2018 Hazard Control Awards

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A Chapter of the National Safety Council

Competent Person Enhancement and Rescue Capabilities

- In reviewing our Fall Protection Plans and Job Hazard Analysis for our industrial roofing jobs, we identified that we did not have the capabilities defined for fall rescue beyond calling 911.
- We updated our fall protection plans to include the various options we have for fall rescue and listed them for Supervisor referral on the site.

- In the winter of 2018, we trained and certified over 60 Project Supervisors and Lead Men in Competent Person Personal Fall Arrest Systems and trained each one in fall rescue with the rescue pole retriever system and rescue ladder. Through this process, we began requiring our Supervisors and crew onsite to identify specific rescue options including rescue pole with retrieval rope; cable retrieval from our AES Raptors; or rescue ladder deployment with a separate anchor point, ensuring that the rescuer is securely anchored with their own personal fall arrest harness, lanyard, and anchor point. Other options are available from an aerial work platform or extension ladder from underneath. The Job Hazard Analysis must specify these options and the crew must acknowledge the rescue plan.

- We also mandated self rescue equipment on every employee's harness in the form of Trauma Straps. Every new hire goes through the Personal Fall Arrest Systems Authorized User Training, which includes being "hung" by a forklift with their harness and coached on how to deploy and use their trauma straps to prevent Traumatic Orthostatic Hypotension. The training is an eye-opening experience for new hires and they review this monthly with their Project Supervisors.

Start Work Authorization

- Our roofing crews are spread throughout the United States and deal with a varying degree of hazards on customer properties. We trust our Supervisors and Lead Men to work safely as they have been trained, and be in full compliance, but as a form of checks and balances and corroboration, we initiated a Start Work Authorization Program that is a four-step process.
- Once the crew mobilizes to the site, they perform a full inspection of the roof (inside and out) and the surrounding area to identify specific hazards. The Supervisor and Lead develop a Job Hazard Analysis (JHA) to discuss with the crew. The JHA is sent to the Project Manager or Safety Manager for discussion and approval.
- Once approved by the Project or Safety Manager, the Supervisor delivers and discusses the JHA with the crew, who acknowledge their understanding by signature and then safety equipment can be moved to the roof to set up.
- The crew follows the fall protection plan and when the safety equipment is in place (e.g. warning lines, controlled access zones, pathway from access to work zone, certified anchor points and mobile anchorage equipment), the Supervisor uploads photos to RoofLogic Manager (roof data software) and alerts the Project or Safety Manager.
- The Manager in charge of the project reviews the photos in RoofLogic Manager and discusses the set up with the Supervisor. If needed, improvements are made and, once approved, a written Start Work Authorization is provided to the Supervisor and filed in the job file for future reference.
- This process has opened up lines of communication between field operations, safety, and project management to allow for fresh eyes to view the safety set up on the job and to ensure that our projects remain in full compliance for the best safety possible for our crews.

The Four-Step Process

