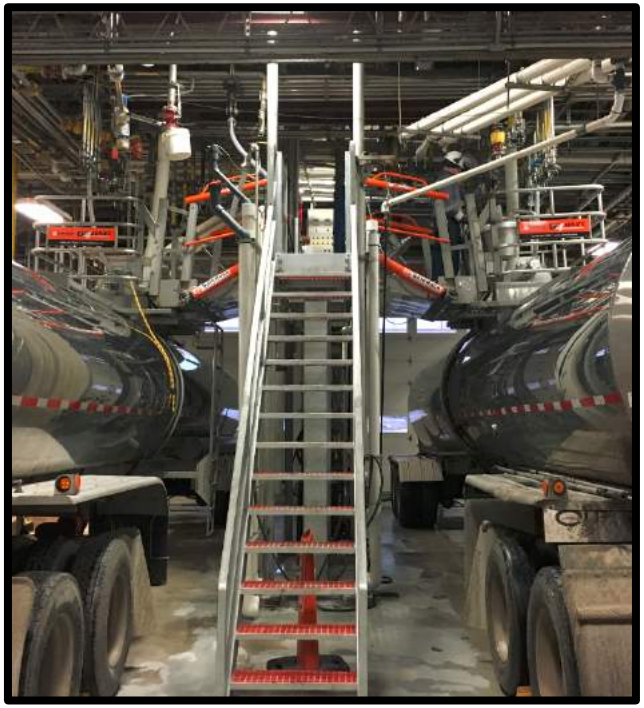
Railings were added to all roof access hatches (pictured right) and skylights (pictured left) on site.
These railings and gates protect personnel from possible falls while working on the roof. In addition, a permanent fixed ladder (pictured center) with railing approaches was added. These improvements have significantly reduced the risk of injury from a fall.

Electric, Automatic Overhead Door Openers Installed

Previously, overhead doors at the facility were operated manually by personnel. It was recognized that many of the doors were opened multiple times throughout the day. Eleven overhead doors were converted to automatic and where needed, interlocked with our dock plate systems to eliminate possible repetitive motion injuries from occurring. This has greatly reduced our risk of repetitive motion injuries in the dock areas.

Improved Fall Prevention in Truck Loading Area

Redesigned gangways and platforms were installed for improved stair access in our truck loading bay. Previously, the platform and gangway (pictured on left) did not fit to most trailers. This design allowed gaps, making injuries possible. The new area (pictured on right) has an improved fit that abuts up against trailers, gangway extensions that extend and retract, and locks into position. These changes provide a more stable working surface and improved railing system. The stair treads were also replaced, providing improved traction. These improvements have greatly reduced the risk of injury from slips and falls.



Installation of Filter Basket Hoist and Davit

Operators were previously required to manually lift a filter basket out of the filter housing when the housing became full. The basket could, at times, weigh up to 100 pounds when full. Emptying this filter was a very manual, repetitive practice. To eliminate the injury risk to our operators, a custom hoist/davit was installed that removes all of the lifting and ergonomic issues. This has greatly reduced the injury risk to employees.

Utilization of Two Air Conditioning Units in Production Areas During Summer Months

In our production areas, we now use two portable air conditioners during the Summer months. The activities in these areas require employees to wear PPE in an already hot and humid environment. The portable air conditioners have reduced the temperature by 10 – 15 degrees, lowering the possibility of employee fatigue and potential injuries.

Glass Disposal Improvement

BEFORE

Employees would have to carry trim or sheets of glass over to dumpster and throw in to dispose of. This created a safety hazard with broken glass flying around and laying on floor.

AFTER

We installed a glass crusher onto the cutting table that now conveys all broken glass to a recycle box for disposal. This eliminates any glass being thrown into the air or all over the floor.

Floor Safety

BEFORE

We have a wash bay where we power wash glass pallets and racks. This area stays very wet and forklifts do not get good traction and tend to slide on the floor, which is a big safety concern.

AFTER

We ground the floor down and applied a slip proof epoxy coating to the floor. Now there is great traction in this area, even when wet!

Chemical Pump Exposure

BEFORE

Chemical Addition Pumps in several locations were exposed and posed a potential risk of chemical spray hazard and personnel exposure to hazardous chemicals if pumps failed while in use.

AFTER

Custom enclosures were designed and contracted for fabrication. These clear polycarbonate covers allow for visual inspection and observation during use, but protect the operators from potential exposure/contamination in the event of a pump material failure. Covers were installed at 6 pump station locations throughout the plant.

Before

After

ESCO Group implemented dash cameras in our shared vehicles. We have added dash cameras to monitor and record an event if one were to happen. Also, we have added them because studies have shown that drivers are more alert if they know their actions are being monitored.

Before

After

ESCO Group has started securing all fire extinguishers and first aid kits in our vehicles. Before when they were in the vehicles, they could roll around and possibly get damaged or strike a person during an accident. Now, after securing, there is no chance for movement.

ESCO Group has started to use Volt Stick's, which are intrinsically safe instant testers for safety checking the presence of an AC voltage, without making any disconnections in cables, wall sockets, fuses, circuit breakers, junction boxes, etc. We have always used instant testers but began to use the intrinsically safe instant testers in hazardous location on our work sites.

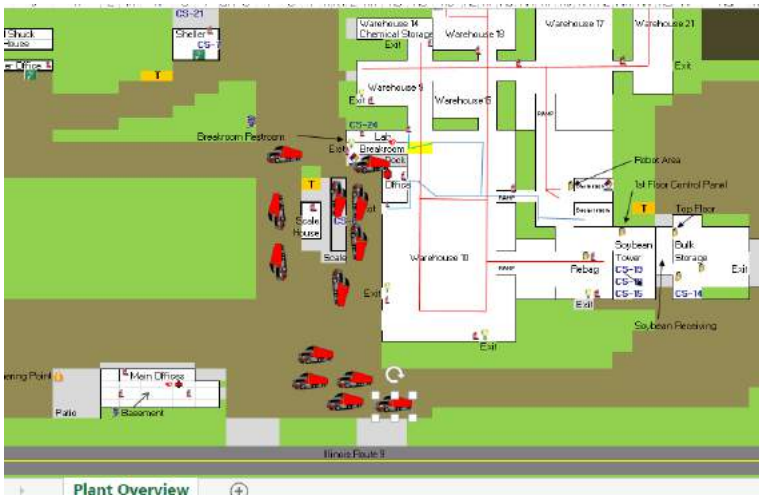
Ragan Mechanical, Inc. – Hazard Recognition Control

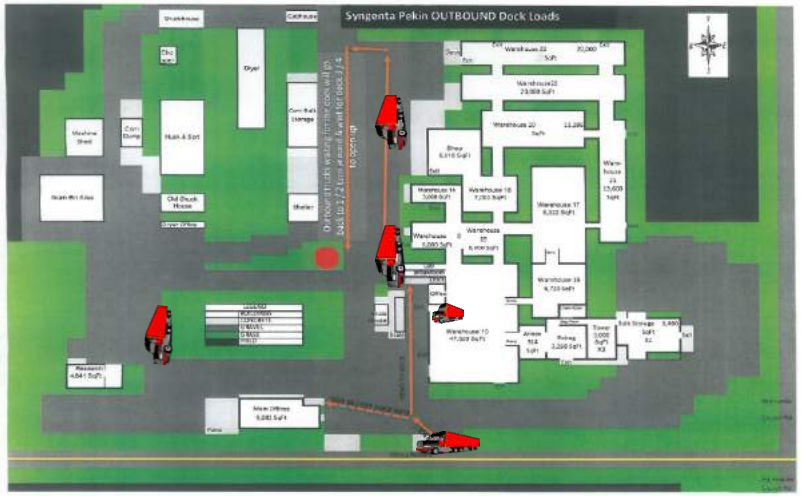
Before: Employees moved air compressors with forklifts – picking them up from the sides. Air compressors would slide around on the forks and have fallen off the forks.

Ragan Mechanical, Inc. - Hazard Control Recognition
After: Ragan Mechanical employees welded lifting pockets on the air compressors so they can now be lifted and carried safely when the forklift forks slide in the lifting pockets.

Ragan Mechanical has done 4 of these air compressors. The air compressors can be moved safely into many areas without fallings off the forklift forks. The permanent lifting pockets make it more convenient and safer for employee because they don't worry about an air compressor falling off.

Syngenta Eliminates truck congestion for safer traffic flow.





BEFORE:

- Semi trucks showed up all at the same time each morning to creating a congestion.
- The grounds became a parking lot and restricted flow of traffic.
- Pedestrians and traffic flow was not segregated, creating a risk of an unplanned event that could cause an injury.
- Employee workload pressure could lead to mistakes when work is unorganized.

AFTER:

- Scheduled dock times throughout the day for Semi trucks creates no congestion.
- Directional flow adhered to by truckers through training and signage keeps an even flow.
- Pedestrians/ trucks segregated to allow safer travel
- Standard work allows for organization and increased satisfaction by employees, truck drivers and customers.

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Syngenta Eliminates carrying screens up a stairway to prevent risk of falling by extending a platform for storage at the point of operation.

Delta Cleaner

BEFORE:

- The Delta Cleaner is located on a platform. It has numerous size scalping and sifting screens used with the process.
- The screens were stored at the bottom of the platform because there was no room next to the equipment.
- Employees would have to make multiple trips daily up and down the stairs carrying screens that were large in size, creating a risk of falling.

Storage Rack for screens

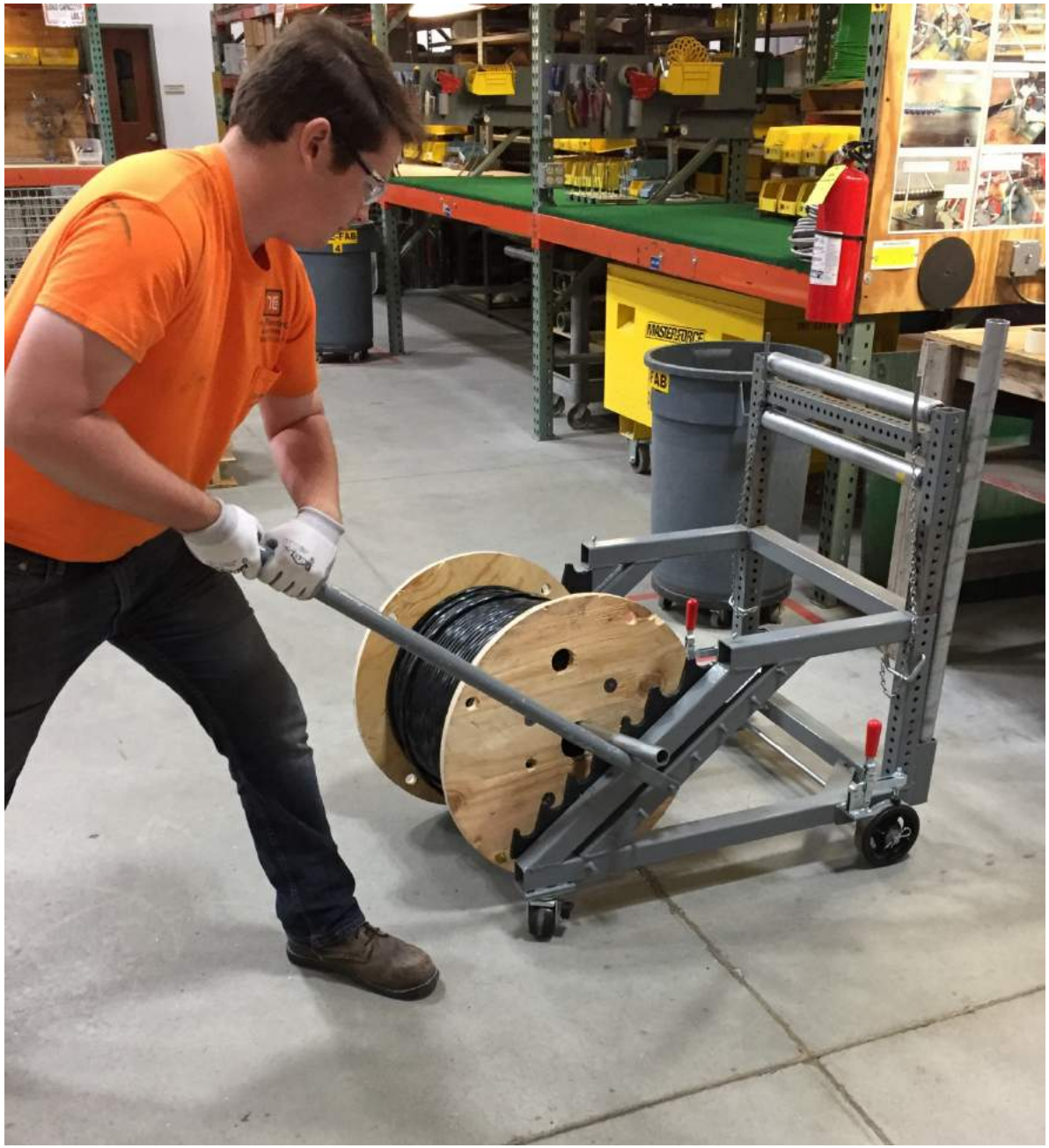
AFTER:

- Extended the platform out next to the Delta Cleaner.
- Racks for storing the screens adjacent to the area where they are switched out.
- Built additional stairway on other side of Delta Cleaner for easier access to all the screen types.
- No carrying of screens is needed up and down stairs and they are stored a few feet away from where they are used.

syngenta

Light poles assembled at our shop were being delivered to a lay down area and then had to be manually lifted and carried to the assembly area. To eliminate the potential for back injuries, strains, etc. mobile lifting hoists (engine cherry pickers) were purchased and implemented into the lay down area. We also designed and built two custom dollies for the poles to sit in and be transported to the assembly table. With the new process in place, the poles are now rigged, lifted onto the dollies with the hoists, and guided over to the assembly table where an overhead hoist lifts them onto the table. With the new design and equipment in place, the process now requires zero lifting or heavy material handling.

One of our jobsites contained large-diameter pipes running across the roof of the new building. In order to access our work areas, it required employees to step-over or almost climb over these pipes. In order to help eliminate the potential for injury, we designed and built a custom bridge to go over the pipes. This allowed employees a much safer and easier access way into the work area.



Wire spools are common material in our industry but pose injury potential when handling to move around and lifting onto carts. The traditional way of using wire spools is for the spool to be lifted onto two jack stands. This unfortunately requires the spool to be taken off and moved every time a new setup location is required. In order to make this process safer, we designed the wire spool cart in the picture. This improves safety in several different ways: the spool is moved into position using the leverage bar with notched connection points. This eliminates any direct lifting of the spools. The next added feature is that the cart is mobile so that once the spool is in place it can be relocated without removing the spool. Lastly, the spool is moved in a secure position opposed to rolling on the ground with less control. Overall, this has added multiple safety features compared to the traditional spool and jack setup.

PATIENT LIFE SAFETY FORM

Tri-City Electric Co.
Since 1895
CONFIDENCE DELIVERED.

FACILITY:		DATE:	
TCE SUPERVISOR:		OWNER REP:	
TCE PROJECT MGR:		GEN. CONTRACTOR:	
DATE OF SHUTDOWN:		TCE JOB NUMBER:	

SHUTDOWN OVERVIEW

DESCRIPTION OF SHUTDOWN:	PROVIDE METHOD OF PROCEDURE IN ADDITION TO THIS FORM INCLUDING ALL STEPS TO COMPLETE THE SCOPE OF WORK. AFFECTED AREAS OF FACILITY:

PROCEDURE VERIFICATION

SHUTDOWN PROPOSAL PROCEDURE REVIEWED WITH GC: ☐YES ☐N/A (NO GC FOR JOB) INITIALS: DATE:			
SHUTDOWN PROPOSAL PROCEDURE REVIEWED WITH OWNER:	☐YES	INITIALS:	DATE:
SHUTDOWN REQUEST FORM COMPLETED AND APPROVED:	☐YES	INITIALS:	DATE:
METHOD OF PROCEDURE REVIEWED AND APPROVED:	☐YES	INITIALS:	DATE:
OWNER CONTACTED TO CONFIRM SHUTDOWN DATE/TIME:	☐YES	INITIALS:	DATE:
PROPER ARC FLASH PPE IN PLACE FOR TASK:	☐YES	INITIALS:	DATE:
COORDINATION WITH LIFE SAFETY SYSTEMS HAS BEEN VERIFIED	☐YES	INITIALS:	DATE:
PERMISSION TO PROCEED & OWNER PRESENT: ☐YES OWNER REP PRESENT: INITIALS: DATE:			

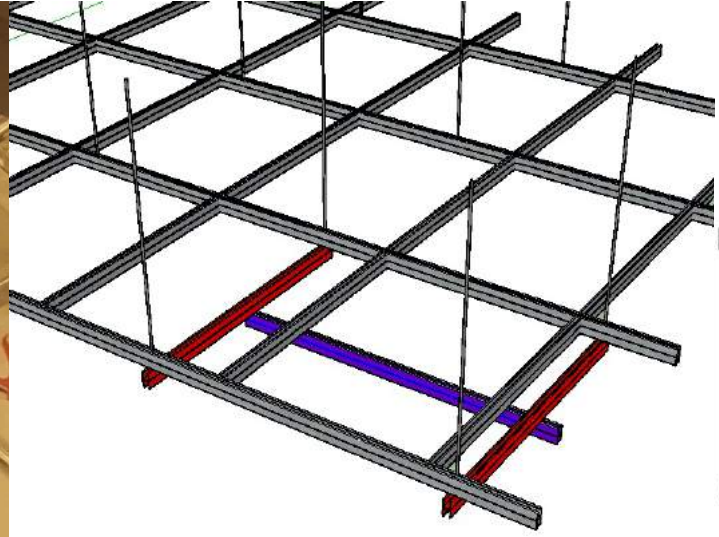
AUTHORIZATION

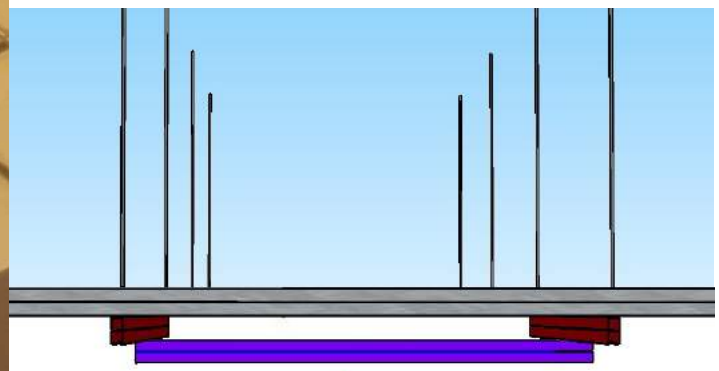
APPROVED BY	NAME	DATE	SIGNATURE
TCE REP			
GC REP			
OWNER REP			

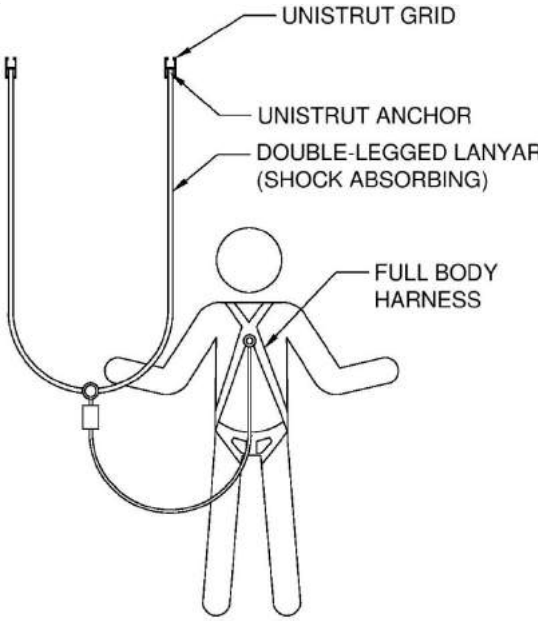
WORK SHALL NOT PROCEED UNTIL FORM IS COMPLETED, EVERY "YES" HAS BEEN VERIFIED AND CHECKED, AND OWNER'S REP IS PRESENT FOR SHUTDOWN.

REV: 8/5/17 TK

We perform a lot of work in active hospitals and other medical facilities where there is an added risk of not only employee safety, but patient and public safety as well. We must take the appropriate steps and ensure adequate planning is in place to eliminate any potential for our work tasks to negatively interfere with their safety. In addition to our JSA and pre-task forms already in place for all jobs, we created a Patient Life Safety Form for work in hospitals and clinics. The form is designed to provide a checklist style verification that, any time the task requires disconnecting power to the intended work area, that all other potential patient areas have been identified and verified not too be affected. All parties involved are coordinated on the form and the process is collaboratively reviewed before proceeding with the work.







One of our projects included many rows of data servers that required work to be performed on top of them with no available tie-off anchorage points. We determined that a fall protection system must be designed in order to properly tie-off. Using the existing ceiling grid with known load-bearing capacity as well as unistrut and DBI continuous concrete insert anchors with carabiners, we were able to design a system that allowed for adequate anchorage using a double-legged lanyard and fall harness. The system used the strut to span between the existing grid and disperse the weight appropriately. This was sent for final approval and signed off by a professional engineer to ensure accuracy. After implementation, the employees were able to properly tie-off and move about the elevated work area as needed while eliminating the risk of falls.

DATE: 12/26/2017
LOCATION: Hoover Building – West stairwell, State of Iowa Capitol Complex
HAZARD: Metal gate leading to lower level A, bottom rail had a sharp rough edge

Before Photo

An employee experienced an injury in the West stairwell. She had her arms full and maneuvered the gate open to start down the stairs. She then began shifting the load in her arms, and the gate closed more quickly than expected.

The bottom edge of the metal gate caught her heel and scraped the skin off. The gate's bottom edge had a sharp 90 degree angle and was extremely rough to the touch.

After Photos

A work order was generated to eliminate the sharp edge on gate. The metal gate was removed from service and the bottom edge was radiused eliminating the sharp rough surface.

The gate was reinstalled and the hinges adjusted so the gate closes more slowly. Additional stairwell gates were inspected to assure the hazardous condition does not repeat elsewhere.

3 years ago, Warren Transport, Inc. invested in 4 AEDs in the hopes of never having to use one. On September 7th 2017, a dispatcher collapsed and was not breathing/unresponsive. Quickly, our team was able to perform CPR and utilize an AED which both were able to get this person's heart started again until paramedics arrived. Since then, we've purchased 2 more AEDs for each floor of our business and shop area.

Ben Caughron, CDS
Warren Transport, Inc.
Waterloo, IA

BEFORE: It was ergonomically difficult to process shapes that would orientate in a manner where the parts would be off the table. At times parts would fall apart causing a safety risk and a need to repair the damaged part. An extra team member would have to come over and hold the tail while the parts were processed

AFTER: A table insert was built and added to the workstation to accommodate springline and elliptical shapes and can be positioned in different locations.

BEFORE: A slap staple gun was being used at the workstation and a Team Member hit his finger with the staple gun. The position of the Team Members hands and striking motion used by the slap staple gun caused concerns. Replacing the slap staple gun with an air gun eliminated one hazard but created another; a tripping hazard with the air lines on floor.

AFTER: A cordless Arrow staple gun was purchased, which eliminated the throwing motion of the slap staple gun, has no air hoses or cords, and uses the same staples currently in inventory.

2017 Hazard Control Recognition Submittal

- **Incident Description with any new details:**
- Operator was having trouble starting the treater and contacted PLC coordinator. It was determined that the treater wouldn't start due to the dust system. PLC Coordinator opened the dust system control panel door and smelled burnt plastic and powered down the cabinet. Electrician was called and opened the panel (LOTO) and noticed the fuse melted. When removing the fuse he noticed that the top screw holding the fuse in place was not tight.

- The 3 year IR scan was completed in May 2015. These fuses were installed as part of a capital project that was closed out in October 2015.
-

Key Factors (System/Physical/Human):

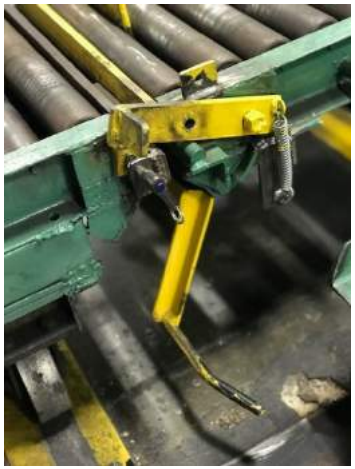
- Systems - There is currently no process in place to IR new panels when installed outside of the 3 year EAM PM

- **Corrective/Preventative Actions:**
- The location will add this to the MOC checklist and the PSSR to ensure an IR scan before projects are closed out.
- Sr. Project Engineer will discuss adding this to the project close out checklist each time a new panel is added.
- Engineering will send a communication to the manufacturer as a awareness of incident,
- Work order will be put in EAM to perform an IR scan once panel has been repaired.

D537 Transfer Cart

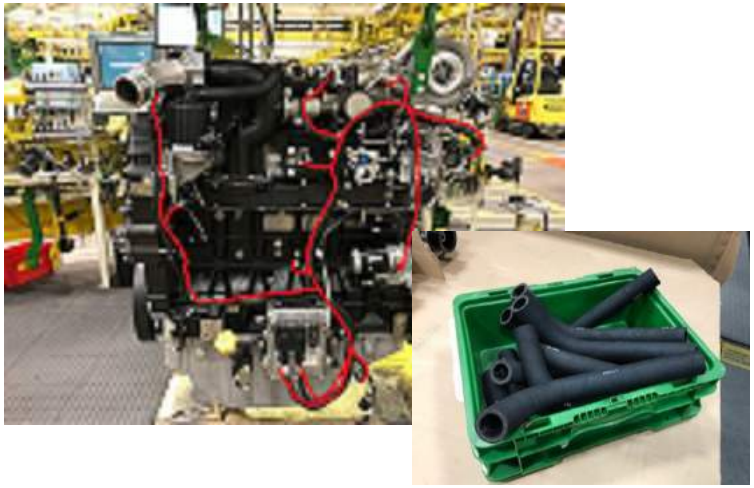
- The transfer cart was involved in a Near Miss in which a load of cranks spilled near an operator after they didn't latch the movable cart to a fixed conveyor. Nearly 3,600 pounds of cranks spilled.

- A spring loaded stop was fabricated that can only can be moved down when the cart is affixed to the conveyor using a locking pin. This cart's home location latch was also improved to ensure movement is prevented along with another cart's sliding locks.



D565/571 Ovens

- Harnesses in D565 and hoses in D571 are stiff and difficult to install.



- Ovens were purchased to help soften the parts. Set at 120 degrees, the ovens make the harnesses and hoses more flexible for installation.

D565 Rocker Arms

- Rocker arm assemblies weigh around 40 pounds per half and were lifted manually. A lifting device was in the area but because of poor function it was not being used.

- The department operation team redesigned the device with operator input. Both halves are lifted together which also increases productivity.

D565 PRS Arm

- The operator controlled PRS arm 30 torques per engine. Due to the height of the engine while mounted to a tow motor the operator arms were above the shoulders during the torque process.

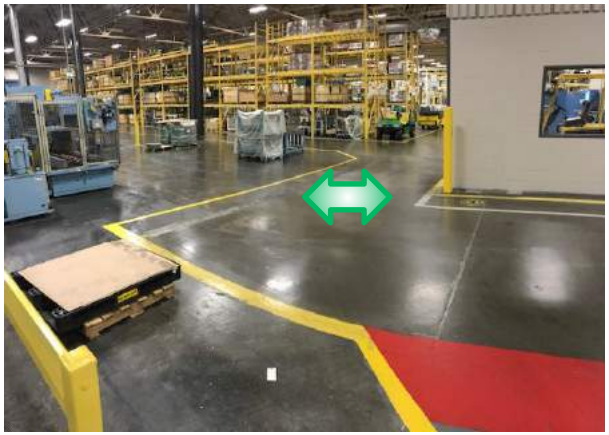
- The station was moved and redesigned with a variable height lift table. The operator can set the table's height to keep work below shoulders.

Vehicle/Pedestrian Safety – Continually Improving

Floor stops added, crosswalk and aisle painted.

Rail extended due to blind corner, crosswalk painted, aisle extended, globe mirror added.

Blue lights on <u>every</u> powered vehicle.



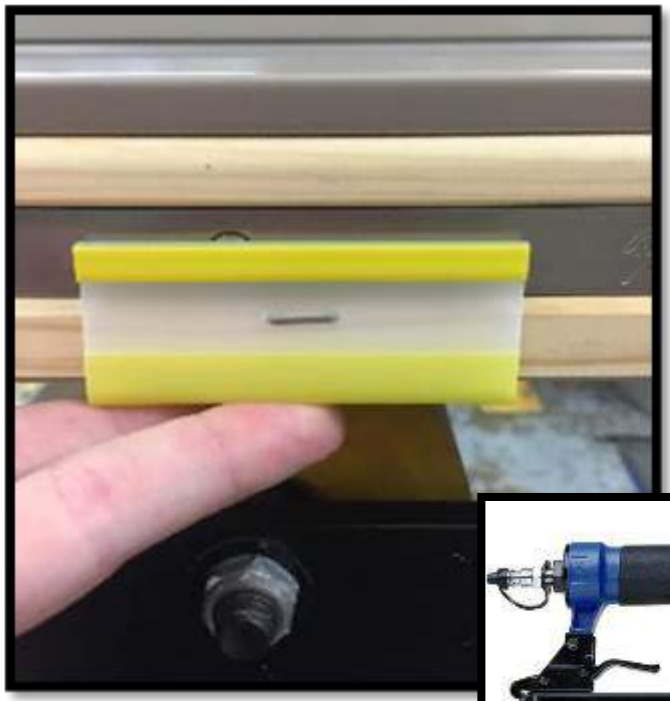
Aisle was widened to move traffic away from pedestrian corner.

Anti skid floor labels added in higher risk areas.

Staple Gun Shipping Spacer Holder

Before

Team members had to hold the plastic shipping spacer in place with one hand and staple using the other. This put team members at risk for a line of fire injury, due to the spacer slipping or the staple gun slipping off of the spacer.



After

Designed and installed a device that attaches to the staple gun and holds the spacer in place. Team members can now use just one hand to pickup the spacer and staple onto the side of the panel. This eliminated the hazard 100%.

Track System to Move Units

Before

Assembly Line consisted of four tilt tables and individual transfer rollers between each table. Product from multiple racks must be unloaded onto the tilt tables at the beginning of this line. Due to variation in the height of the racks, team members had to manually lift and pull units out of the racks and place them onto two separate tilt tables. Production had to contact fork truck drivers to frequently change racks at the two tilt tables that feed the line.

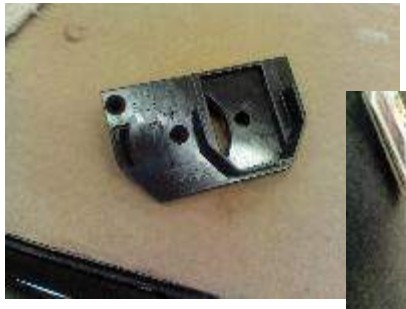
After

A track system was installed that enables the team member to move the roller conveyor to the appropriate rack, load the unit, turn the entire transfer system around, if necessary, and move it on the track to the correct tilt table. The track system also has 3 inches of adjustment to allow for a variation in rack heights. The team member no longer has to manually lift the units out of racks.

Tensioner Tab Cutter

Before

A portion of the plastic production part had to be clipped using a side-snips. When doing so; it was difficult to control how much to remove, snipping the plastic required significant force and the piece being clipped would fly away in any direction which potentially could strike the person clipping or someone nearby.



After

A jig was designed and built to hold the pieces in place; trimming two at a time with a small Dremel tool attached to the underside of the yellow guard. As the team member positions the part into the tool, the tool starts up and stops when pulled back out from underneath the guard.

We have approximately 36 forklifts in use around our facility. Additionally we have various golf carts in use. This creates a higher risk of forklift/pedestrian and forklift-forklift incidents at intersections and blind corners. Mirrors are often hard to see or people tend to not use them. We installed blue LED lights front and back on all forklifts and the front of all golf carts. These lights project about 12ft out from the vehicle to give pedestrians and drivers of other equipment advance notice of their presence. While this is especially beneficial at intersections and blind corners it creates a better overall awareness in all areas.

Before

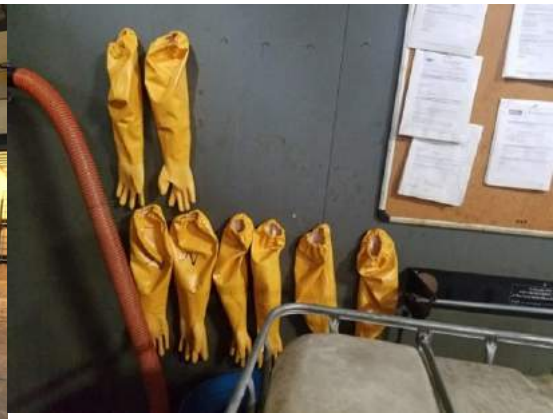
After

Forklift Here

Visual Warning Here

Chemical Exposure Risk Elimination

In our Biocides department employees work with caustic liquids. Previously they wore an apron with sleeves along with 12” cuff nitrile gloves. Occasionally some of the caustic became trapped in the cuff of the apron sleeve then would contact the skin when the gloves were removed. Also at times an employee would get caustic on their wrist from a “dirty” glove when removing the first glove.



We went to an arm length chemical glove. This eliminated the potential for exposure at the wrist. When they are done they dip the gloves in a neutralizing solution then hang upside down to dry so there cannot be any residual liquid anywhere when they are donned again. New training material was also created and given to all employees working in this area.

First Aid Equipment Signage

Our facility is spread out over 7 separated buildings. We have first aid kits and AED's in several designated areas. Even though we cover this with employees during orientation, annual trainings, and visitor training people tend to have trouble remembering.

Based on an employee suggestion we added signage for first aid kits and AEDs on the outside door to the buildings they are in. This also helped visitors to quickly identify where these items are located.

“Stellar Industries Inc.”

Regroup
Mass Notification

Idea; *To improve over all communications with all Stellar employees on a daily basis along with the ability to release time sensitive notifications in timely matter.*

Reason; *Manufacturing plants at several location*

Solution; *Use of a* ***“Mass Notification System”***

Messages can be sent from any Electronic device

Message can be sent in the form of a Phone Call, Text Messages, or Email

Allows us to commutate to our employees one on one, as a group, a single location and company wide

[ALL] Second Shift 1/22/2018
Today at 13:51

Stellar Industries, Inc. will be open for 2nd shift employees tonight, 1/22/18. Our Winter Weather Policy is in effect.

You are receiving this message as a valued member of our Stellar Team.

“Company Celebration” / “Plant Closings” / “Personal Notification”

Stellar Industries Inc.
Garner Plant

***Problem**; Noise level created by Machine Shot Blaster.*

***Solution;** Design an enclosure for controlling and lowering noise levels as well as prevent that noise from reaching a worker*

***Goal**: To improve the quality of the overall work environment that effects 30-40 employees on a daily bases.*

BEFORE

AFTER

Flint Hills Resources Davenport Iowa

Inside of our terminals, personnel often work alone. In these situations, a focus on personal safety is paramount. During the 2017 work year, several heavy items were identified that frequently required lifting or movement. The staff requested appliances specifically designed for our skid steer. The addition of these appliances provided the means to eliminate direct human interaction in the lifting process.

Telescoping Lift Boom

Barrel Handling Appliance

Barrel handling (Movement, and final placement)

- Liquid barrels can weigh as much as 500 lbs.

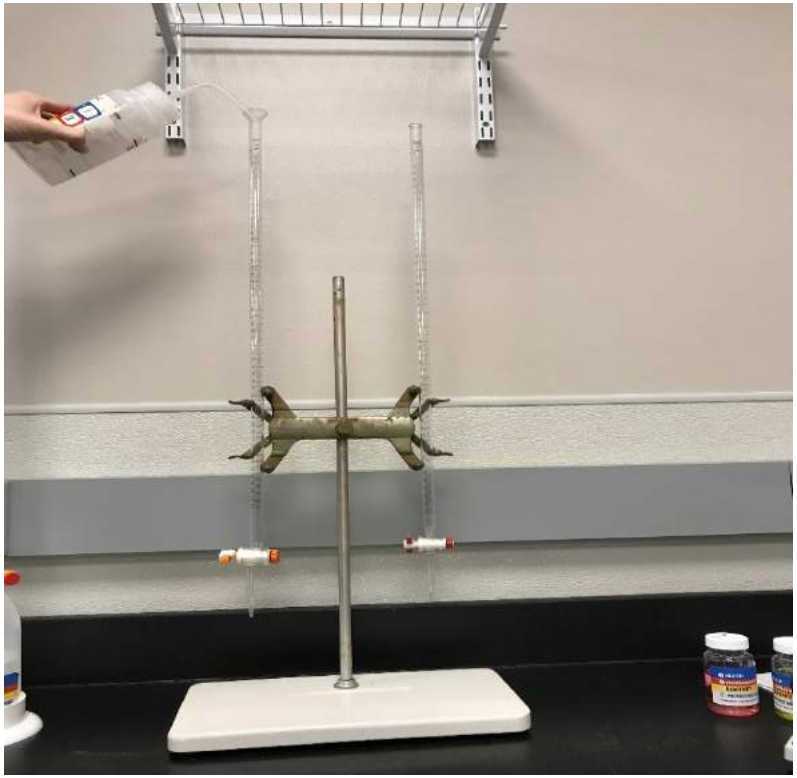
Heavy equipment handling

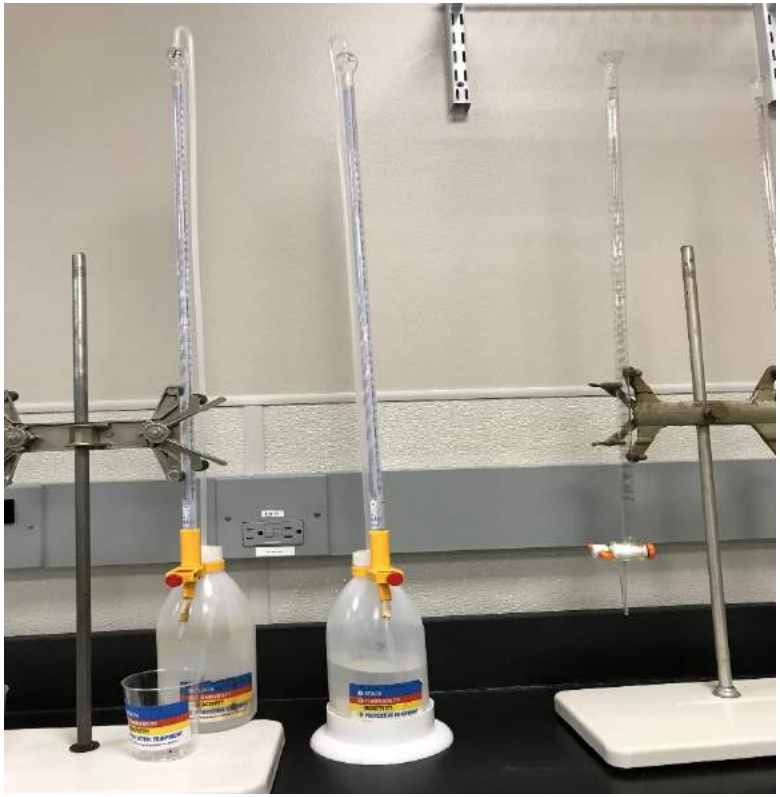
- Handling Meters, Pumps, Electric Motors, Large Valves is required frequently.

Flint Hills Resources Dubuque Iowa

Risk

As part of a production task, we identified a potential spill/splash hazard associated with the process of filling a burette with acid. Although appropriate PPE is worn while performing this task, we didn't want to rely on the PPE as the last line of defense and challenged ourselves to explore other potential control methods.





MITIGATION

Understanding that PPE is the last line of defense, our team found a completely enclosed process that eliminates acid exposure while filling the burette. The enclosed system (shown above) also has an overfill protection system—any acid over 50ml will travel back down the plastic tube to the holding tank. In addition, the enclosed unit also has a bottom ring that prevents the container from tipping over accidentally.

Flint Hills Resources Dubuque Iowa

Risk

The design of FHR—Dubuque's QC lab design made it difficult to view the top of some pieces of equipment, which was a necessary task to complete some lab tests. located in our QC lab. As a result, FHR Lab personnel used a ladder to complete this task. The ladder use creating a potential slip, trip and fall hazard. This task was performed 5-10 times daily during season.

Mitigation

When FHR remodeled the lab, we lowered the cabinet height of equipment storage locations so that personnel could view the lab equipment from a level working surface, eliminating ladder use.

Flint Hills Resources Dubuque Iowa

Risk

Feedback on the use of ice spikes suggested that the current PPE was cumbersome to use and apply. We wanted to identify a more user-friendly spike.

Mitigation

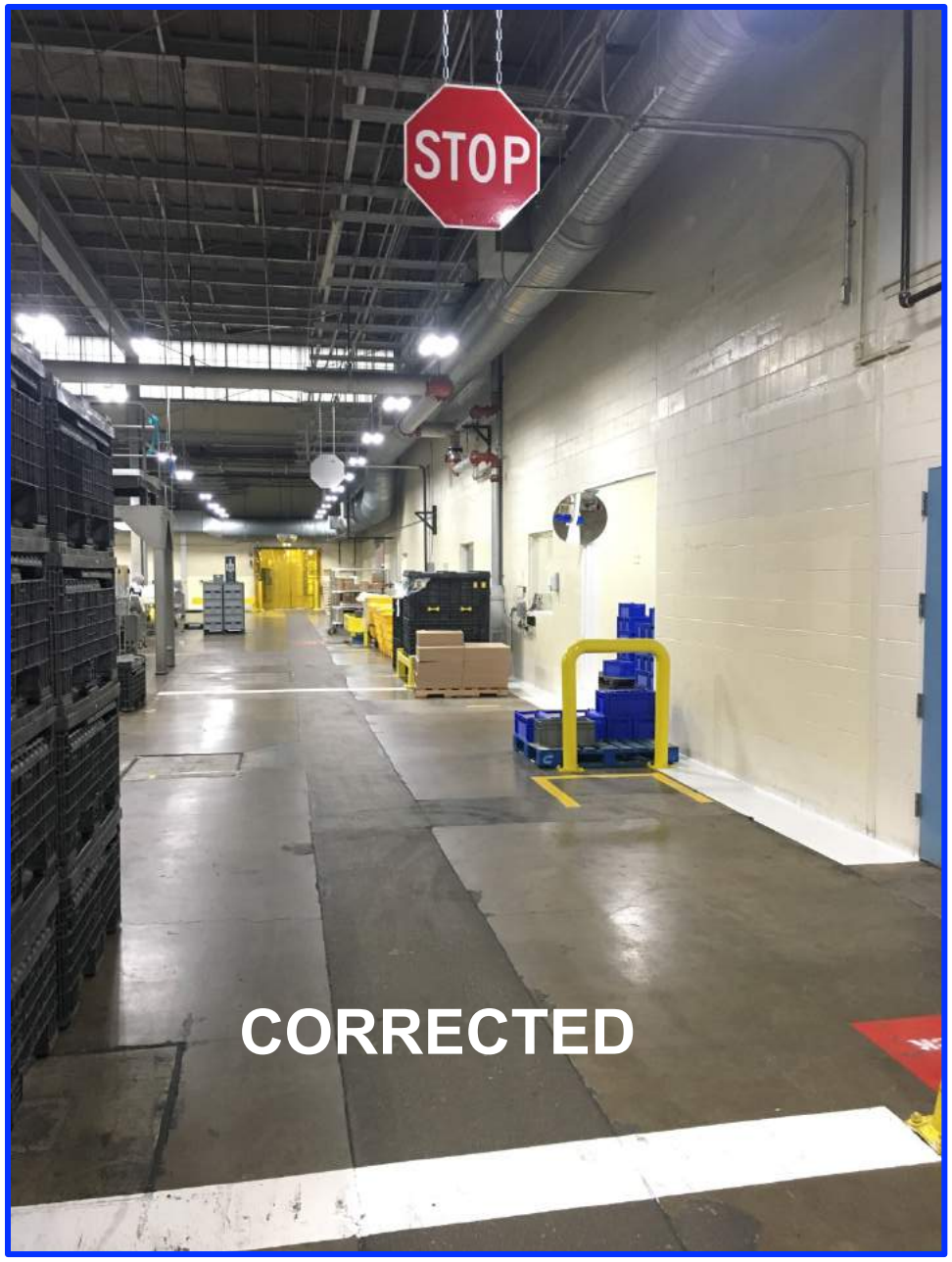
FHR identified and demoed many different styles of ice spikes to help fit our needs and base of use. The ice spikes shown give you traction when outside on icy conditions and are easily put on and taken off, making them a more convenient piece of PPE to use on a daily basis, when needed.

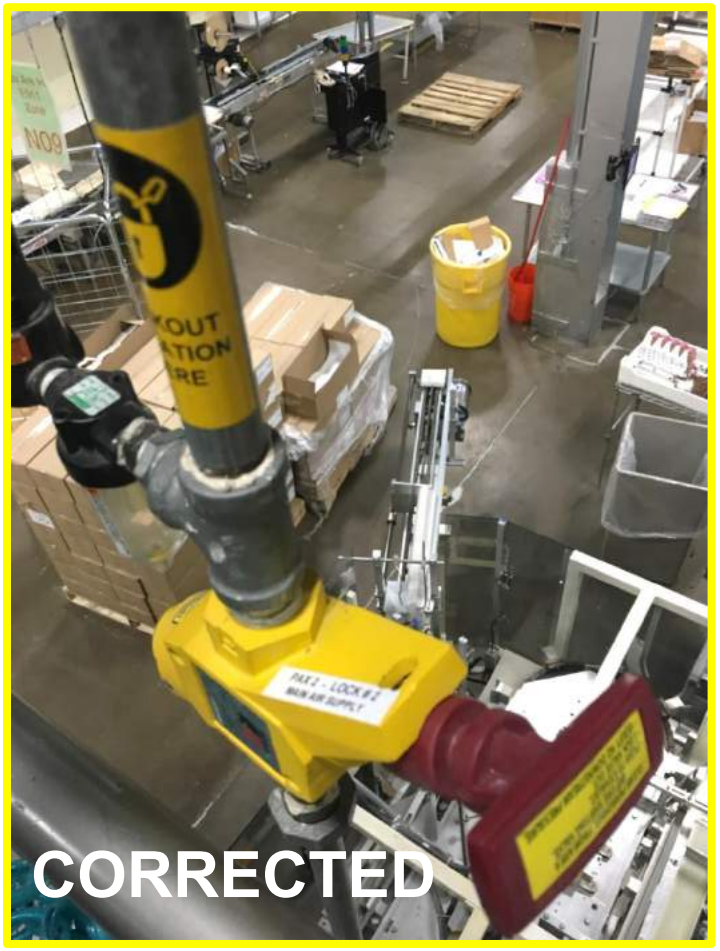
The FHR Algona Terminal discovered that an old shop area contained lead-based paint. During the lead paint abatement planning process, we found that by building an internal wall (along with caulk and foam) we could encapsulate the lead paint and reduce and/or eliminate lead exposure during and after the project. This encapsulation method, compared to conventional abatement projects, reduced lead exposure by eliminating the need to manually scrape the loose paint from the walls.

Lift Truck Traffic Improvement

Workers were concerned about Lift Truck Traffic in certain areas in the Operations Areas.

STOP Signs and WHITE Lines were installed to slow down traffic and to Cerate Safe Zones related to Lift Truck Traffic



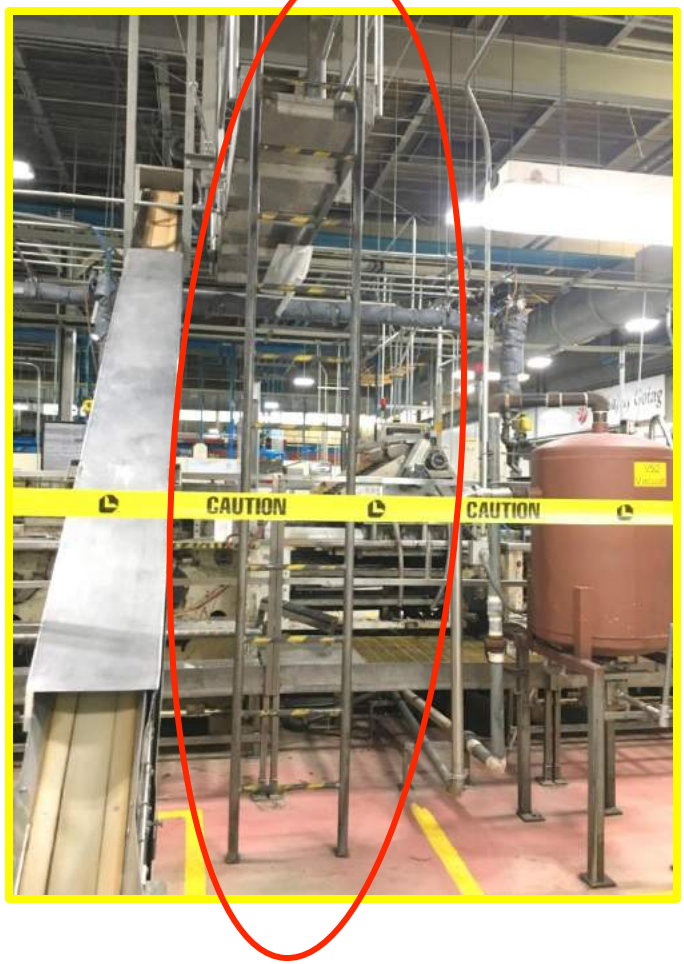


World's Finest CHOCOLATE

Energy Control Improvements

Machine Operators became confused when Locking Out Compressed Air Supply Valves and Dumping the supply side of the air lines. New Air Valves were installed that have built-in air dump valves plus they all look the same.

VERTICAL LADDERS REPLACED



VERTICAL LADDERS CONTINUE TO BE REPLACE WITH STAIRS WHICH IMPROVES SAFETY FOR WORKERS.

World's Finest CHOCOLATE

TRAFFIC SAFETY IMPROVEMENT

Mirrors Expose Blind Spots

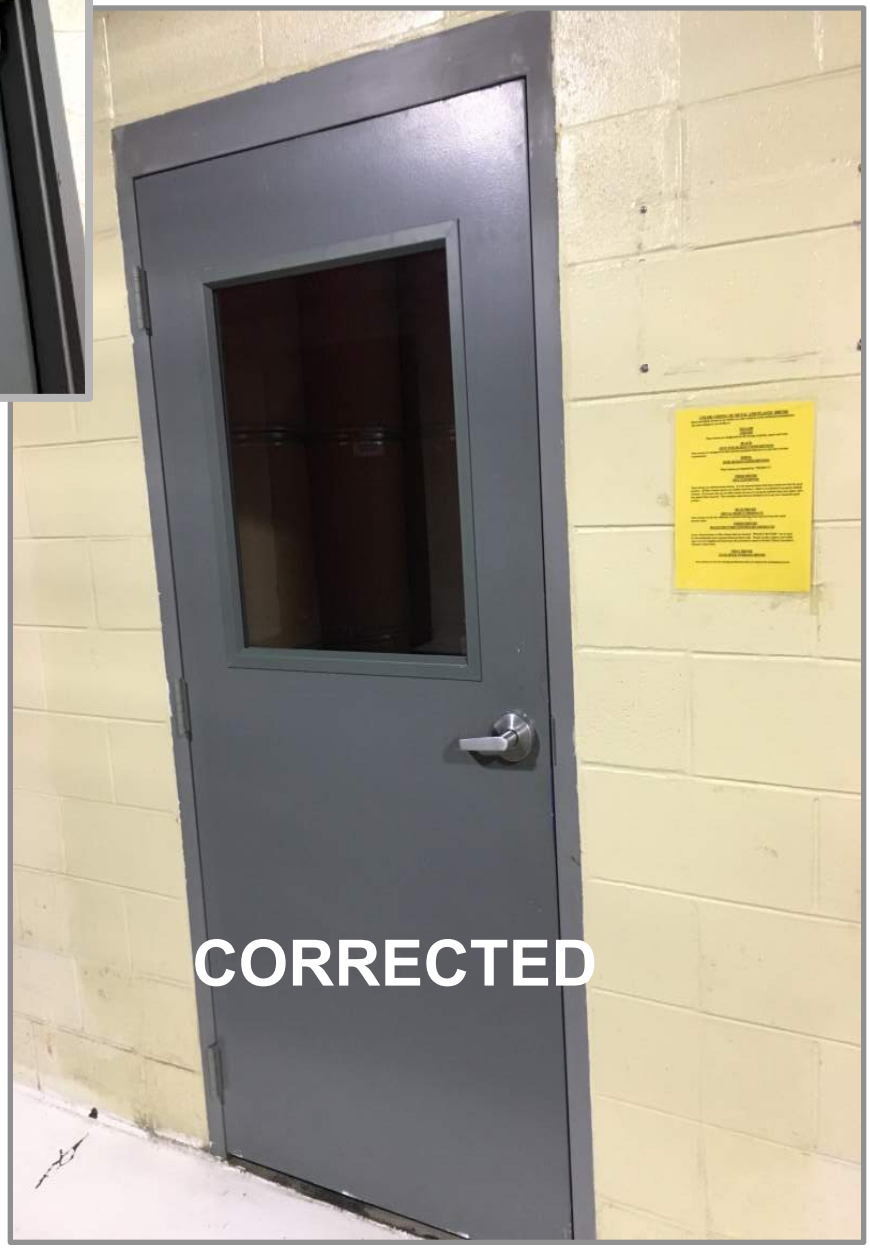
DRIVERS COULD NOT SEE APPROACHING TRAFFIC, A MIRROR WAS INSTALLED

World's Finest CHOCOLATE

World's Finest CHOCOLATE

IN PLANT, PEDESTRIAN SAFETY IMPROVED

BEFORE THE WINDOW WAS INSTALLED, WORKERS COULD NOT SEE WHEN A LIFT TRUCKS WAS APPROACHING



Wheel Chock Improvement - Renwick

Problem (before improvement):

• Wheel chocks were hard to see, making safety confirmation difficult. Also, from an ergonomics standpoint, bending and stooping were required to place and remove the chocks.

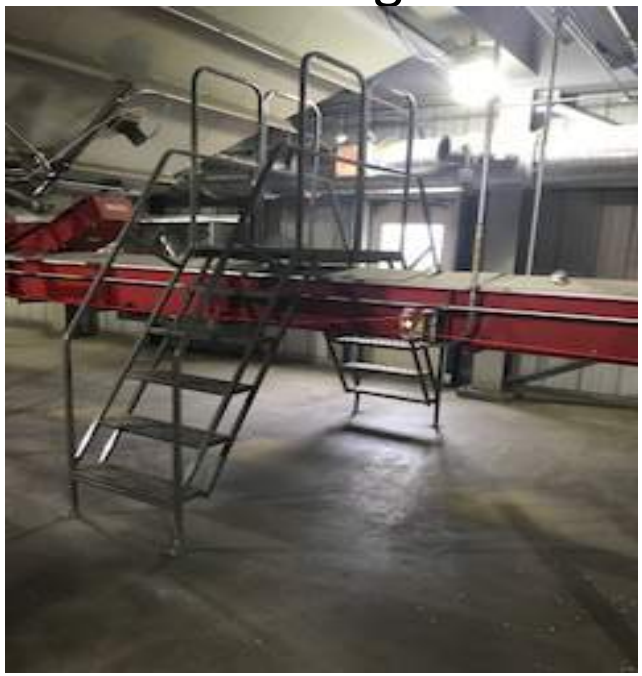
Improvement:

- **Replacing all chocks with new style. Handle and sign make these very visible, even from a distance or looking through a mirror. The handle also eliminates the need to bend a stoop.**

Benefits:

• Creates a safer environment by eliminating some ergonomics concerns, and helping to make the chocks visible for both the Pioneer employees and the truck drivers.

Ergonomic Improvement - Renwick



Problem (before improvement):	Improvement:
• No way to access other side of conveyor for 10 bins in Bulk Building without crawling under the conveyor	• Installed three ladders that cross over the conveyors allowing employees easy access to the other side.

Benefits:

• **Creates a significantly safer environment by eliminating the ergonomics concerns of needing to stoop /crawl under conveyors to access bins for clean-outs which also resulted in increased productivity.**

- Skyline Center, Inc Safety Committee created a sand bottle program this winter to help with slippery conditions.
- Slippery conditions came arise quickly with the winter weather and the heating and cooling on wet surfaces throughout the day and evening.
- Sand and water bottles as well as a few gallon jugs were recycled and were filled with sand and made available to staff for their use.
- They came in quite handy several times so far this winter. A supervisor actually came to the building to obtain more for her staff during an ice event. They were quite helpful in helping with the safety of our staff and clients during the ice event.

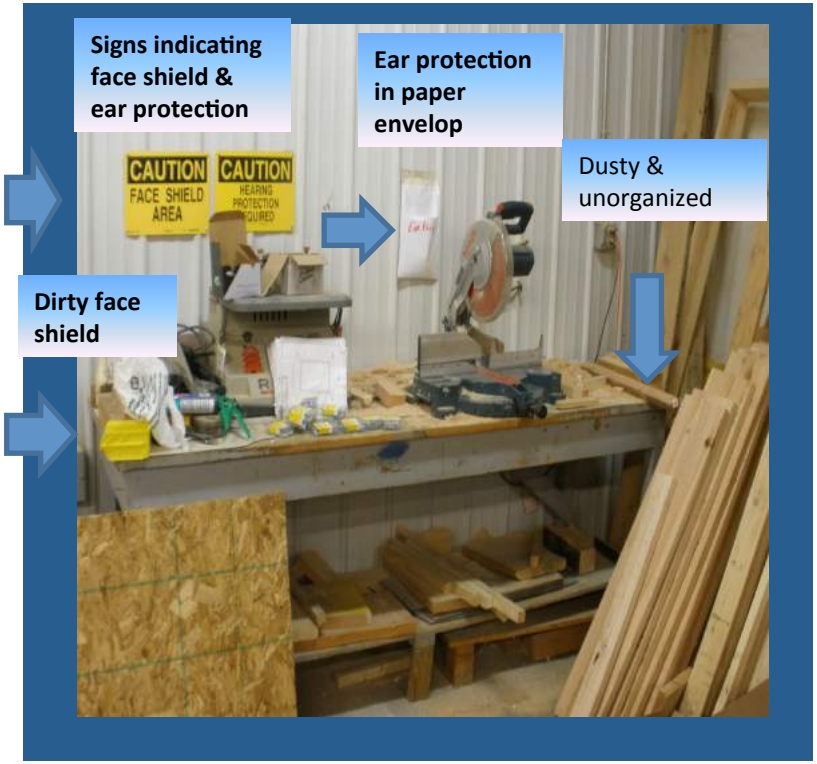
Sand Bottles

Please take one! Carry with you in your car, bag etc. Sprinkle a little sand for your safety!

5S Improvement: [Fenestration Wood Cutting Area]

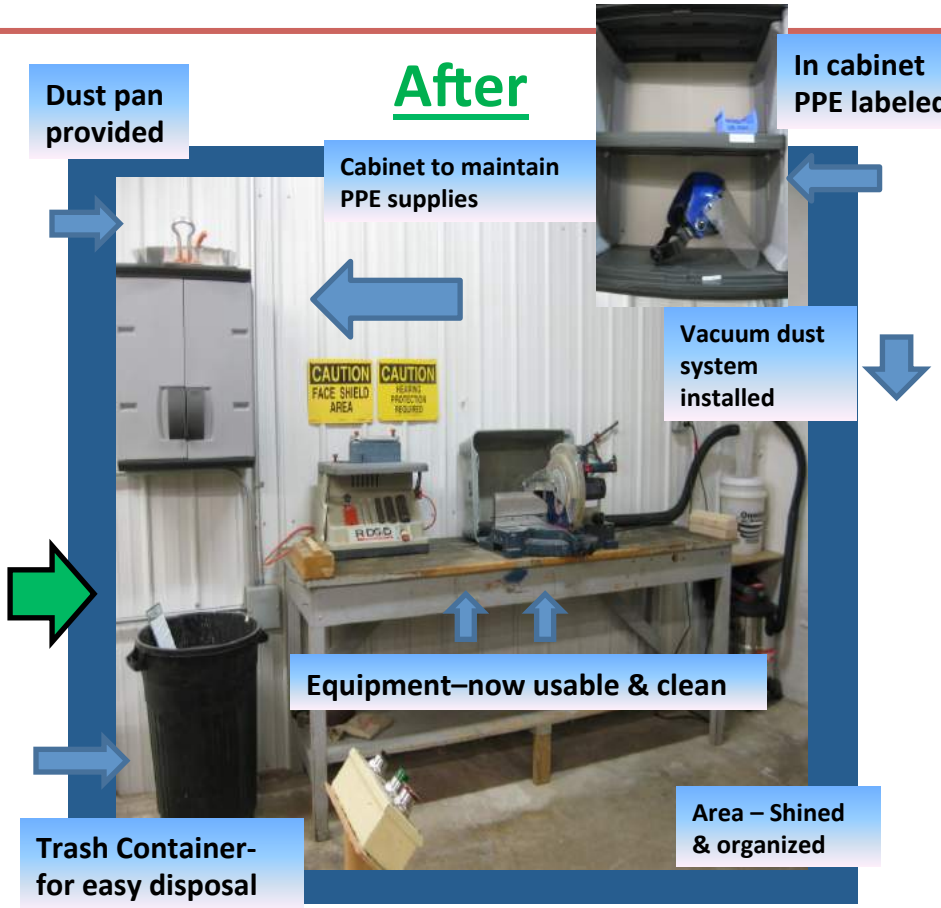
[10/24/17]

Before



- Disorganized-dumping ground, storage area
- Cluttered work space–unsafe conditions
- PPE not effectively maintained in the area
- No effective disposal of sawdust

After



- Sorted items–cleaned area-returned items or threw out
- Purchased cabinet for PPE-labeled to sustain–cleaned items
- Built a dust vacuum system to solve wood/dust issue
- Trash can purchased for quick easy clean up

Iowa Select Farms

Before: In the past standard electrical panels were used on our farms. The problem with these panels is that they would rust, corrode, and eventually break down causing safety concerns for the employees as well as create a potential fire hazards.

After: The electrical panels that are used today are a panel board style with bolt in breakers with a gasket on the doors to prevent outside elements from coming in. In addition to that the electrical panels that are used inside the actual barn and not in a hallway now have a fiberglass enclosure for an added protection. Both types of panels prevent the electrical and fire issues that were possible.

Before

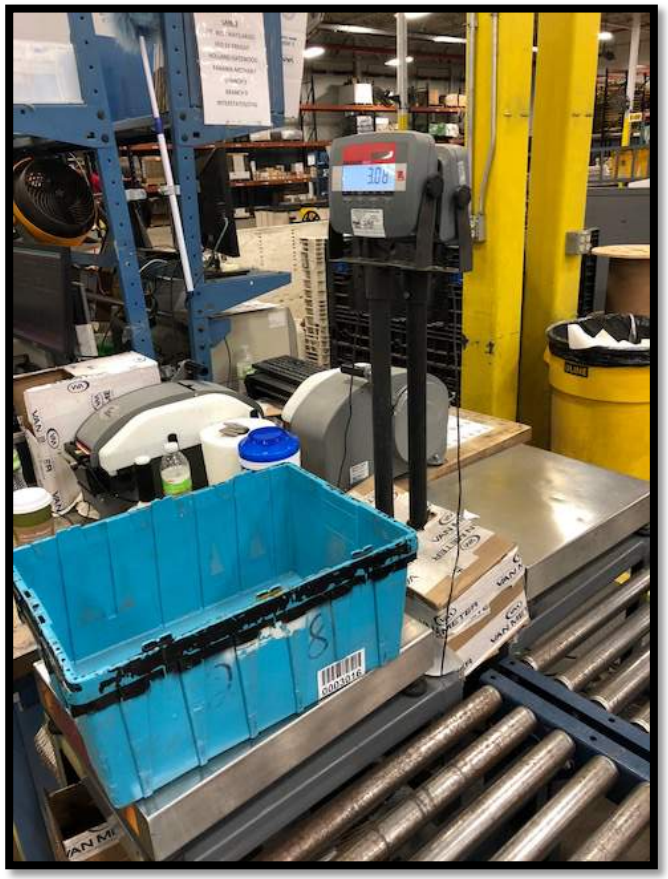
After

Corrosion-Resistant Fiberglass-Reinforced Polyester Enclosures (Type 4X)

- Watertight and dusttight.
- Gasketed door with optional locking handle.
- Directory card holder on inside of door.

Problem

Previously, the shipping team from our Central Distribution Center (CDC) would send out packages in excess of 50lbs to the other branches we have in the company across three states. Upon unloading the shipping crates at the branches, our employee-owners were put at a greater risk of back injury when having to lift a 50lb+ package out of the crate.

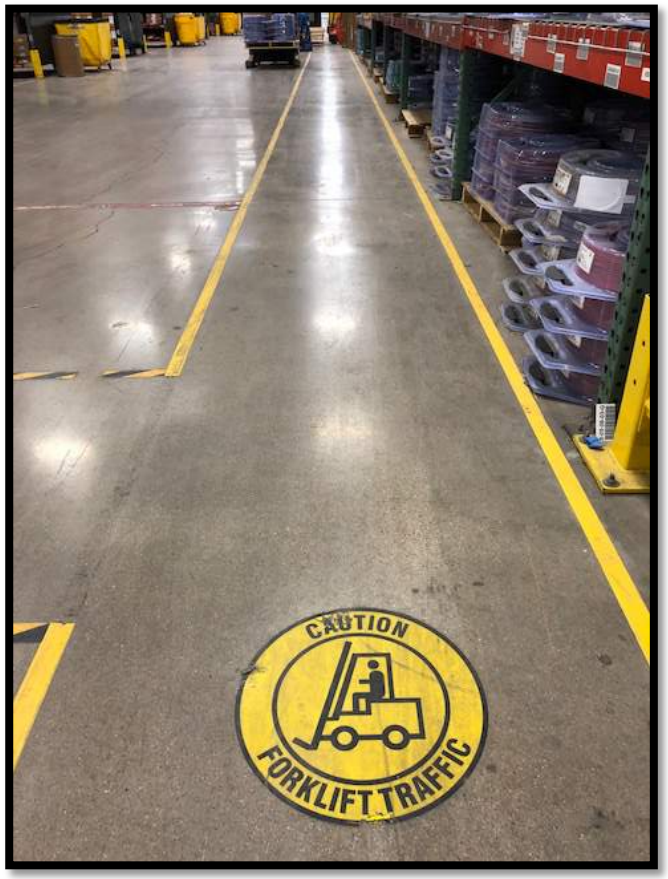


Solution

Due to input from our employee-owners we have since implemented scales at each shipping station at the CDC. There are no packages being sent out that are in excess of 50lbs. This has lowered the risk of injury to our employee-owners.

Problem

The pedestrian traffic at our Central Distribution Center (CDC) can be busy at times and we also have forklifts being operated constantly. There was no designated area for pedestrians to walk creating an unnecessary safety risk to employee-owners, vendors, clients and customers.



Solution

Safety tape was implemented to designate pedestrian walking paths in the warehouse. While forklift operators must yield to pedestrians at all times, it makes it easier for forklift operators to know where pedestrians should be when walking through the warehouse. Likewise, pedestrians know that forklifts will not be operating in the pedestrian walkways.

Problem (Before)

Pipe, conduit and other materials used to be bound together using metal banding. When this banding was cut to access the product, the ends of the banding were very sharp and were a safety hazard to the handlers.

Solution (After)

All metal banding has been replaced with plastic banding to eliminate sharp edges. This has drastically reduced if not eliminated the risk of cuts to our employee-owners.

Vertical Lathe – Oil Mist Collection System SAFETY Improvement – **Before**: Previously the Toshiba Vertical lathe during operation would shoot a cloud of oil mist out the top of the machine and into the air, right behind the machine up on the wall you will see an air exhaust fan and so the machine was running and the oil mist was coming out of the machine when, then exhaust fan would be turned on the oil mist was get blown across the Plant. **After**: We purchased a Torit oil mist collection system with an arm that extends into the machine an collects the oil mist at the point of use eliminating the safety and environmental hazard.

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

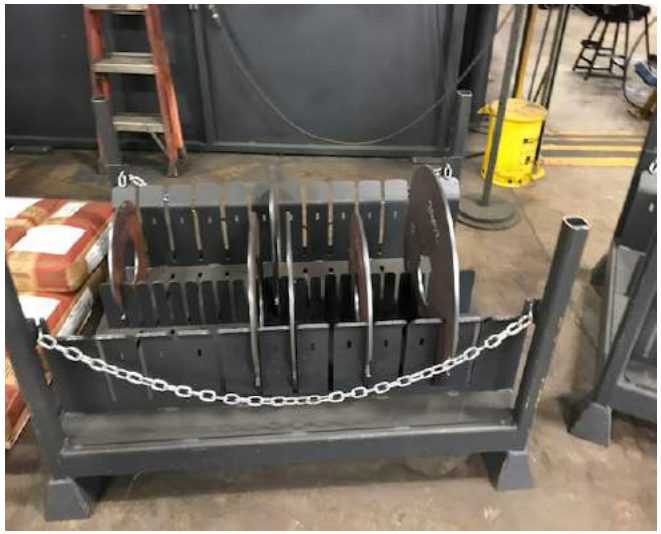
After

End Disc Cart SAFETY Improvement– **Before**: Employees would store the end disc on the floor creating trip hazard. **After**: New carts were made to get End Disc off the floor and easier to get access to and easier to deliver to end user.

Precision Inc, Pella Iowa

Before

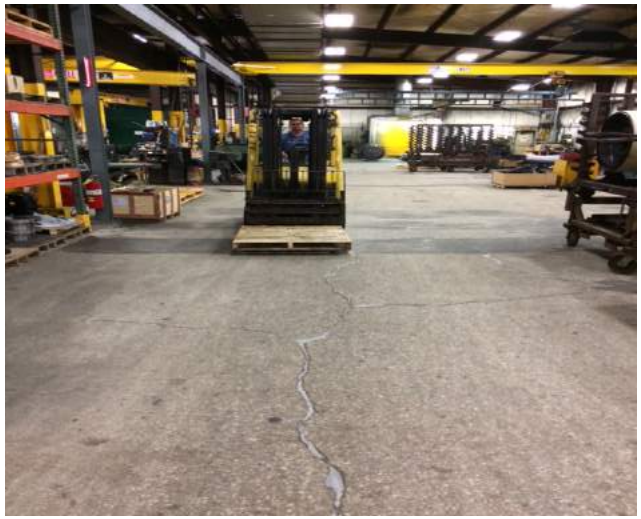
After



Forklift Blue Light Pedestrian Awareness Safety Improvement– **Before**: Forklifts did not have blue pedestrian awareness lights that send a outward light beam to know a forklift is coming. **After**: We installed the blue pedestrian lights on all forklifts for better employee awareness.

Precision Inc, Pella Iowa,

Before



After

Our factory has several portable emergency eyewashes that are located near battery charging stations. At times we change process flow of materials, introduce new product lines and implement 5S practices. When changes occurred we move battery charging stations to areas where battery powered trucks are frequently utilized. On occasion the battery charger will be moved, but no the emergency eye wash or other times the eye wash "lags" behind the relocation of the battery charger. It was decided to build a movable platform that accommodates both the battery charger and emergency eyewash. This assures simultaneously movement of each piece of equipment. This assures adequate protection in case of an acid splash and compliance with the regulatory standard.

Before

After

It was noted by an employee that grit and dirt were accumulating on the top surface of electrical outlets. To eliminate risk of additional “short circuits”; one of the outlets was replaced with a protective enclosure and the other was replaced with a fully enclosed outlet and plug assembly.

Before

After

Our manufacturing engineers recommended we install casters on welding curtains throughout our factory. The casters eliminated strains when pushing the curtains to different locations. We also added a metal brace at about a 45 degree angle, to “guard” the horizontal brackets by “location”. Instead of employees stepping over the horizontal bracket, and experiencing a potential injury by tripping, the employee “walks around” the bracket.

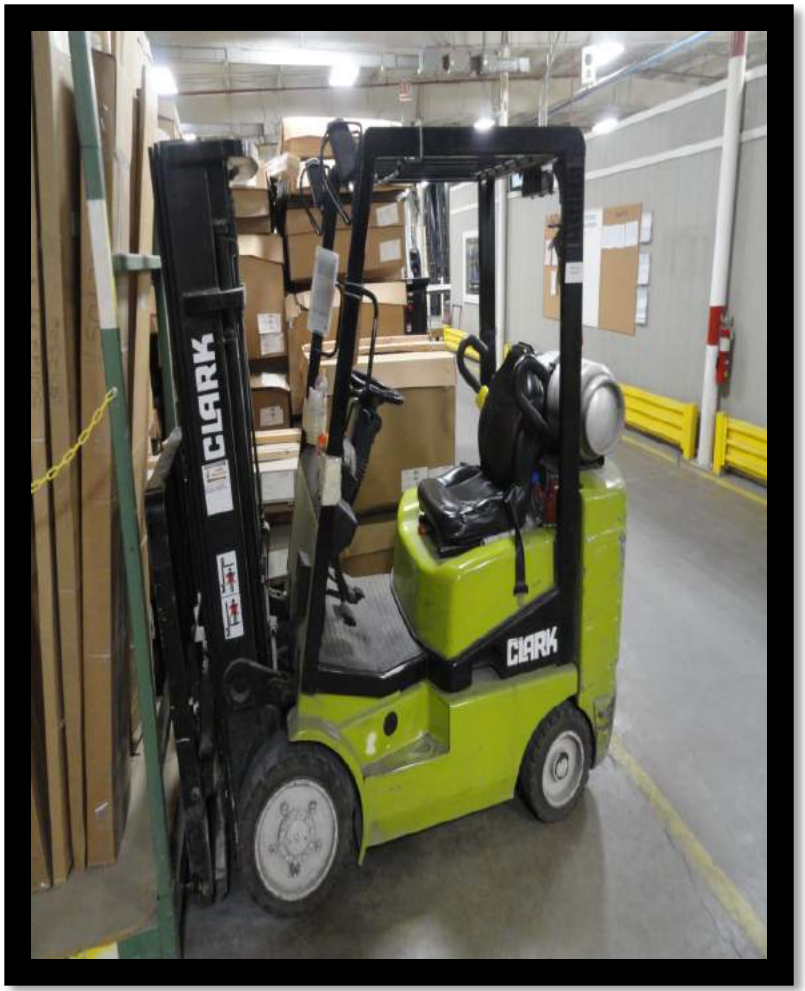
Before

After

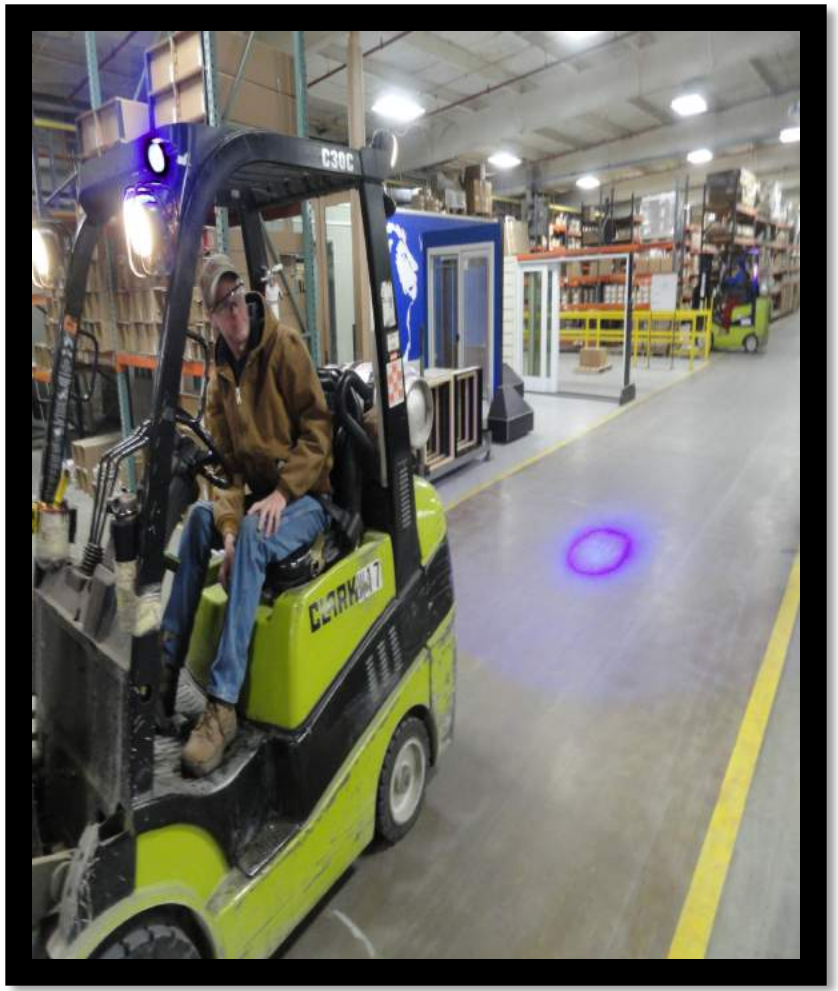
Forklift Safety

Windsor has installed
blue LED lights for visuals

BERFORE



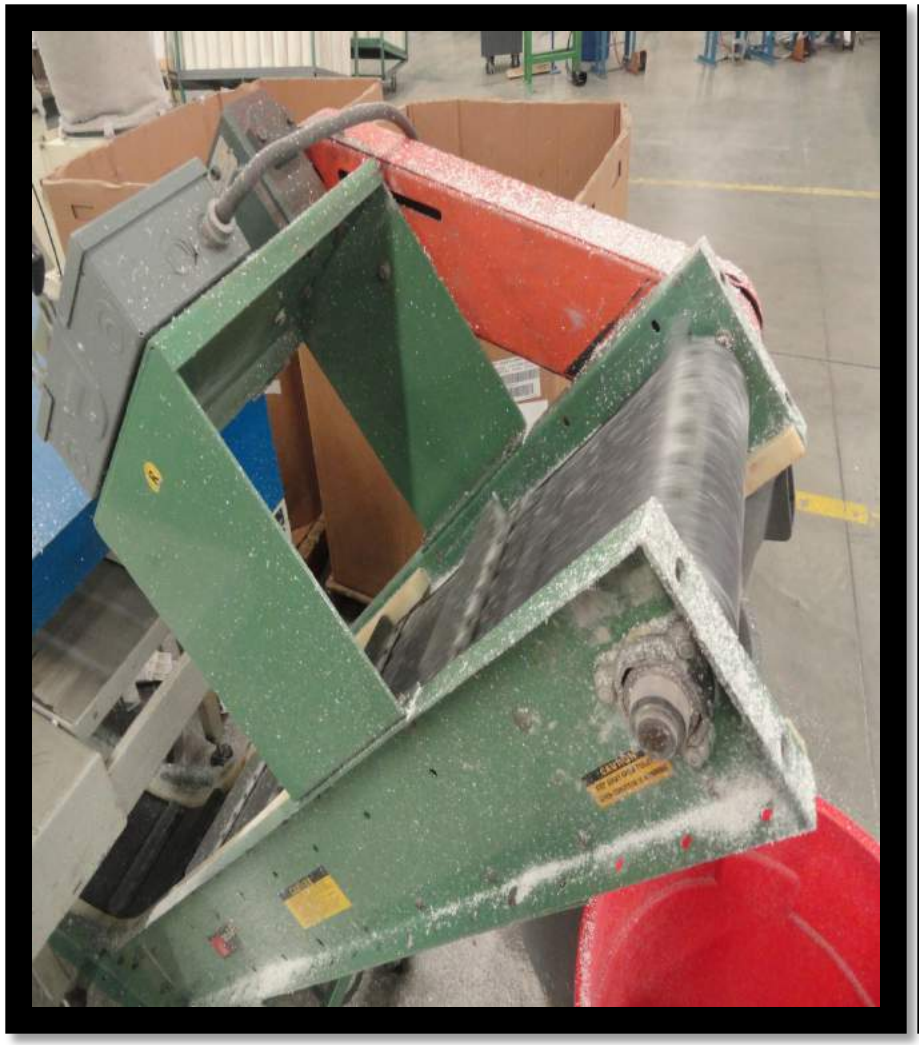
AFTER



Identifying pinch points and adding guarding to protect employees.

GUARDING

BEFORE



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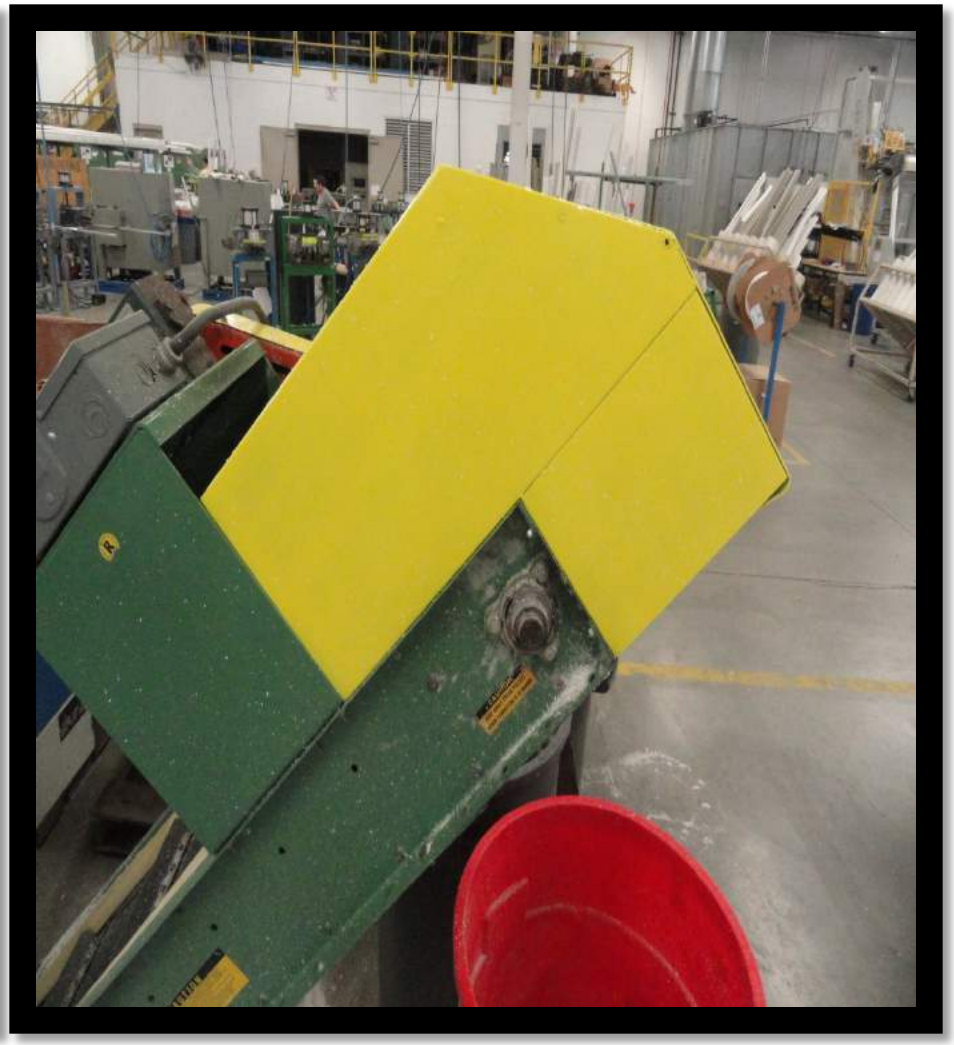


Identifying trip hazards and placing highly visible reflective floor tape around the hazard areas

WOOD PATIO DOOR

BEFORE

AFTER

Performing hazard assessments and improving guarding.

GUARDING

BEFORE

AFTER

ALLIANT ENERGY GRINNELL OPERATIONS

Before Picture	After Picture
	

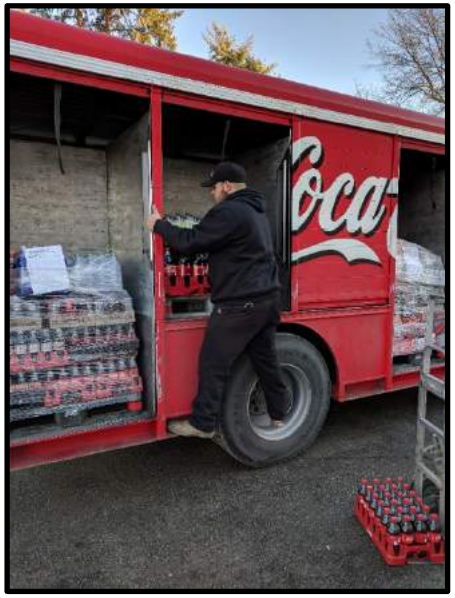
The ventilation unit in the Grinnell shop overhangs into the truck bay and there are sharp exposed corners that someone could hit their head or back on. The crew attached some carpet scraps to the edges with zipties to eliminate the hazard and also marked the unit with tails of orange tape that flutter when the unit is on. This makes it more noticeable while backing a truck into the bay, walking or working near the unit, and also serves as a visual reminder that the unit is on when the tape is fluttering.

ALLIANT ENERGY MARSHALLTOWN OPERATIONS

Before Picture	After Picture
	
Summary	**Summary**
Employee reported an area in the parking lot around a manhole where the paving had heaved and was causing a tripping/driving hazard.	Contacted facilities with the issue. A concrete contractor was hired to raise the manhole and pour new concrete around it, eliminating the deep drop in the parking lot. This was completed on 3/7/17.

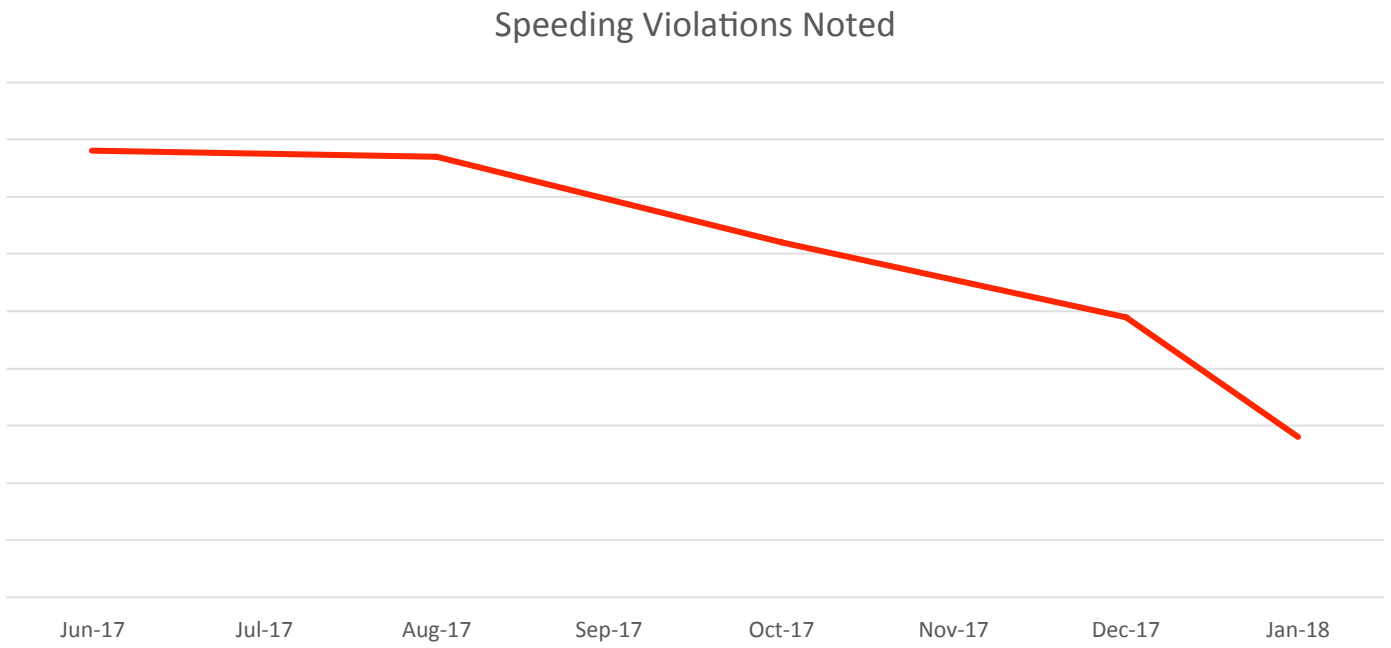
Our route drivers were getting frequently injured through awkward lifts, slips, and falls because we had to unload a side-load truck in all weather. We switched from a side load truck to a rear load trailer with a lift gate to eliminate the unloading hazard.

Before



After

Our drivers were getting speeding violations while driving our commercial motor vehicles. We invested in Fleetmatics equipment in our vehicles with reporting and tracking of the driver's speed. It allowed us to coach the drivers that were speeding in a timely way to reduce our violations and accidents. We've seen a 67% decrease in speeding since implementing this solution.



Mobile Equipment Safety

- Following a routine safety inspection, it was determined man-basket that attaches to the forklift was not in compliance.
- The man-basket was replaced with an aerial lift.

Emergency Response

- Location was requested by local emergency responders to educate the fire department about the hazards associated with responding to 406 tanker truck emergencies.
- The facility manager provided training the four Fire Departments in the Des Moines Metropolitan area. He discussed the basic functions of a 406 tanker and the associated safety components.

Slip, Trip, and Fall

- Location personnel observed lubricant dripping from bi-fold doors periodically. Creating a slip hazard on the shop floor.
- The location placed absorbent pad underneath bearing housing. The location periodically inspects absorbent material and replaces absorbent prior to saturation.

Emergency Notification

- Locations fire alarm was out date and no longer supported.
- The building which houses two separate occupancies has upgraded the alarm system. The system now includes visual and audible alarms and manual pull stations.

Machine Guarding

- During a routine inspection, a potential guarding issue was observed.
- Chain-link restricts employees from walking underneath the conveyor.

Servicing Wheels/Material Handling and Storage

- Location developed a procedure to relocate tire inflation operations outdoors. The tires cage is also stored outdoors now as well, eliminating clutter on the shop floor.

Fall Protection

- During routine operations employees acknowledged a fall hazard when loading product into the loft.
- The location installed a rolling gate to protect employees when working in the loft.

Process Improvement

- The location replaced the steel bulk oil tank with an aluminum bulk oil tank.
- This allows the operator to haul more product and be more efficient. The size of the platforms have also increased to improve he operators access to the lids.

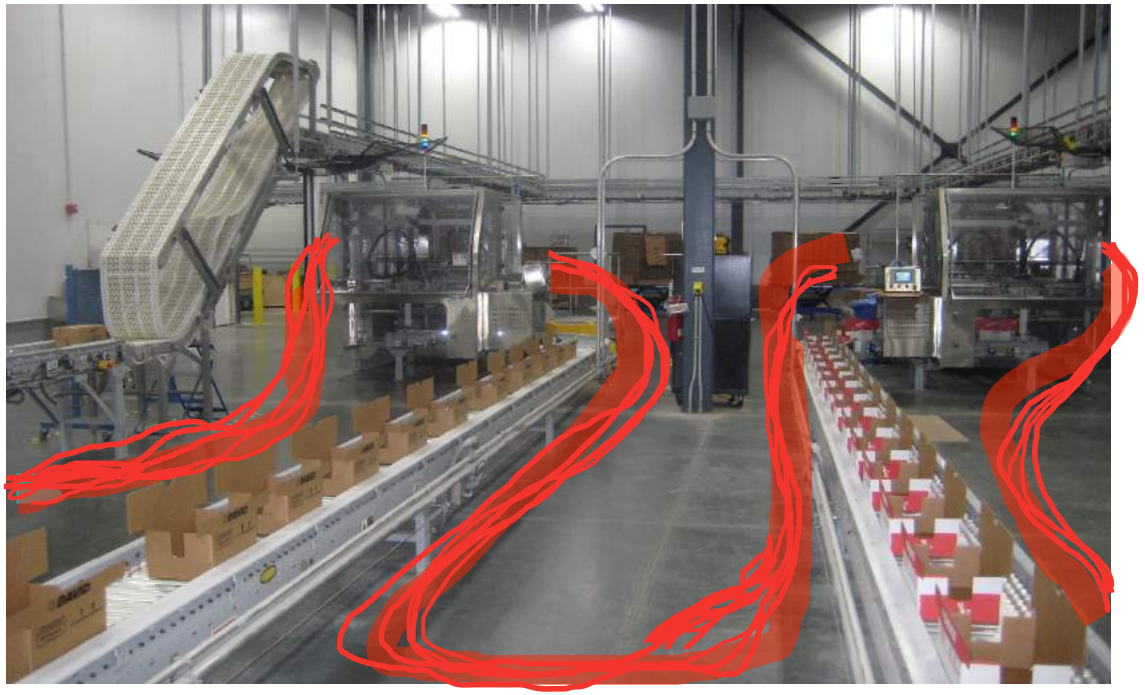
Facility Improvement

- This operation has moved locations, this move has allowed the facility to have pull-though-bays, a well-lit work space, and ample space to perform various tasks.

Secured Shelving

- During a routine inspection, the location noticed the shelving was not properly anchored/secured
- The location bolted the shelving to the floor to prevent it from toppling over.

Before Platform Installation



Our secondary packaging is manned by one operator for more than one line, this person many times throughout a shift will need to access various lines at different locations. This was causing rushing, as the need to access these lines typically happened when there were issues taking the lane down, at this point they would have to go completely to end of line to loop back up to another line. Imagine walking the red example line, 50, 60, or 70 times a day.

After Multi-lane Platform Installation

- Conagra recognized this as a safety issue, therefore three multi-lane platforms were engineered and built.
- These new platforms allow employees to access four separate lines with ease, now employees do not feel as though they need to rush to get around several lines to fix an issue.
- The platforms also serve another purpose – giving the employee a "birds eye" view of several lines at once, many times they are able to trouble shoot problems before they truly become problems.

Rolls of Film


Rolls of product film come on pallets vertically. Weight of rolls range between 200 to 260 lbs. each. Employees were manually lifting these rolls onto transfer carts several times a day for each of our 10 bagging lines.

Handling film rolls with Film Handler

Previously being lifted by hand off pallet, now picked vertically, rotated to horizontal position and placed on transfer carts with ease!

Flame Resistant Clothing Policy

An internal hazard assessment concluded that the use of FR-rated clothing would improve the safety of all employees, contractors, customers, and visitors at GROWMARK's refined fuel terminals. This policy was implemented effective December 01, 2017.

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Panic Hardware on Fence Gates

An internal hazard assessment determined that the egress gates inside the security fence surrounding the propane storage tank required panic hardware. The installation of these devices greatly improved employee safety in the event of an emergency.

Non-Sparking Tools

An internal hazard assessment determined that employees breaking pipe and hose connections on propane rail cars should be utilizing spark-resistant tools to decrease the likelihood of igniting propane vapors.

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Rockwell Collins PVA Filtering Project - Decorah, IA

Hazard Description:

An update to Rockwell Collins' spray conformal coat process created reliability issues with the associated fume extractors, which in turn, caused strong solvent odors and health concerns within the facility.

Hazard Root Cause:

Upon investigation, it was determined that particulate matter in the exhaust flow needed to be filtered out prior to entering the fume extractors. At the time this was not being done.

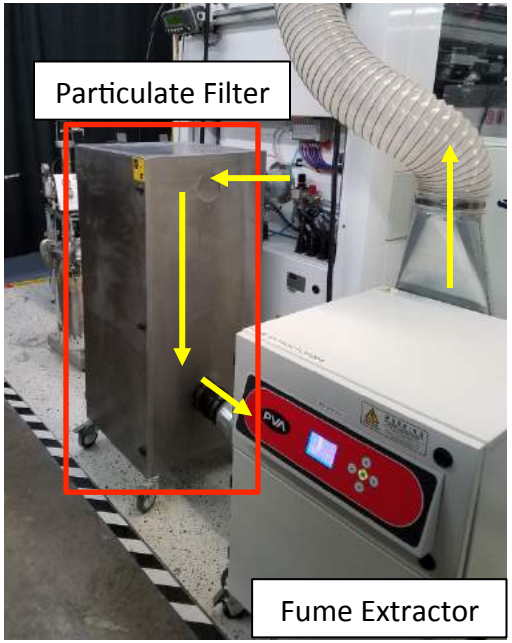
Hazard Elimination:

A filter box for the removal of particulates was engineered and added to the exhaust flow system. Once the particulates were removed, the fume extractor and duct work were optimized in the next stage, further improving air flow and odor removal.

The facility received positive feedback immediately following the updates to the fume extraction process. In addition, Industrial Hygiene tests have shown a significant reduction in overall exposures.

Due to the effectiveness of this filter system, similar systems are now being used at multiple Rockwell Collins' sites.

PVA Conformal Coater



PPE Implementation

Hagie Manufacturing Company implemented the use of bump caps and cut resistant gloves in October of 2016 for the entire facility. Even though our 1st aid rate was not overwhelmingly high for injuries around cuts, lacerations, or bumps to the head, we have seen some circumstances in which either the bump cap or gloves eliminated what could have been significant injuries had they not been worn. This ended up being a fantastic implementation and hazard reduction for the company!

PAPR Program

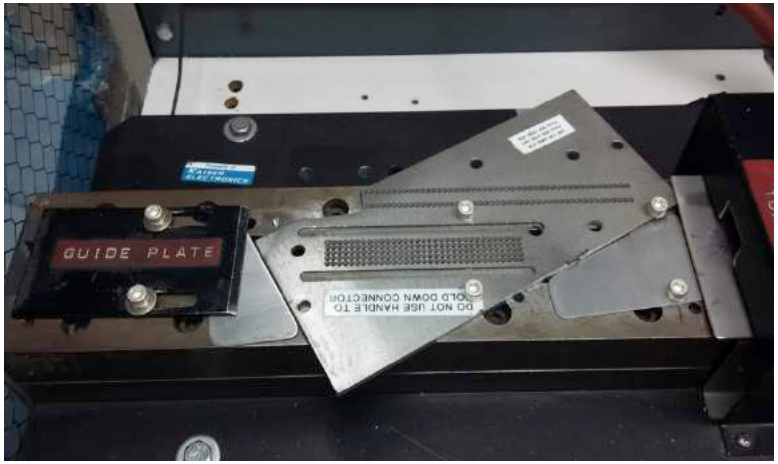
Hagie Manufacturing has also implemented the use of PAPR's, Powered & Supplied Air Purifying Respirator Systems, to our facility for our welding operations in July, 2017. We had air quality testing performed and our Manganese levels came back slightly higher than what ACGIH allows but lower than OSHA limits. The implementation of PAPR's have provided our weld employees a much cleaner environment while welding and has added additional protection by reducing the Manganese levels along with the other particulate exposures, and supplying fresh clean air. Initial invested cost was significant, however, eliminating these potential risks for our employees was money well spent!

Regular Weld Helmet

PAPR Unit

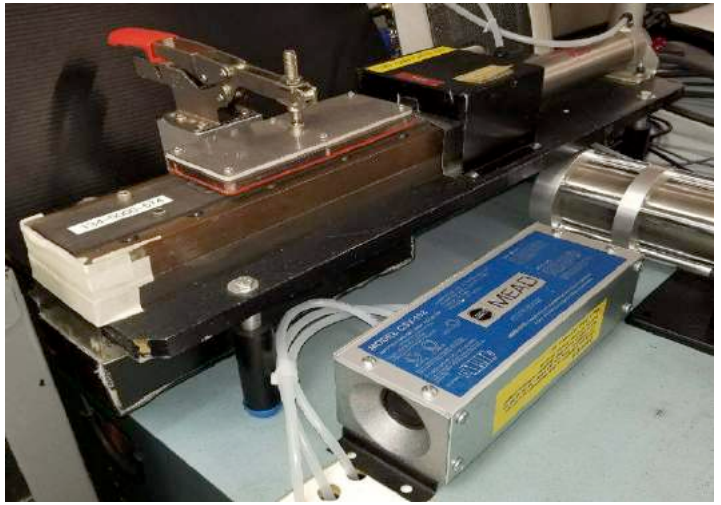
Lead Trimmer Hazard Elimination

Previous Lead Trimmer operation was activated via the use of foot pedal that triggered the cutting device. During lead trimming process, this provided an opportunity for a hazard to the operator's free hands. Operators frequently used their free hands to align and/ or put pressure on the device in the Lead Trimmer. In the instance of a guard being misplaced or incorrectly installed, their free hands were capable of coming in contact with the exposed cutting surface, which could result in severe injury.



Before

After discovering the Lead Trimmer hazard, ES&H specialists and engineers did assessments on all machines and processes throughout the facility. During weekly cadences, the team addressed actions to resolve hazards including the Lead Trimmer and other potential hazards. From the assessment, new guarding, guide plates, and a two-hand actuator were implemented. With these updates added to the Lead Trimmer machine, any opportunity for injury was eliminated.



After

Tapper Machine Hazard Control

Before

- No Shielding
- No Anti-Restart

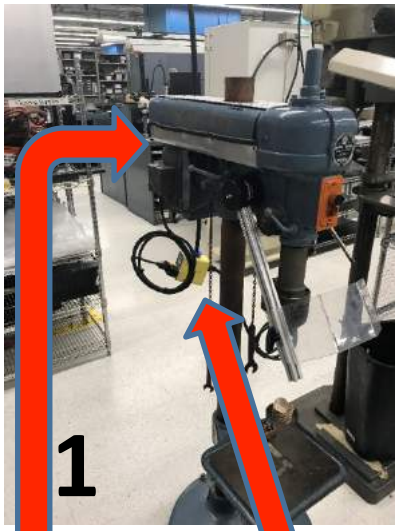
Hazard #1: A pinch point was present because the bottom of the pulley was easily accessible with no proper guarding in place.

Solution #1: Metal was fabricated by the Maintenance team to cover the pulley and eliminate the hazard. (Pinch point)

Hazard #2: Potential for machine to re-start without warning following a power failure, or power loss.

Solution #2: Added an anti-restart device to the "Tapper Machine" power supply. This made it impossible for the machine to start on its own unless knowingly started by the machine operator.

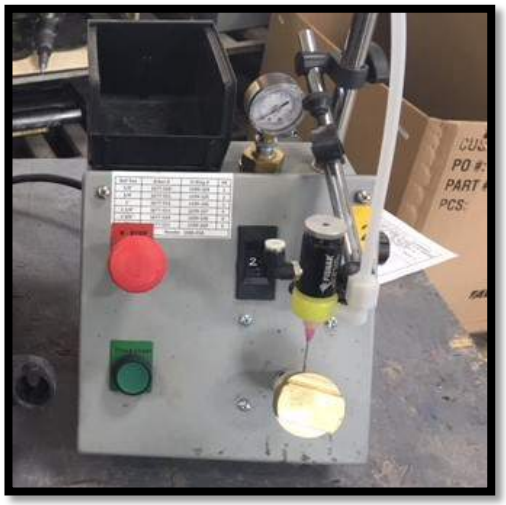
After



- Shielding
- Anti-Restart

Before

After



Morrison Bros. Co. has purchased and revamped a Loctite machine to install at our 110 assembly work bench. During the 110 assembly, a bead of Loctite needs placed on the cap. Orders can contain up to 1,000 parts putting stress on the assemblers wrist and fingers. With the Loctite machine, all the assembler has to do is set the cap on an arbor or landing, push a button, and the cap will rotate clockwise as the Loctite will be evenly dispensed in a consistent uniform bead. This eliminates any awkward movements thus eliminating the ergonomic risk. It will also eliminate excess waste from the previous process.

The Maquoketa Company revamped their bar handling process.

Previously, when the bar was delivered, it was put on racks or set on the floor until it could be cut. Bar was moved around and handled multiple times increasing the exposure to ergonomic risks. The bigger bar had to be cut then handled 2-4 times before it could be machined.

Now the bar is cut right away and put into gray tubs. There is no longer bar sitting on the floor. A new bar cart was purchased to safely move the 21-24 ft. bars/tubing to the conveyor system, and to the saw to be cut. Once cut, all bar rolls down a conveyor directly into a tub. All tubs are then stored on racking waiting to be machined. A new CNC machine was also purchased to handle the larger diameter bar. Now the 2 ¾ up to 4" bar does not have to be cut/slugged multiple times before it can be machined. This eliminated handling around 25,000 parts multiple times reducing the exposure.

Access Improvement Project – Personal fall protection was previously used to access a process instrument for service and maintenance. An existing platform was lowered to eliminate the need for PPE when accessing the instrument.

Before

After

Ergonomics

Filter baskets standing straight up. Employees lifting filters up over their shoulders.

Moved the filter baskets to a 45 degree angel and added an electric winch to assist in removing filters.

Safety

Shag drivers having a hard time seeing the back of the bay in the day time.

Added a lighted pole at the back of the bay so they can see where they are backing into.

Ergonomics

I beam in the work area. Employees having to work in a bent position.

Ergonomics

Added to the catwalk so the work area is now out from under the I beam. Giving employee room to stand up straight.

Seedorff Masonry, Inc. – Strawberry Pt, IA

SOLUTION to eliminating dust and comply with OSHA's new Silica Standard

QUICKIE SAW WET KIT

The gas quickie saw is a valuable tool on masonry jobsites. The problem was always having adequate water supply where you need it, and when you need it to control dust.

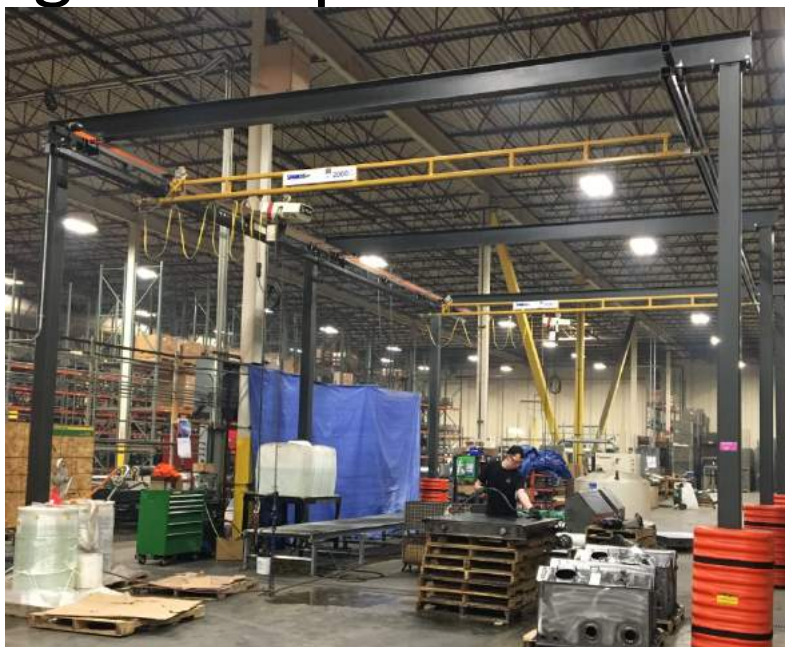
We mounted a water tank equipped with a 12 volt pump and battery to a pallet.

Our mobile water supply makes it easy for the crew to move it around as the job progresses and always have water to cut wet, thus eliminating the hazard of creating dangerous silica dust.

Added more hoists, training for more employees

- More hoists were added to areas that were identified as potential back injury areas. The hoists were installed to eliminate the heavy lifting employees were doing in the past to move around skeletons,

  tanks, etc.

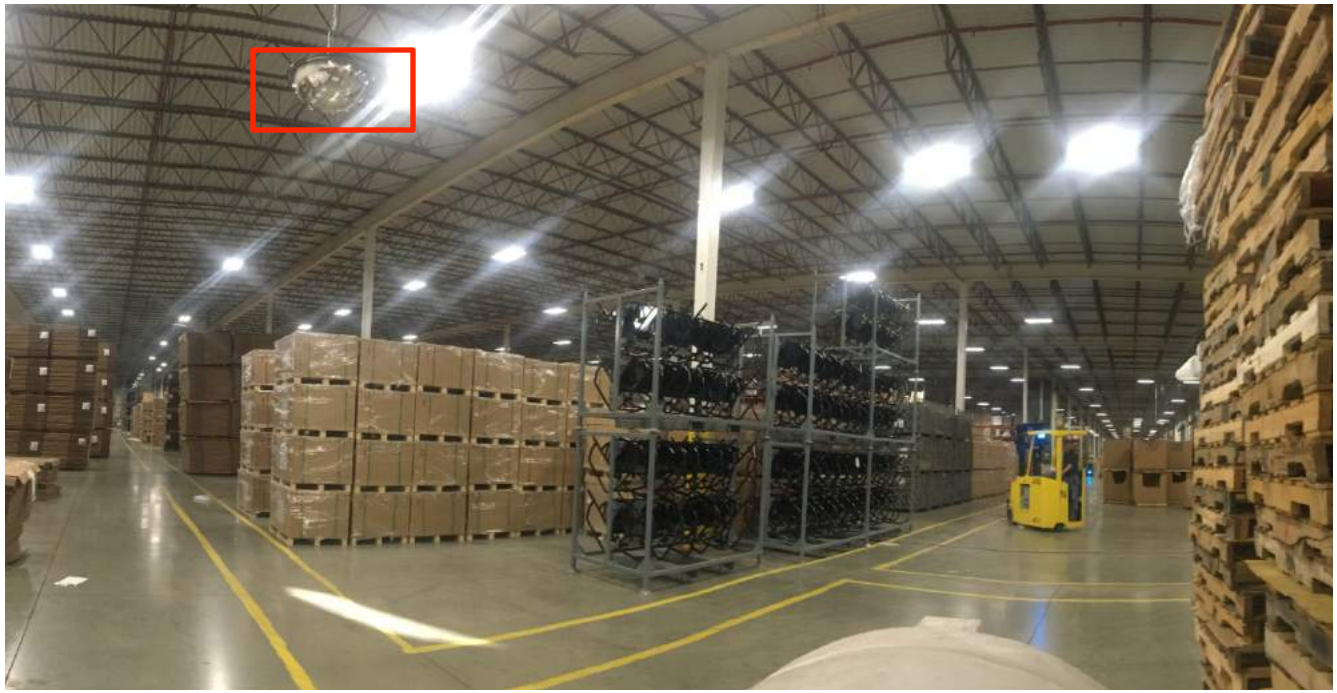


Replaced steel scrap bins

- The old scrap bins put employees at risk of losing fingers when they dumped the bins. The bins sit on the forks of the fork truck. The employees raise the forks up to dump the bin and then get off the fork truck to pull the lever to release the bin to dump forward. The old bins didn't rock forward like they should so employees had to help the bin rock forward putting their fingers and hands at risk of getting smashed or severed.

Added dome mirrors

- Dome mirrors were added to locations with blind intersections as well as walkways for pedestrians. These intersections are used by both fork trucks and pedestrians. The mirrors allow for both to see what is coming from other directions before they reach the intersection.



Main entrance security improved

- The main entrance used to be unlocked into the office building when the receptionist was there. Now the doors are locked and the receptionist has to buzz them in after they state why they are there or who they are there to see.

Opportune chargers for fork trucks

- Previously employees with battery operated fork trucks had to change their batteries out exposing them to risk of getting the battery acid mix on them or crushing a hand or foot. Now with the opportune chargers they can charge their battery for short periods of time but get a full charge. For example if their battery is low before lunch time, they can throw it on the charger for 30 minutes and when they get back from break their fork truck will be ready to run for the rest of the day. Previously they had to swap batteries out to charge them because it took so long for the old chargers to fully charge a battery.

Concern: Press Brake foot pedal had the potential to slide into the light curtain hazard zone during operator use. This put the operator inside the operating hazard zone as well as posing ergonomic body posture issues.

Solution: A weighted Foot Pedal Stand was designed which reduced the potential for the foot pedal to slide during operation. This improved the ergonomics of the operation and kept the operator out of the hazard zone.

Before

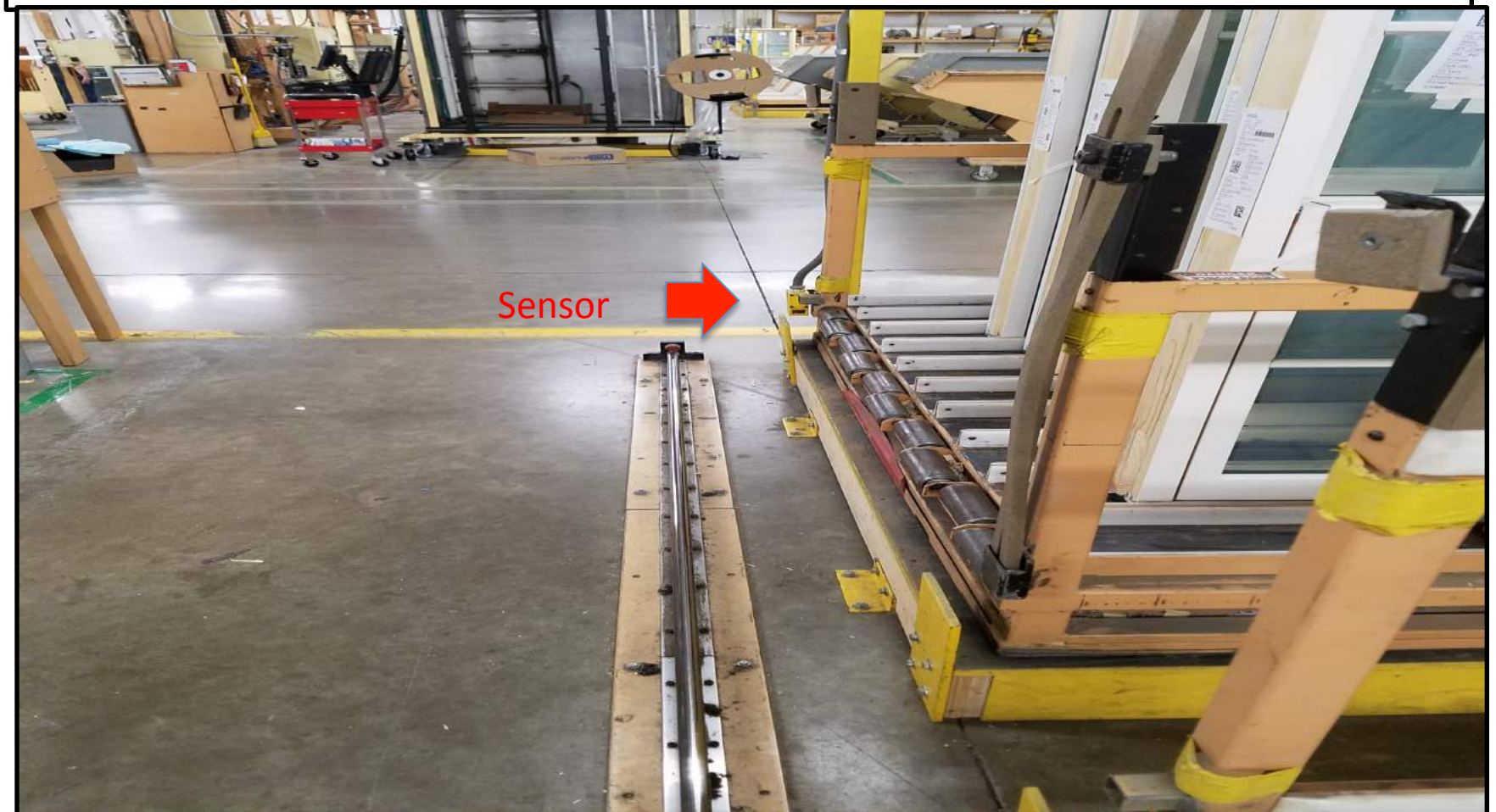
- Foot pedal was light enough that it could slide during operator use allowing operator to enter the hazard zone.

After

- Weighted foot pedal stand keeps operator out of hazard zone during press brake operation.

When we are trying to empty a 55 gallon drum we need to tilt the drum to get the drum as empty as possible. Before we had to tilt the drum by hand and slide the wedge underneath the drum. After we use a jack on a barrel stand to tilt the barrel.

As racks were placed on to the platforms sometimes the racks would hit the metal guides and cause property damage to the platforms. We installed a sensor attached to a buzzer that sounds off when the rack is to close.



JOHNSON COUNTY

- Speed bumps and signs in between Health and Human Services building and parking ramp to improve pedestrian safety

JOHNSON COUNTY

- Hazard recognition signs placed at multiple County facilities to raise awareness regarding Slips/Trips/Falls during inclement weather
- “Walk Like a Penguin”

Added Catwalk

BEFORE

In the Harlan Functional plant, catwalks and permanent ladders were added in the wet process area. In the past, ladders were being used to access the platform, creating multiple safety issues. Now employees may access the top of the platform without a fall risk or trip hazard.

AFTER

Added Guardrails & Ladders

BEFORE

AFTER

In the Harlan Functional plant, guardrails were added around the hammer mills. Employees frequently access these mills, so it was necessary add a permanent ladder and guardrails to protect employees from a fall hazard.

Lids on Prebreaker(s)—Grindrooms 1 & 2

BEFORE

Hinged lids were added to the prebreakers in both of the Harlan Broth plant grindrooms.

Hinges will keep the lids firmly attached, eliminating any potential product from escaping the enclosed area and harming an employee.

AFTER

Addition of Roof Railings

AFTER

Filters located on the plant roof are routinely changed by our maintenance staff.

The addition of the roof railings at the Harlan plant offers additional security from a fall hazard when these employees are on the roof changing the filters.

AFTER

Chain Caps Welded on Flow Plates

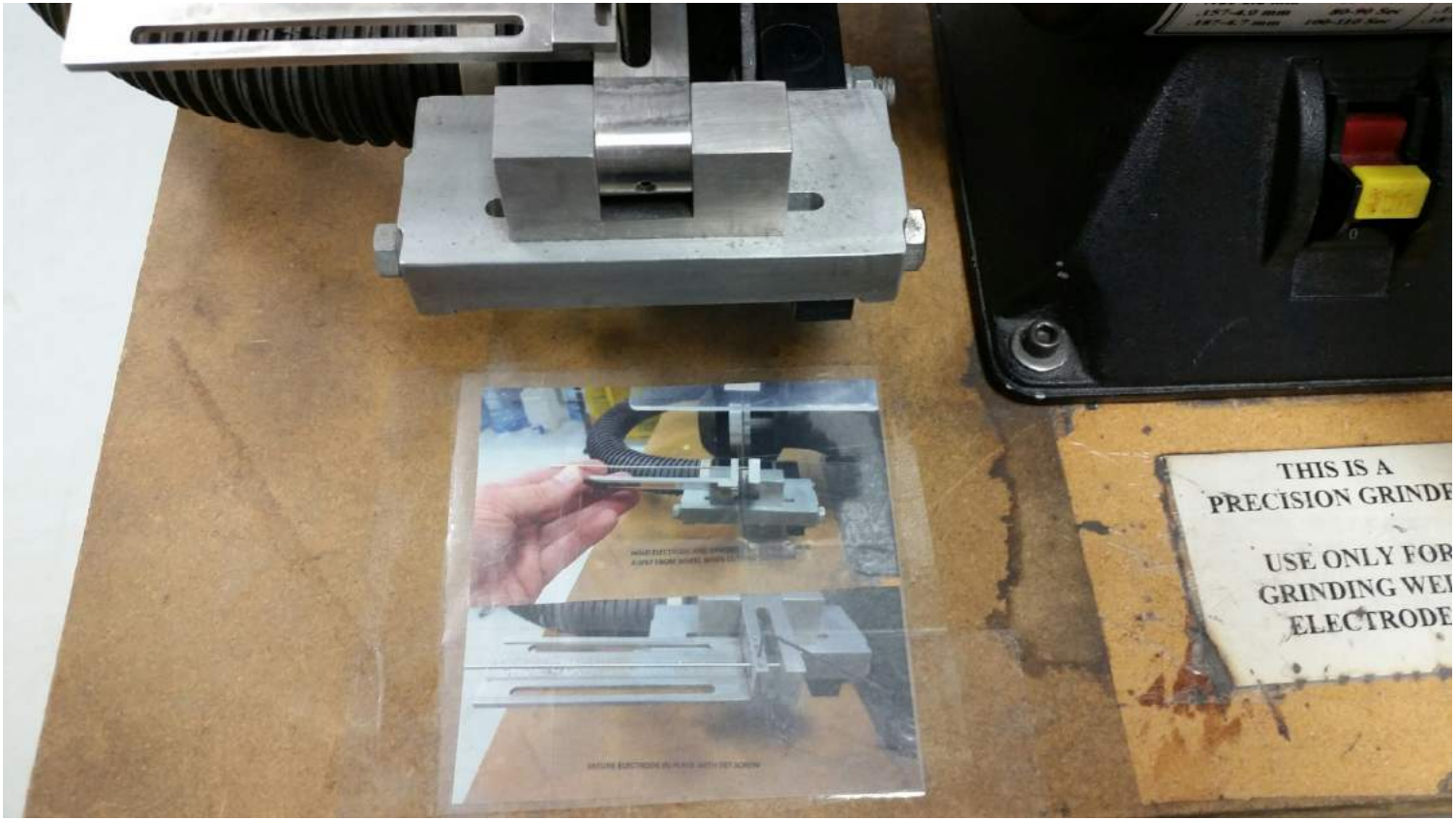
BEFORE

In the Harlan Broth plant, chain caps were welded onto flow plates. This not only ensures that chain caps stay attached to the flow plate, but also ensures that employees are not in danger of being injured by hot steam or hot product.

The presence of the chain caps also prevent any CIP chemical from entering a finished or edible product.

AFTER

During a routine Safety, Health and Environment audit it was noted that one of our departments had a precision tool grinder used in the department which could benefit from increased machine guarding. The manufacturing engineer collaborated on the effort and by the end of that day the machine had been modified for increase guarding, visuals of what the machine should look like when guarding is appropriately used placed next to the machine and training of necessary employees completed.



A drill press located in a production department was noted as lacking proper bolting to the ground. This was a great find by our team of volunteer employees whom complete monthly inspections of our facility. The action items for the press to be secured was entered into our hazard identification and audit tracking system and mitigated soon after.

Hazard: In the greenhouse, at the end of each corn growing cycle, all the 3 gallon soil pots and corn plants are discard from the greenhouse. The discard process requires employees to collect the pots, carry them one at a time outside and lift them into the trash receptacle. In 2017 around 12,500 soil pots were discarded creating an ergonomic hazard from employees having to manually lift and carry them to the trash receptacle. At times, conditions outside were extremely hot or cold which introduced additional temperature stress on the employees during the process.

Control Solution: Custom carts were designed and fabricated to allow for easy collection of the soil pots within the green house. The carts can then be taken outside with a forklift to discard in the trash receptacle. The new carts mitigated the ergonomic hazards of employees manually lifting and carrying the soil pots. By being able to dump multiple pots with the carts and forklift also minimizes employee exposure to extreme weather conditions for an extended period of time.

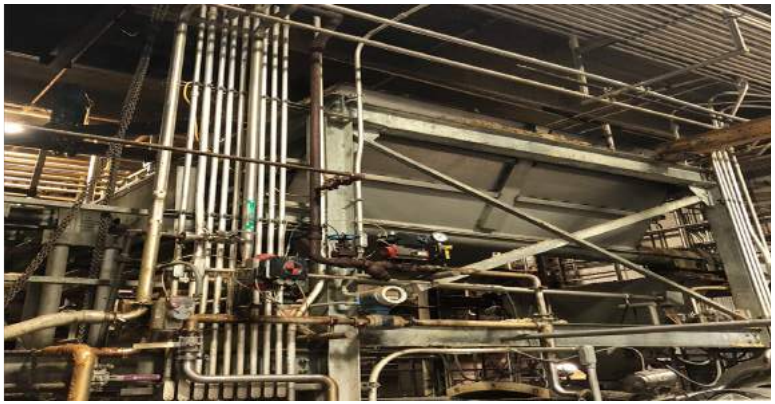
Safety Gates on all raised platforms

We have added safety gates to all raised platforms throughout the entire plant.

Many had safety chains which we felt were not adequate enough.

Camera system on Loadout Bins

We installed a camera system on an elevated bin so operators don’t have to climb a ladder to see the level in the bin, they can monitor the level from the ground floor.

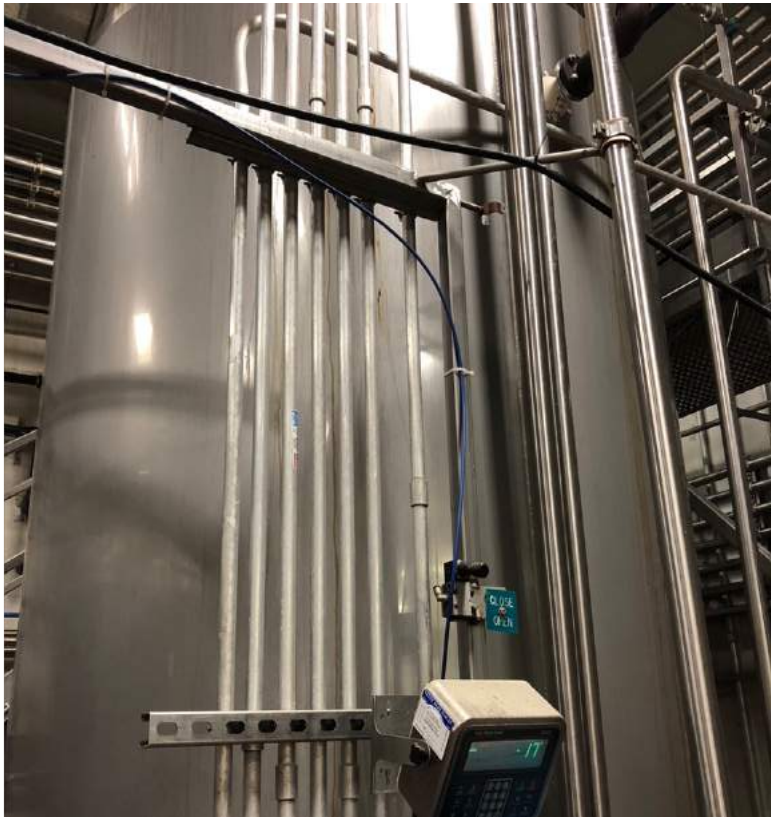


Chemical Cleaning Automation

We added a piping and automation to the equipment cleaning system.

The chemicals are pumped from a central bulk chemical room to the equipment site.

This eliminated operations from having to handle cleaning chemicals by hand, and eliminated the risk of exposure to harsh corrosive chemicals.



Added Pipe Rack Storage

Built and installed a pipe rack to store unused pipes off the floor to avoid trip hazards.

During production pipes that are not used would be stored on this rack to avoid them from being placed on the floor where they could become a trip hazard.

Silica Respirator Program

Before

- With the respirable crystalline silica dust standard for construction, employees who may be exposed to silica dust may be required to be placed in a respiratory protection program. Wearing a respirator can be hot, and employees who are not clean shaven will not be able to pass respirator fit test.

After

- As an option for employees who may prefer not to wear a conventional respirator, a number of powered air purifying respirators PAPRs) were purchased.

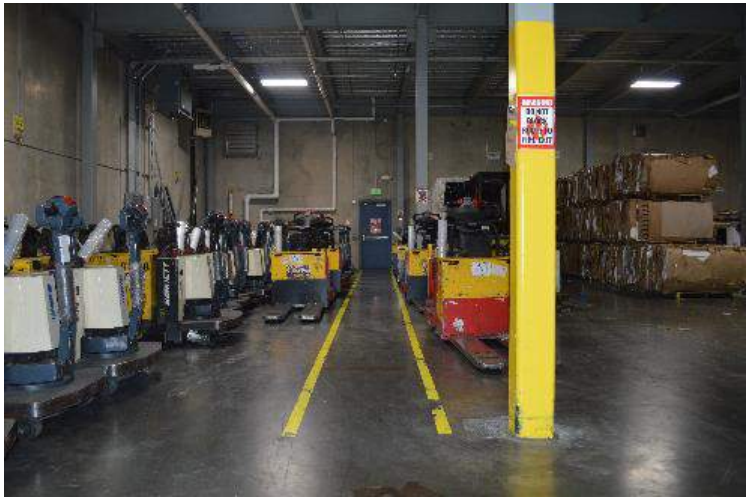
Weekly Safety Posters

Before: Employees would suggest safe practices that workers needed to be reminded about, and these would typically be passed along to everyone in a checklist attached to the next month's safety meeting. However, this had just a limited or temporary effect on the use of these safe practices and there was sometimes a month or more of lag time between receiving a suggestion and giving it to workers.

After: We started creating weekly safety posters that were put up in strategic locations (i.e. above urinals in the men's room). They have not only gotten the word out more quickly on current safety concerns, but they really have people talking about safety much more so than the monthly checklist did! The number of suggestions for improving safety has also increased as concerned employees submit ideas for upcoming posters.

Paths to Fire Exits

Before: The staging of pallets, parking of equipment, and general clutter often obstructed the path to fire exits, even when the exit itself was not directly blocked. Paths continued to be blocked after safety meetings were held on the topic and follow up with individuals who obstructed exit routes.



After: The exit paths that were most commonly obstructed were marked with yellow tape, and, in some cases, bollards and rails. This, coupled with more safety meetings and follow up with employees, has brought instances of obstructed paths and blocked exits down to next to nothing.

Ergonomic Opportunities

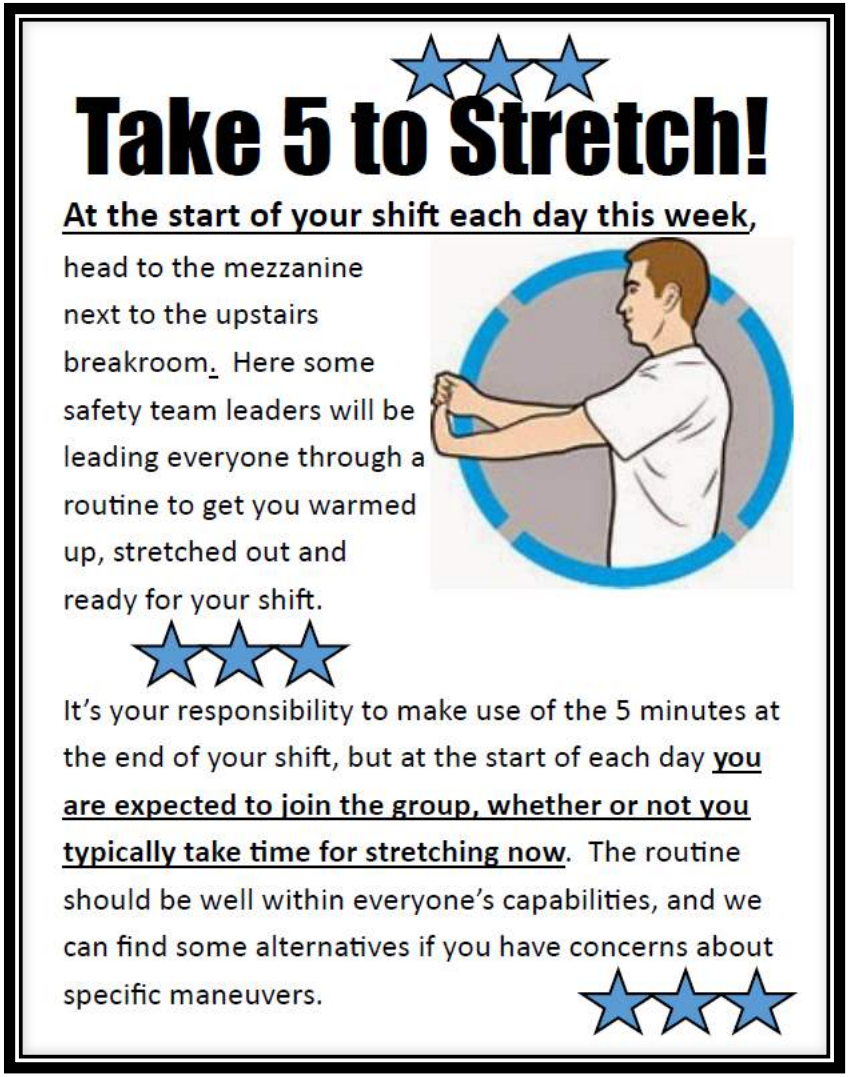
Before: A group of warehouse order selectors were asked for input on how to make selecting safer. Part of their feedback highlighted several challenges that made their task more difficult, such as product at the back of 2nd level pallets and extra pallets left in pick slots.

After: Safety Team Leaders, Utility Associates and other employees were trained to identify opportunities to make pick slots more ergonomic, and correct conditions that make selecting difficult. Some work practices were changed, such as fronting all pallets pulled out for sweeping, and Safety Team Leaders spent a month correcting conditions in at least 10 slots during the safety walkthrough on each shift. These groups are now on the look out for conditions like this that they can correct.

Group Stretch Routine

Before: Warehouse employees are encouraged to stretch at the beginning and end of their shift to decrease the risk of a strain or other injury and given time to do so. However, many had become complacent in stretching out and spent most of this time checking their phones.

After: The Safety Department worked with a Warehouse employee to develop and lead a group stretch and warm up routine that all Warehouse workers were required to participate in at the start of their shift for a week. This got people off of their phones and taught them a simple routine. Although stretching went back to being a suggestion—not a requirement—more people are making better use of their time. Several employees have also been giving the Safety Department feedback on the effectiveness of routines they are trying out.



Truck Yard Hi-Vis

Before: Visitors were required to wear safety vests or other hi-vis clothing in the Truck Yard, but those who worked there daily were not. There were several close calls with employees who were in the yard daily, making it clear that their experience in that environment did not mitigate the hazard of being struck by a vehicle.

After: The requirement to don hi-vis wear was extended to everyone whenever they traversed the Truck Yard, regardless of their experience or daily job duties. This has not only eliminated close calls, but has simplified hi-vis requirements in the Truck Yard.

Compositing Ergonomics Improvement

Before

In the large compositing area, units flowed from one work station to the next. If the combined units needed to be set off, it would require two or more operators lift the heavy units off of the conveyor.

After

A **WIP (Work-In-Process) Conveyor** was added and placed between the tilt table work stations. This conveyor contains two side by side roller conveyors with support frame that will allow a unit to be loaded and held onto either conveyor by shuffling the conveyor sideways on a rail. By flipping a switch this conveyor will pivot so a unit can be easily unloaded onto a setoff cart without the need of a second operator assisting in lifting large units.

Moulder Noise Reduction

During moulder setup operations and the enclosure door was opened, Team Members in the area were concerned with the noise levels. Other tooling types were tested and we switched to a Carbide Head which significantly reduced the noise in the area during this set-up process.

Test	28-Feb Not Cutting db	27-Jul Not Cutting db	27-Jul Cutting db
Area Noise level at time of test. (Moulder off door open)	84	85	
Area Noise level at time of test. (Moulder off door closed)	73	78	
DH Jamb (Door Open)	107.5	106	107
DH Jamb (Door Closed)	89.5	89	94
Casement Frame Head in Top Position (Not Cutting Wood) with Door Open	92.5		
New Carbide Head (Door Open)		101	103
Casement Frame Head in Top Position (Not Cutting Wood) with Door Closed	77.7		
New Carbide Head (Door Closed)		87	91

Hazard Control Recognition Award

The Clarion site has a large volume of semi-truck traffic loading and unloading product at our facility and it was blocking our front entrance when drivers checked in and it was creating a safety hazard for employees walking from their vehicles into the plant. The truck drivers also had to exit their trucks and walk into the shipping office to receive directions.

The site analyzed our current traffic patterns and decided to tear down our shipping office and move it to the back of the facility and reroute all our truck traffic directly out back to the loading docks. We also eliminated the truck driver foot traffic by requiring drivers to call in their load numbers on the CB to the receiving office.

Hazard Control Recognition Award

The Clarion site shipped 2 million units of seed through 2 loading docks last season. This has become a very congested area with forklift traffic.

The site made our loading docks a "speed zone" area. Forklifts are now equipped with speed sensors. When the lift enters the "speed zone" it automatically lowers the speed of the lifts to an acceptable level. When the lift leaves the "speed zone" it returns to full speed. This has reduced our forklift incidents and damaged product in this area.

Respiratory Protection Personal Protective Equipment Improvements

Before:

In the past, departments that were a part of our respiratory protection program were provided N95 masks to reduce the concentrations of infectious particulates in the air inhaled by the wearer.

After:

In 2017 we replaced the N95 masks with Controlled Air Purifying Respirator (CAPR) units which provide improved protection for the user, supply better ventilation, and are more comfortable.

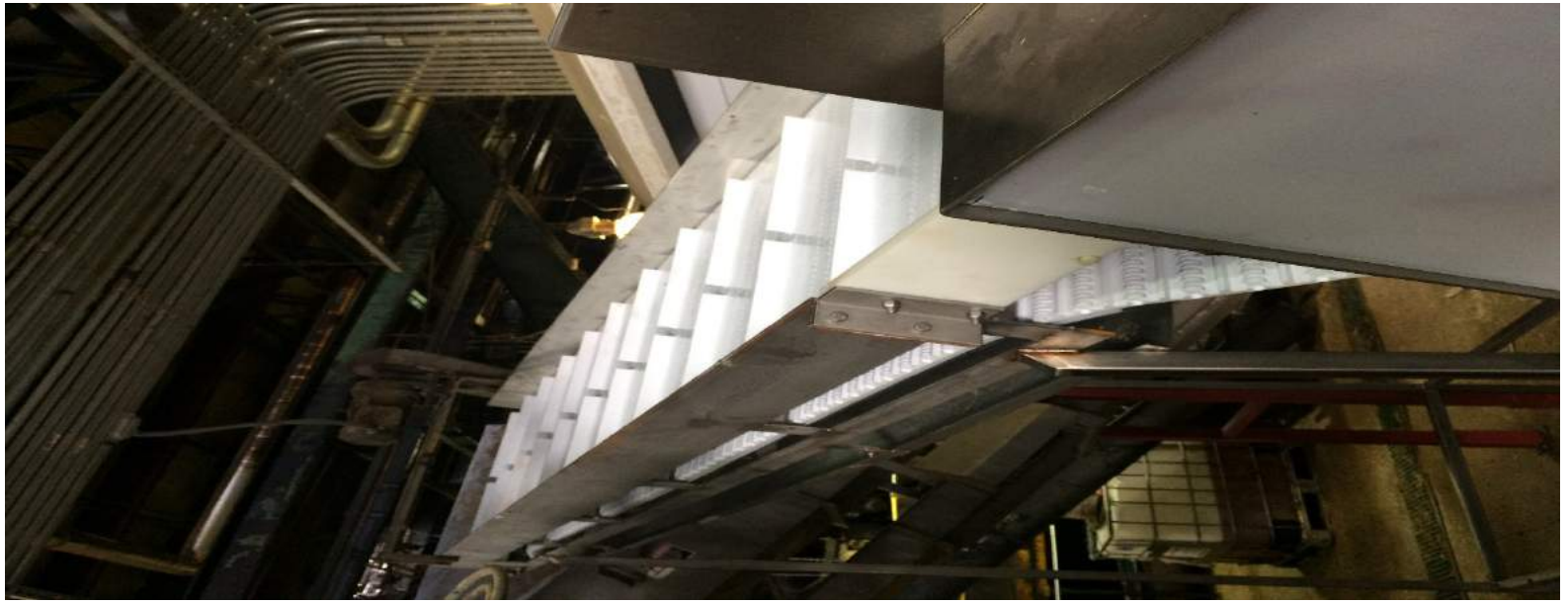
After a Near Miss was reported involving a Truck Driver walking thru our Fab Shop trying to find someone to sign his paperwork; we designated a Shipping / Receiving Door which includes a "Ring Bell for Service" posting and Button to call for assistance instead of wondering thru the Shop unprotected.

On rare occasions we need to sweep out the hopper when plugs up, we wanted to ensure we weren't using ladders to step over the pipe. We installed a platform for better access to sweep out the hopper.

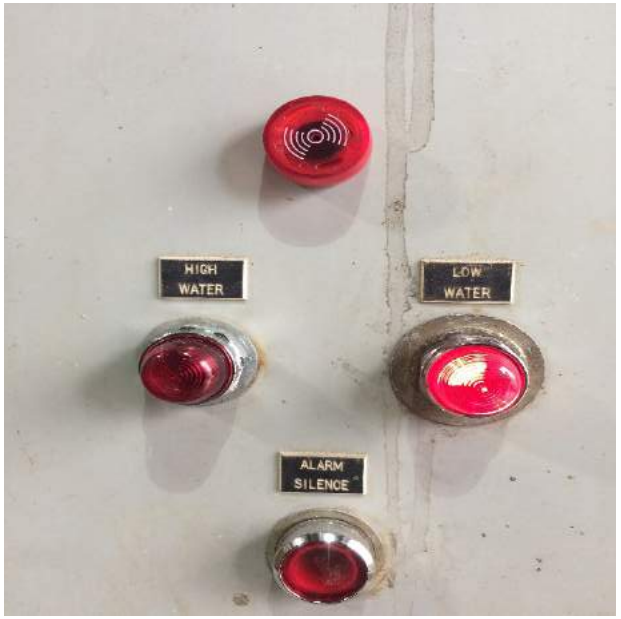
Before

After

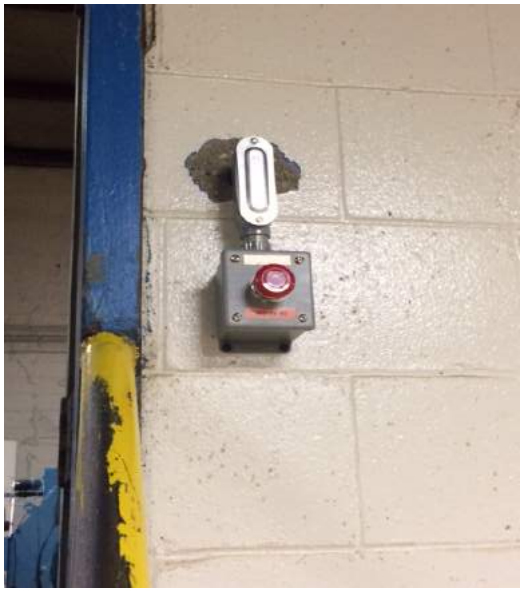
The Hydrolyzer metal detector belt had no guard exposing moving parts. We installed a guard to eliminate the potential for body contact.



The DA water unit had no alarm to notify when the system malfunctioned. We installed an alarm system to warn us when the water pressure fluctuates.



The Eclipse boiler had no manual shut-off when the system created steam and water pressure malfunctions. We installed an emergency shut-off buttons to manually turn off the boiler when malfunctions occurs.



The pallet positioner and lever loader eliminates employee bending by automatically lifting and lowering pallets during loading and unloading of bags. As the weight of the pallet changes, level loader automatically adjusts to a convenient working height.

Before

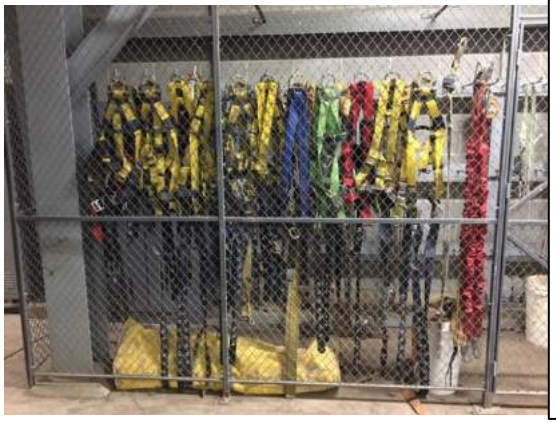
After

Fall Protection Update:

Poet-DSM Project Liberty had common harnesses and lanyards that were used by all team members as they were needed. This caused people to have to continually adjust harnesses, increasing wear and sometimes delay work due to lack of equipment. The likelihood of wearing the wrong size harness was also increased. Another issue was a lack of accountability in proper storage and upkeep because harnesses were no one's personal property. These harnesses were hung on an open rack, so there were also a liability risk because contractors or untrained people had access to the fall protection equipment.

Before

After



Harness have since been purchased for each of our technicians. We tried a few brands/styles and then one was chosen and each tech got a personal harness to keep, inspect and care for. The remaining harness and other fall protection equipment were moved to an access controlled cage. More SRL's were added and some specific tasks got special consideration for extra equipment. Other team members who need fall protection on an infrequent basis still have access to shared harnesses, but the shift supervisor must be aware of each person's competency level before they grant access. This change has reduced down time, equipment wear and liability and increased tech comfort, proper usage and personal accountability.

Poet- Hanlontown

Fire Hose Stand Pipe

If responders are called in for a fire to our dryer system building they might need to haul hose up 7 floors to reach the fire. This could be at great physical excretion and time.

We installed a dry stand pipe that can be charged by the fire department and then accessed on every floor.

Credit to our Summer EH&S Intern 2017.

Alisha Stoudt - ISU






UNI EH&S has worked across campus to put in place effective controls to protect employees from workplace hazards. In the example below we worked to ensure our exit routes were unobstructed.

Before

After

Automatic Head Cutoff Saw

We implemented a circular saw that will automatically remove the hog's head.

Previously, the task was completed by a team member with a straight knife.

Overall eliminating the ergonomic risk of lifting 10# constantly, reaching at or above shoulder level 19x per minute, and the repetitive use of a knife to remove the head.

Before

AFTER

Quantum Whizard Knives

We've invested approximately $135,000 to upgrade 30 old Whizard knives to the new Quantum model, this includes the motor, drivelines, and hand pieces. These new units increase product yields, improve worker productivity, require fewer parts and maintenance, and are more energy efficient.

The new Quantum Whizard knives have a more powerful and efficient motor which makes cutting product easier, even the heavy defat operations. Adaptive controls automatically increase torque under load while dramatically reducing vibration. The old motor have metal handles while the Quantum hand piece has rubber handle. Safety hand straps also allow the operator to release their grip on the knife to stretch their hand without dropping the knife.

These new knives greatly reduce physical stress on the hand, wrist, elbow, and shoulder by reducing the overall effort required from the operators.

Before

AFTER

BullsEye Fire Extinguisher Simulation
Hands-on Training

We've invested $12,884.00 in this state-of-the-art training tool which uses digital flame generation and sensor technology to demonstrate proper fire extinguishment techniques to trainees.

Before we always held 1 annual hands-on training per year. We attempted to get everyone completed in 1 week (depending on weather conditions) and were always susceptible to the risks associated with having a real fire.

- The BullsEye system can sense if the trainee has properly aimed the training extinguisher and is properly sweeping back and forth across the base of the fire.
- This system uses LED driven digital flames and a laser training extinguisher for realistic simulation while eliminating the hazards associated with conventional fire extinguisher training.
- Extinguisher training can now be conducted virtually anywhere indoors or out – where fires may actually occur. Hundreds of trainees can be trained in a single day without recharging any extinguishers.

AFTER

Ice Melt/Salt Dispensing Truck

We've been working with a 3rd party to supply us with bulk ice melt into a hopper truck that utilizes an auger to dispense salt. We can dispense it straight into our truck with spreader or into barrels that get placed near entryways.

This system eliminates the need for our employees to lift 50lb bags of ice melt from pallets and dump them into the salt spreader or barrels.

When it's time for the truck to be refilled, they drive it over to our contractor site and they use a loader to refill the truck.

AFTER

Loin Boning Accusort Kicker

We've added an automatic scanning system with a kicker to scan for export box codes that get palletized on the plant side and not sent to our distribution center.

This reduces the need for an employee to overextend and reach to pull boxes off the pace conveyor.

We still have to manually stack the boxes onto a pallet, but the reaching you see in the before picture is no longer necessary.

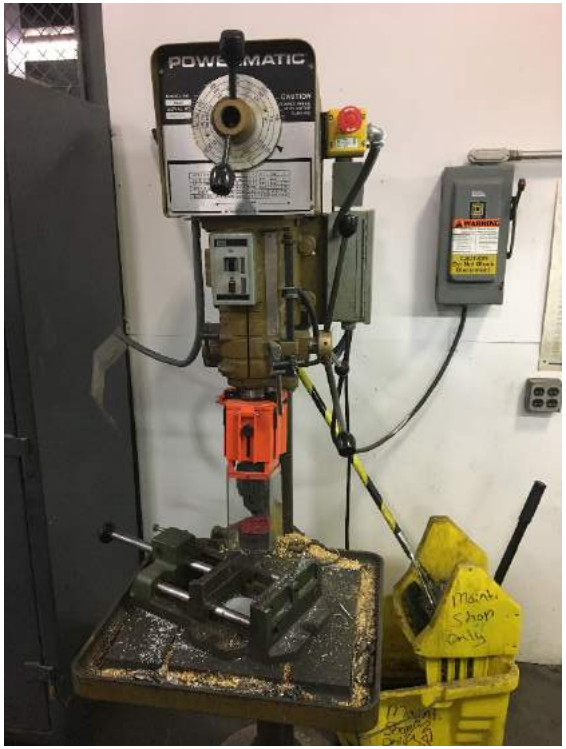
Before

AFTER

HAZARD CONTROL:
Retrofit machine shop equipment guarding and Emergency Stops

American Packaging Corporation's Flexographic Center of Excellence accomplished its 2017 goal of conducting a facility wide machine safe guarding survey and implementing continual improvement guarding projects. APC partnered with machine guarding experts, including Rockford Systems and Iowa Illinois Safety Council consultants to conduct a facility wide audit on guarding. The goal of the project was to identify risks and compliance gaps and address them through various employee led hazard control projects. The machines shown in the pictures have been retrofitted with Emergency Stops and additional guarding that was not included when equipment was originally installed. One of the employees on the project determined that the cost to retrofit one of the mills exceeded the cost of a new mill so APC invested in a brand new mill equipped with all of the necessary e-stops and guarding requirements.

Engineering Control:
Retrofit Guarding and E-STOPs to Maintenance Shop Equipment

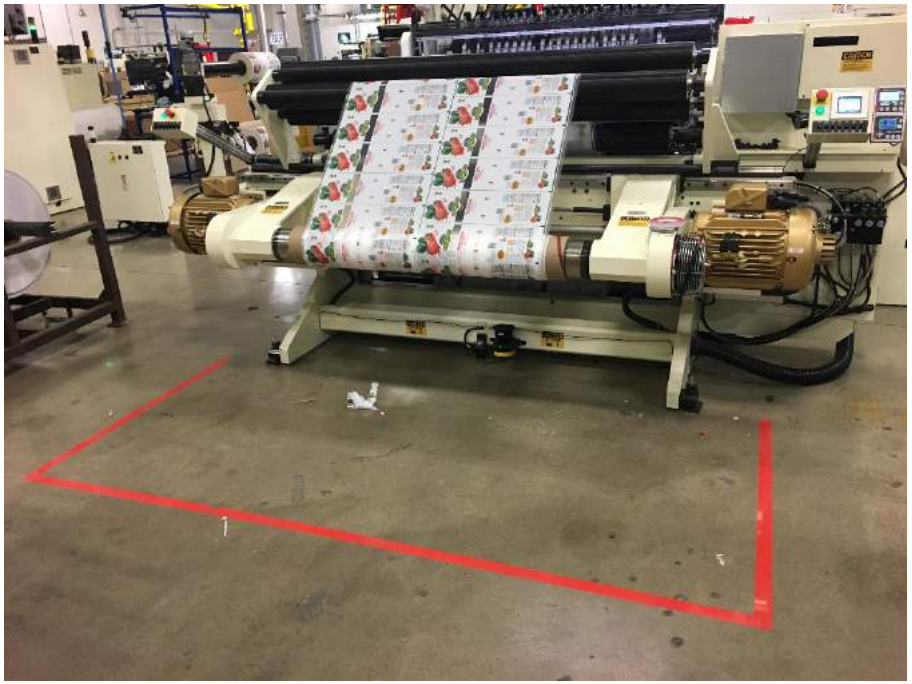


HAZARD CONTROL: Retrofit Guarding on Print Roll Slitters and Winders

American Packaging Corporation's Flexographic Center of Excellence accomplished its 2017 goal of controlling hazards related to the process of slitting and winding print rolls on various pieces of production equipment. As part of the 2017 facility wide guarding initiative, the roll unwinding section on APC production equipment was identified as a potential hazard and was primarily controlled by administrative controls. With the installation of proximity laser scanners, the area is kept off limits when the rolls are unwinding at speeds that can exceed 1600 feet per minute. This specific guarding is now a standard across the company for similar equipment and is being carried out companywide in 2018.

Engineering Control:

Print Roll Slitter Proximity Laser Scanner Guarding



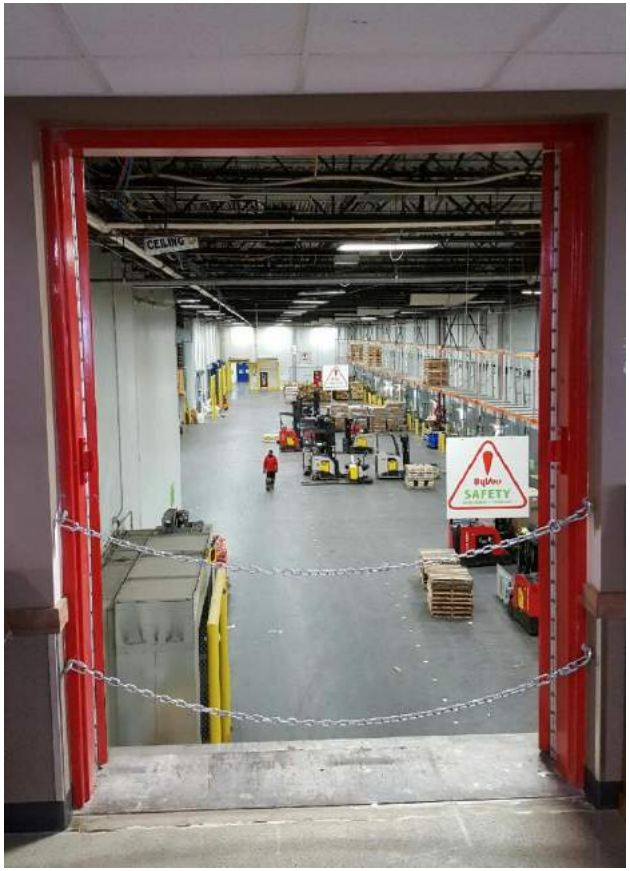
HAZARD CONTROL:
Automated Pallet Wrapper

American Packaging Corporation's Flexographic Center of Excellence accomplished its 2017 goal of controlling hazards related to the process of pallet wrapping. APC invested in a fully automated pallet wrapper that is capable of wrapping a wide array of pallet configurations and heights. This system is programmed by an operator with pallet specifications and drives 360 degrees around the pallet consecutive times wrapping the load eliminating the need to place a load on a table and reduces the entanglement hazards associated with conventional pallet wrappers.

Engineering Control:
Robotic Pallet Wrapper

Safety gates were installed to provide better fall protection when lifting materials to the upper levels.

Before



After

Safety cutters were implemented in the HBC/Rx Warehouse reducing cut related injuries by 86.67% from 2016 to 2017.

Before

After

High visibility safety vests (& coats) were implemented campus wide for all personnel not directly involved in warehouse equipment operation.

Before:

With hundreds of people on site between multiple buildings & departments, company & outside drivers, security personnel and visitors; equipment operators & truck drivers are constantly on the lookout for pedestrian traffic.

After:

The campus wide implementation of the high visibility outerwear allows equipment operators & truck drivers to remain aware of personnel in their surrounding areas; preventing accidents and potentially saving lives.

Footwear policy was implemented campus wide for all personnel directly involved with warehouse and transportation operations.

Before:

A formal footwear policy was not in place with the majority of warehouse and transportation employees wearing tennis shoes that did not appropriately protect the foot and ankle.

After:

The campus wide implementation of a footwear policy mandated all involved in warehouse and transportation operations wear leather (or the equivalent) with heal, toe and ankle covered with 6 inches from floor to top of the boot. An annual monetary allowance is provided to subsidize the purchase. Tennis shoes are not allowed.

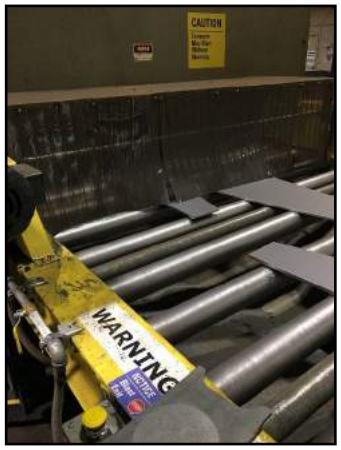
Plexiglas Air Box

Before

Davenport Works has one of the largest fabrication operations in John Deere. Fabrication uses a shot blaster to clean up parts after they are cut by the lasers. The shot beads utilized in this operation stick to the parts as they come out of the machine.

Shot beads covered the floor of the work area and created significant slip/trip/fall hazards. The stuck shot beads made it difficult for magnetic lifting devices to attach to the parts, creating a lifting hazard. The beads also caused parts to slide off of racks

during transport.



After

Operators and engineers collaborated to develop, prototype, and implement a Plexiglas air box. The Plexiglas box captures the shot as compressed air blows it off the parts. The tray under the rollers slopes down so the extra shot flows into a bin as it is blown off.

This system completely contains the shot and results in clean parts. The slip/trip/fall hazard has been eliminated, and the parts can be safely lifted and transported. Plexiglas air boxes have been applied to all shot blast systems at Davenport Works.

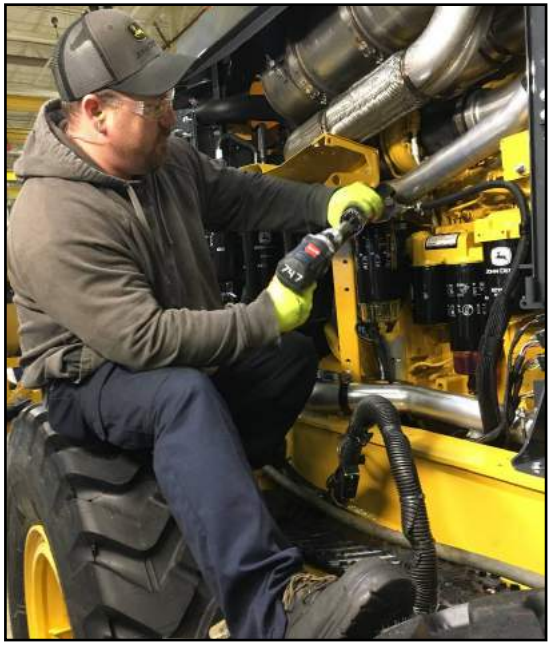
Fuel Filter Whirly Gig

An operator experienced difficulty and discomfort when priming the severe duty fuel filters for Motor Graders. This severe duty filter option requires the operator to prime the fuel system with 250+ compressions of the priming bulb. Actuate the bulb with the palm of the hand requires 16 lbs. of force. When priming the bulb on the machine, the operator must reach above the shoulder, creating risk factors of shoulder flexion, contact stress, and push/pull above shoulder.

The operator collaborated with engineers on the concept of a “whirly gig” mechanism to prime the pump. He had a vision for a cam-type device that would replicate the strenuous, repetitious hand priming. The operator prototyped the design at home and worked with engineers at Davenport Works to refined the idea to a slip-on, battery impact-driven device to prime the pump. This project dramatically reduced the ergonomic strains of this task by eliminating hand-priming of the pump. The operator who designed the device was also able to showcase the project to John Deere’s Chairman during a recent visit, and it received the CEO’s seal of approval.

Before

After



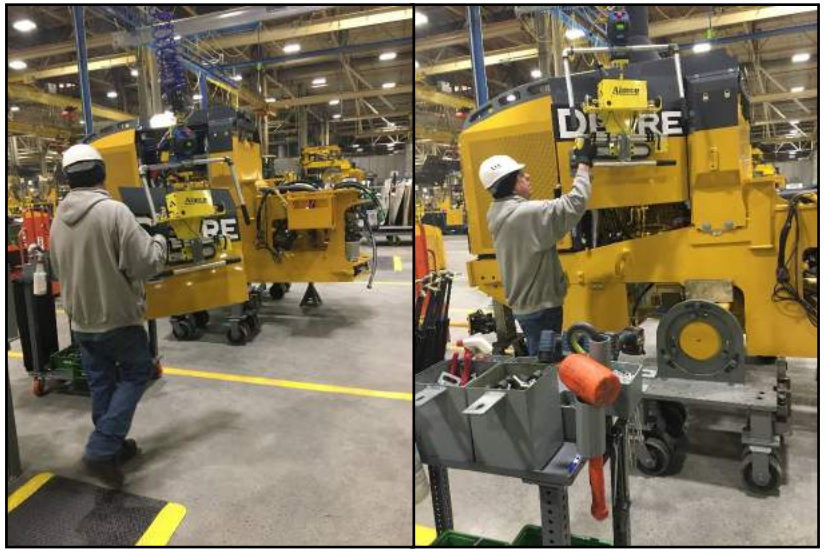
Utility Loader Engine Doors Vacuum Lift

Davenport Works produces Utility Loaders with 30 varieties of engine doors. The doors can weigh up to 65lbs. When the doors reach the station for installation, they have already been painted and some have decals already placed. Numerous custom lifting devices failed to work effectively for the high variability in door designs and protect the door's finishing. Operators resorted to lifting and installing the doors manually. This process resulted in significant ergonomic risk factors (lifting > 35 lbs. and supporting a load above shoulder height) and injuries requiring surgery.

The operator and engineers collaborated to implement a custom anti-gravity hoist and vacuum lift device. Using compressed air, this lift suctions to the door without any damage to the paint or decal. The anti-gravity feature of the hoist takes nearly 100% of the weight off the operator. This lifting device is currently being used to install all 30 different doors and has virtually eliminated the ergonomic strains of this task. This lifting device has potential for widespread application for many difficult-to-lift parts.

Before

After

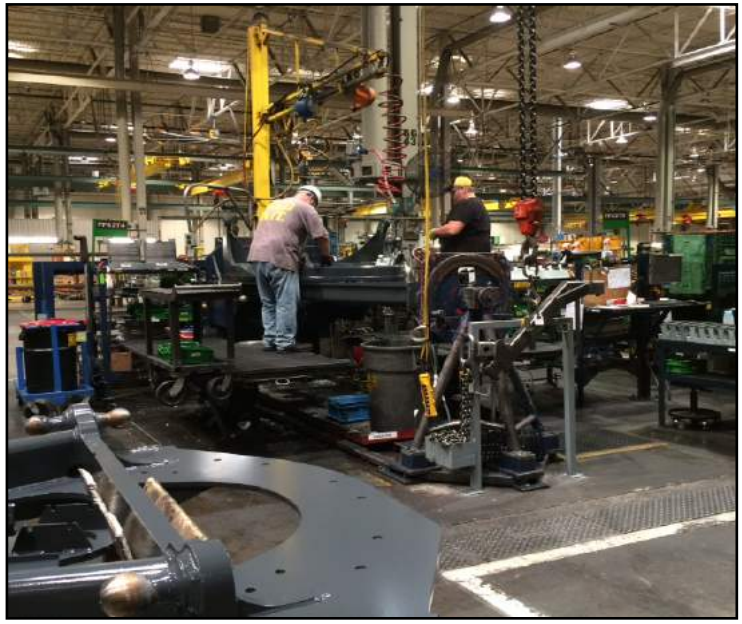


Grader Draft Frame Fall Elimination and Process Improvement

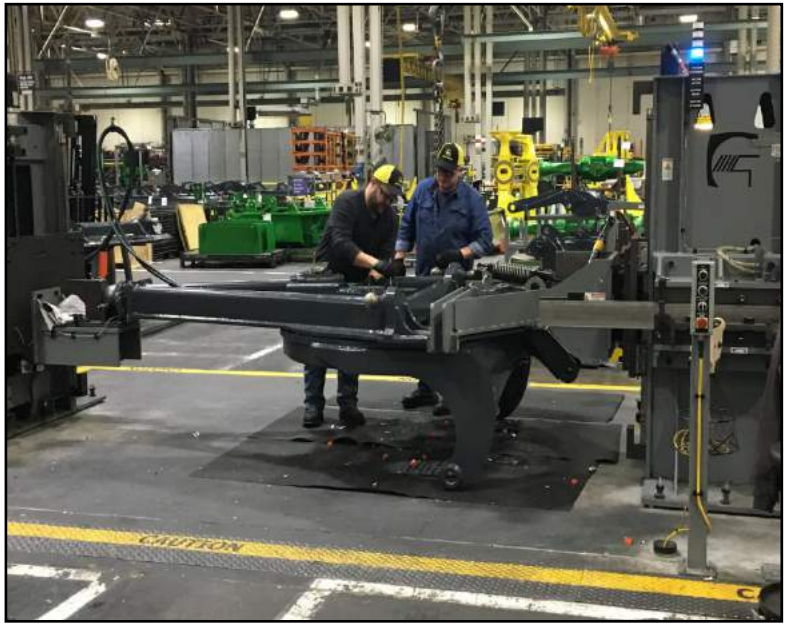
During a factory-wide fall protection audit, a fall risk was identified for two operators who were working more than 3 feet off the ground to assemble the Motor Grader draft frame. The draft frame assembly requires the part to be rotated 180 degrees. To complete this rotation, the part was suspended and lift platforms were used to elevate operators to the work. These platforms were dated and drifted significantly when operators moved on the platform. Tooling and load/unload methods prevented the use of any railing structures or safeguards on the platform. This process resulted in constant exposure to a fall hazard for two employees.

Engineers and operators collaborated to develop a solution: an adjustable height positioner. This positioner has integrated presence sensing while in motion and will lift the part up, rotate it 180 degrees, and lower the part back to the ground level. This engineered safety solution has eliminated the fall hazard while improving quality and efficiency.

Before



After



Ergonomic LP Tanks

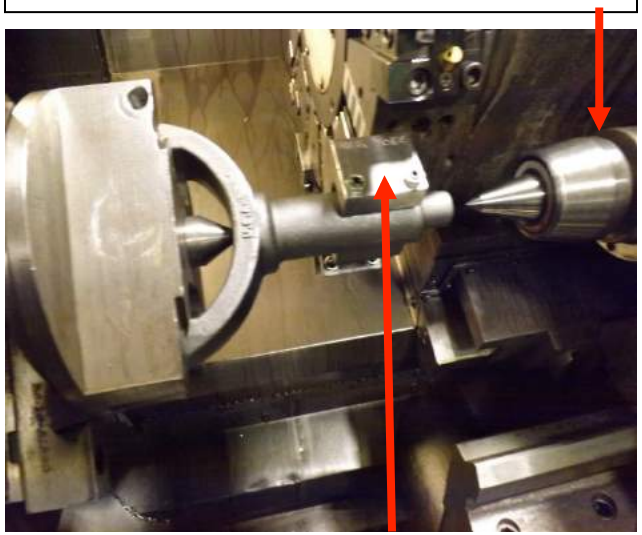
Davenport Works has a fleet of more than 150 fork trucks powered by liquid propane (LP) tanks. A full LP tank weighs 60 lbs., and the average forklift driver changes their tank once per day. The weight of a full LP tank exceeded the Davenport Works safe lifting guidelines. Lift technique training, lifting devices, and even a jib crane were suggested and tested to reduce the hazards associated with this lift. None of these suggestions were effective and sustainable. The final solution incredibly simple. The LP tank supplier now provides half-filled LP tanks in white cylinders, weighing approximately 35 lbs. These ergonomic cylinders fall within the lifting guidelines and reduce the risk from lifting LP tanks.

Before

After

Hazard Description: Original process involved employee placing part into older Okuma lathe by hand and holding part while engaging the hydraulic tailstock in to the center of part creating a point of contact hazard.

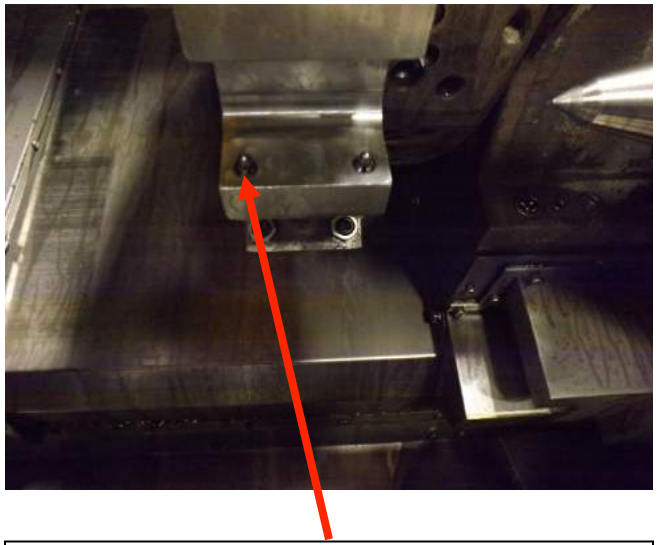
Tailstock of Okuma Lathe would move towards hand.



Spring loaded part holder that mounts in a tool pocket of the turret. This is where employee had held onto part while tailstock moved to secure.

Revised Process

- **Fabricated a spring loaded part holder that mounts in a tool pocket of the turret.**
- **Reprogramed the lathe to position the part in line with the tailstock.**
- **Replaced the foot pedal with two hand trip to engage the tailstock so the operator is sure not to have their hands in the line of fire**
- **Process changes made to two lathes**

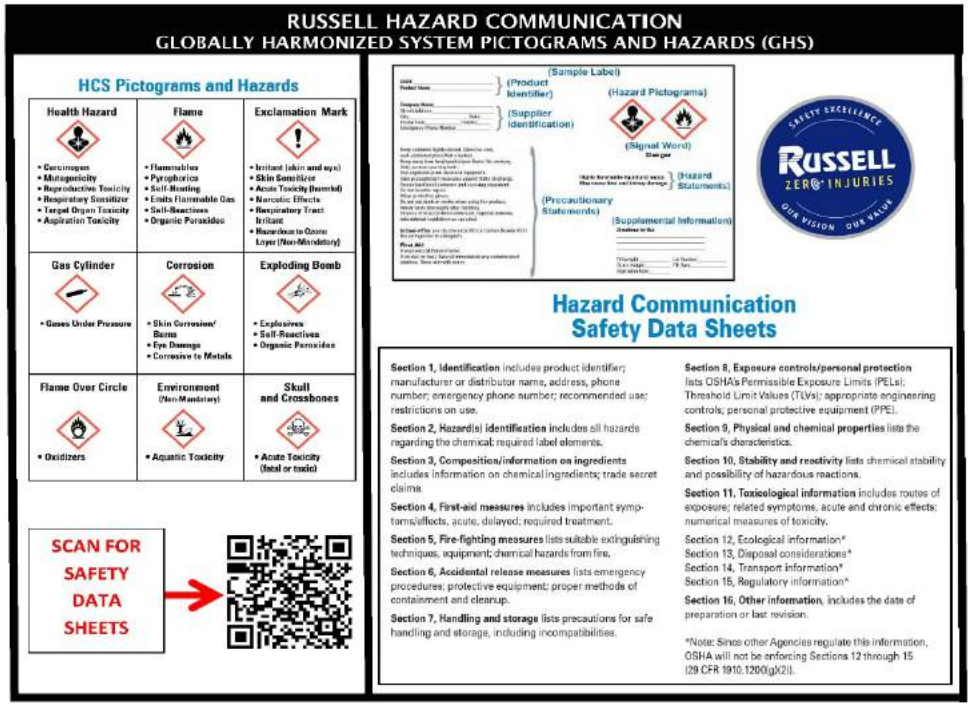


Spring loaded pins push down when part is inserted and hold part in place.

SDS Management (Before)

-SDS Manuals / Binders were printed out and kept in all job trailers, offices, vehicles, etc.

-This was difficult to update and ensure compliance.



Electronic SDS Management (After)

- **Now our SDS program is completely electronic giving all employees 24/7 access.**
- **A jobsite posting was created with a QR Code. Now any employee just has to scan the QR Code with their smart phone and it gives them instant access to all of our SDS Sheets.**
- **Much easier to ensure compliance since a new SDS sheet can be added anytime in one spot.**

Process of removing and installing iron furnace spout required operators to work under a suspended load while exposed to fall hazards.

Hazards:

- Employees exposed to potential crush hazards while working under a suspended load to properly place spout into position.
- Employees also exposed to fall hazards during this process due to the difficult location of the process.

Hazard Mitigation:

Spout was redesigned to eliminate the hazards. A mount was created while eliminated the need for an operator to work under the suspended load and no longer work in the location with the fall hazard.

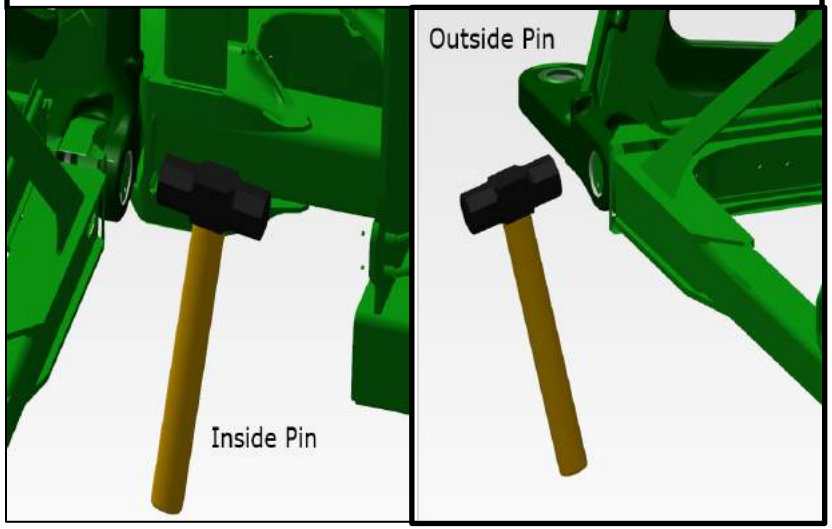
Risk Reduction: 96 SERA Points (Safety/Ergonomic Risk Analysis Points)

Before

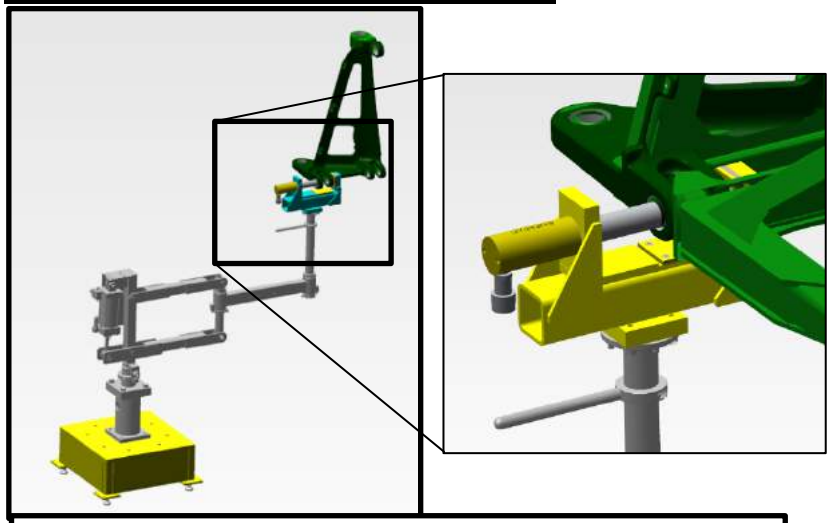
After

Identified Hazard

Multiple hammer blows required on a daily basis while inserting sprayer boom pins could cause shoulder pain. In addition, the Operator's hand will be in the line of fire when holding the pin.



Hazard Elimination utilizing Engineering Controls



A fixture was made in-house, between the wage and salary employees, following the Continuous Improvement process utilized at John Deere. The Mechanical Engineer utilized a Positech torque arm and a Enerpac press in the fixture. Employees no longer utilize the hammer thus eliminating the potential for sprain/strain injuries, nor are they required to hold the pin while striking, thus eliminating the potential for an impact injury.

Stellar Industries Kanawha Plant

Crane Paint cart was only design to hold half of the parts needed to complete the assembly of a crane. Several of the parts were left secured randomly to the cart or not at all during the painting process.

New cart design would allow the painters to safely load parts for up to four cranes on one cart. This new cart will allowed for all parts to be secured to the cart during the painting process

The staff at one of LCS's retirement communities had multiple risk exposures when throwing out trash including; a trip hazard, slip hazard and exertion hazard when heaving heavy bags of trash and also when moving the ramp on the days waste management needed to access the dumpster.

Before

After

After

The new ramp is sturdy and stable, yet can be easily moved when needed by using the step-lift which engages the wheels. The new ramp is elevated to reduce exertion, the steps are wide and have excellent traction and there are sturdy hand rails on both sides.

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:

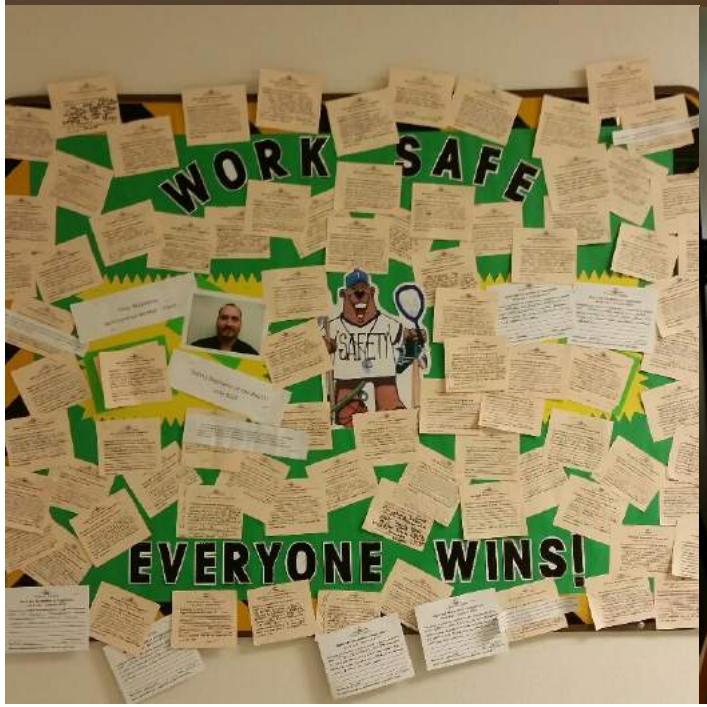
- ✓ Training/education
- ✓ In-services
- ✓ PPE use & selection
- ✓ Quizzes
- ✓ Demonstrations

Training & selection of proper PPE included in new policy.

NEAR MISS CARDS

Many LCS managed communities have implemented a near miss reporting system that is led and promoted by the safety committee and supported by leadership. 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. Bottom right corner is just one example of a card related to a near fall. Their solution was to use barricades to keep residents and staff from slipping on wet floors.

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.

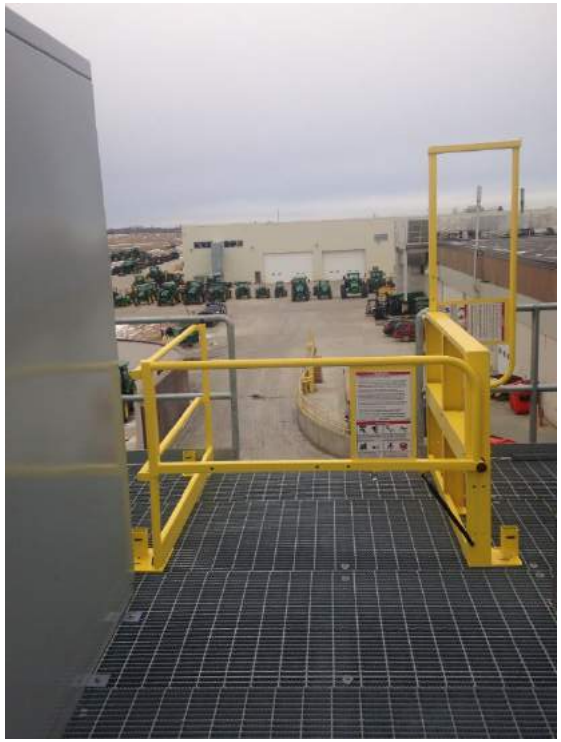


Laundry chemical exertion risk: In the laundry room at one of LCS's Retirement Communities, there were several large, heavy totes of chemicals being transferred on a regular basis from delivery to storage and from storage to the laundry. There was a high potential for an exertion injury when transferring these totes to their final destination. They switched to much smaller bottles of concentrate material, thus greatly reducing the potential for an exertion injury.

Before

After

PEC Roof Fall Prevention Project: Maintenance employees often have to work on equipment on the roof that is less than 15 feet from the edge. This requires the use of a temporary guardrail or personal fall protection and a tie off point on the roof. PEC is eliminating the need for this PPE by installing permanent guardrails and interlocked gate systems in areas employees need to be working close to the edge. In addition, the employees have to carry tools with them to service the equipment. PEC is replacing fixed ladders with stairs with railings to improve employee safety.



PEC Torque Arm Project: Employees were torqueing wheel hub cap screws to 1200 ft./lb. by hand as many as 288 times on a tractor. The addition of this portable torque arm eliminates performing high torques by hand and allows the unit to be moved from one department to another as needed. This improvement reduced the SERA score for this task from 75 to 1.

PEC Pattern Shop Project: An evaluation by Industrial Hygiene determined the air quality in the pattern shop exceeded the John Deere occupational exposure limit and required the employee working there to use mandatory respiratory equipment.

The following improvements were made in the shop:

-The dust collection system was resized for greater capacity and relocated outside the shop.

-Openings around machines were sealed to improve capture.

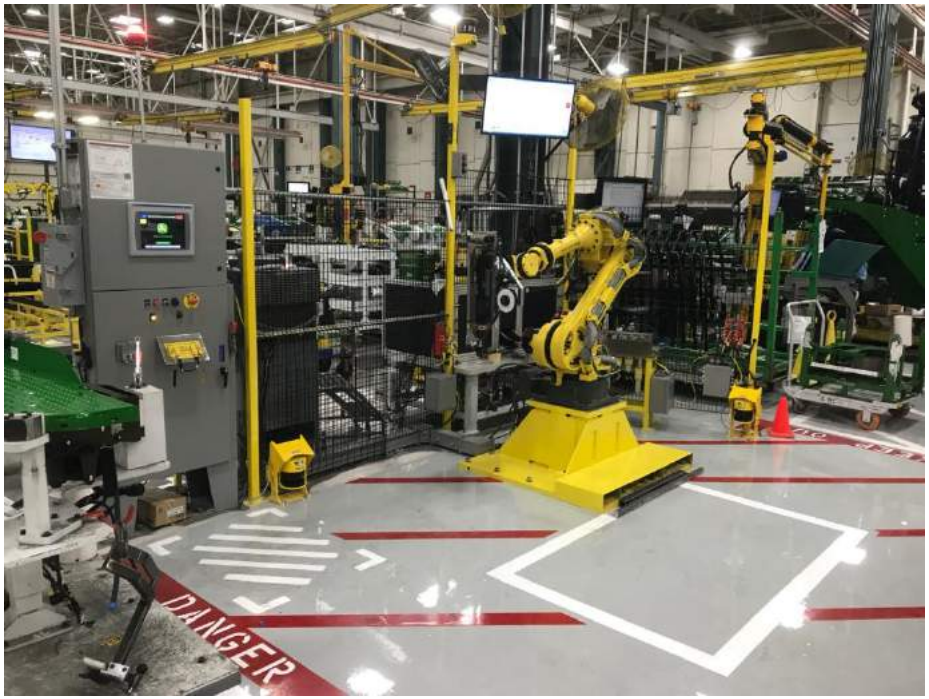
-Daily vacuuming was implemented.

As a result of these improvements, the employee's exposure to wood dust was below the OEL.

Respiratory protection is no longer mandato

TCAO 9R Station 54Left Robot Project: The previous process of assembling the steps for 9R tractors violated the 6-Too ergonomic guidelines due to poor part alignment and hand starting the cap screws. TCAO experienced 3 ergonomic injuries in a 10 month period.

The solution chosen was to implement a Fanuc R1000 robot along with switching to dog point cap screws with a cap screw feeder system and adding alignment pins on the parts to improve this assembly process. This resulted in a 273 point SERA reduction.

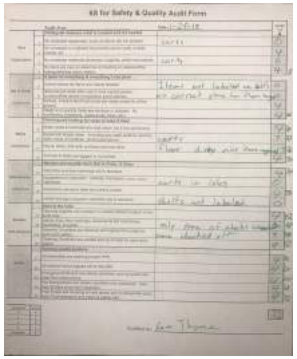


Managing Daily Improvement Kiosk – Visual Communication

Safety – Quality – Delivery – 6S

Nine Kiosks are deployed by Department, including office. Associates review the posted information with their Supervisor while performing stretches prior to the beginning of each shift. Every Tuesday and Thursday, the Kiosks are reviewed by the Management Team. This process drives our Safety Suggestion Program and has helped to foster a Culture of Safety – Approved Safety Suggestions have increased by over 900%, while Work Comp costs have fallen 98%, and TCIR has dropped from 9.7 to 2.1 – All in a span of less than three years!

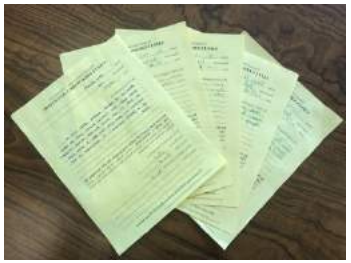
Associates & Supervisors complete weekly 6-S Audits, posting their results and implementing corrective actions.



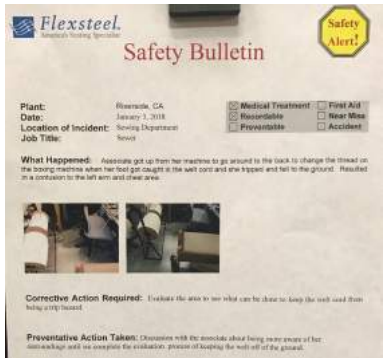
Calisthenic Stretch Instructions are posted and Associates get limber while reviewing the Kiosk Metrics.

Each Department is aware of their safety track record – both long and short-term.

Associates are encouraged to submit Safety Suggestions with a posted goal for each Department. Each quarter, the Department with the most approved wins a pizza party!



Whenever an accident occurs or there is a safety concern at any one of our seven plants, it is posted as a Safety Bulletin & reviewed by all Associates & Supervisors.



Prizes for 2017

Prizes for the 2017 Appreciation and Barbecue Event:

- Day off work with pay
- Dinner Cruise on the Mississippi River
- 2 Tablets
- Weather Radio
- Carbon Monoxide detectors
- Fire Extinguishers
- Roadside Kit
- Flexsteel Apparel
- 2 Coolers
- Gift Cards to Restaurants

Every July, a Safety Bar-B-Que is held for all associates! If you submitted an approved Safety Suggestion, you are eligible to win a prize!

One of the many components that go into the assembly of our spring units is called a buckle. Because of the quantities needed for the assembly process we ran these in bulk quantities that filled 55 gallon barrels. We took the barrel right to the assembly work cell. As the operator needed the small parts, they would take them out of the barrel. As the barrel emptied, the operator would tip the barrel to reach the bottom. This created a very unsafe ergonomic condition.

A safety suggestion was turned in by the operator to create a different container. With the teamwork of the operator, the department supervisor, and our maintenance department, a tub on casters was developed. Now the operator has access to the buckles at a safe ergonomic height. The tub locks into place at the operator station. We now have 3 containers filled by a Kanban method. This led to less inventory, safer access, and better productivity, since the operator does not leave the platform. Our safety/ergonomic suggestion system hit a home run on this one.

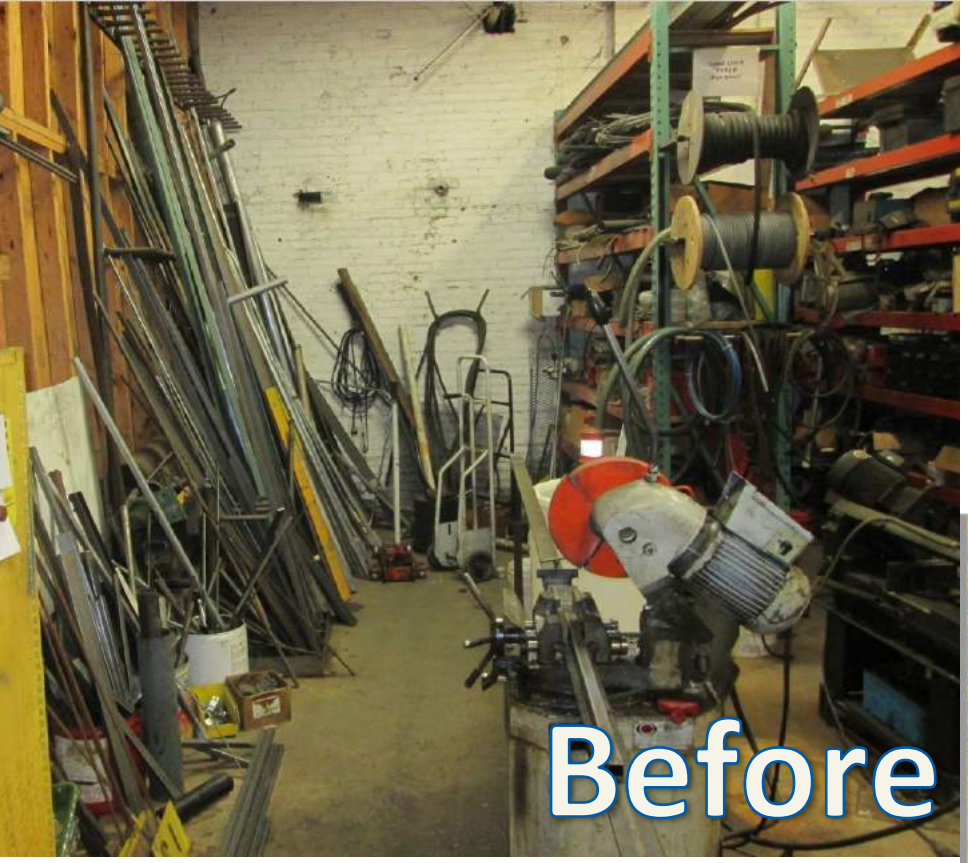
In order to assemble this 225lb chair, our operator was required to lay on the floor to complete the assembly of the product.

Now, a custom-built lift was designed to accommodate and improve the ergonomics and eliminate any previous lifting requirements. All components necessary for assembly of the chair are now easily accessible. This seat will roll of the assembly, and go on to a packing area.

Before, our truck drivers were expected to unload furniture by themselves, which required them to tip a sofa that weighed over 200lbs and slide it to the ground, without damage to the furniture or injury to self.

After

Now, custom-designed battery-powered, hydraulic lifts have been installed at the rear of the trailer to eliminate injury to our drivers and damage to furniture.



Before, there were many safety hazards in the maintenance shop, including falling object hazards and trip hazards

After a 6S event, the team eliminated falling and trip hazards.

Centralized Hose Cutting station

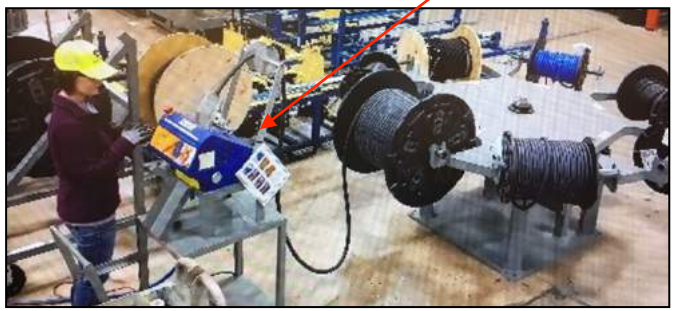
- Eliminated lifting hazards (from 35-50kg hose reels by operators)
- Decreased the amount of cutting devices required by that assembly line reducing cutting hazard exposure.
- Reduced footprint of the operation by 1000 ft^2
- Reduced indirect material spent on replacement parts
- Reduced operator travel time between stations
- The hose cutting task was eliminated from 7 different stations (guillotine style), eliminating much of the cutting hazard. The new station has a hose cutter machine.

Guillotine

Before

After

Cutting Machine

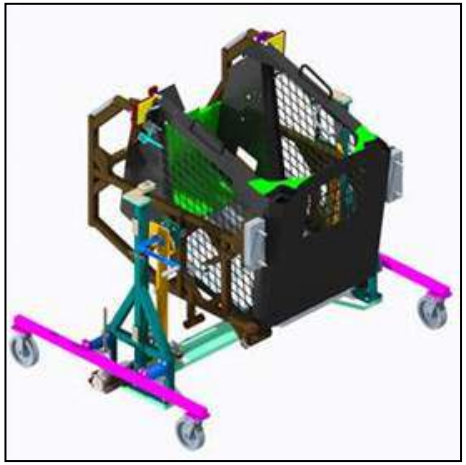


Skid Steer Cab Carts

- Before: The cab structure travels on a sub-assembly cart which puts the rear window at suboptimal heights for some operators. The bottom of the window is 55" off the floor while the top of the window is 65" off the floor.
- After: Integrated powered lower/raise function into sub-assembly carts to bring the work to the assembler.

Before

After



Backhoe Wash Bay Automation

By automating the wash bay used prior to final test, the operator's ergonomically inadequate posture during washing was eliminated.

Sensors were also implemented to identify when a person enters the wash bay, triggering the e-stop.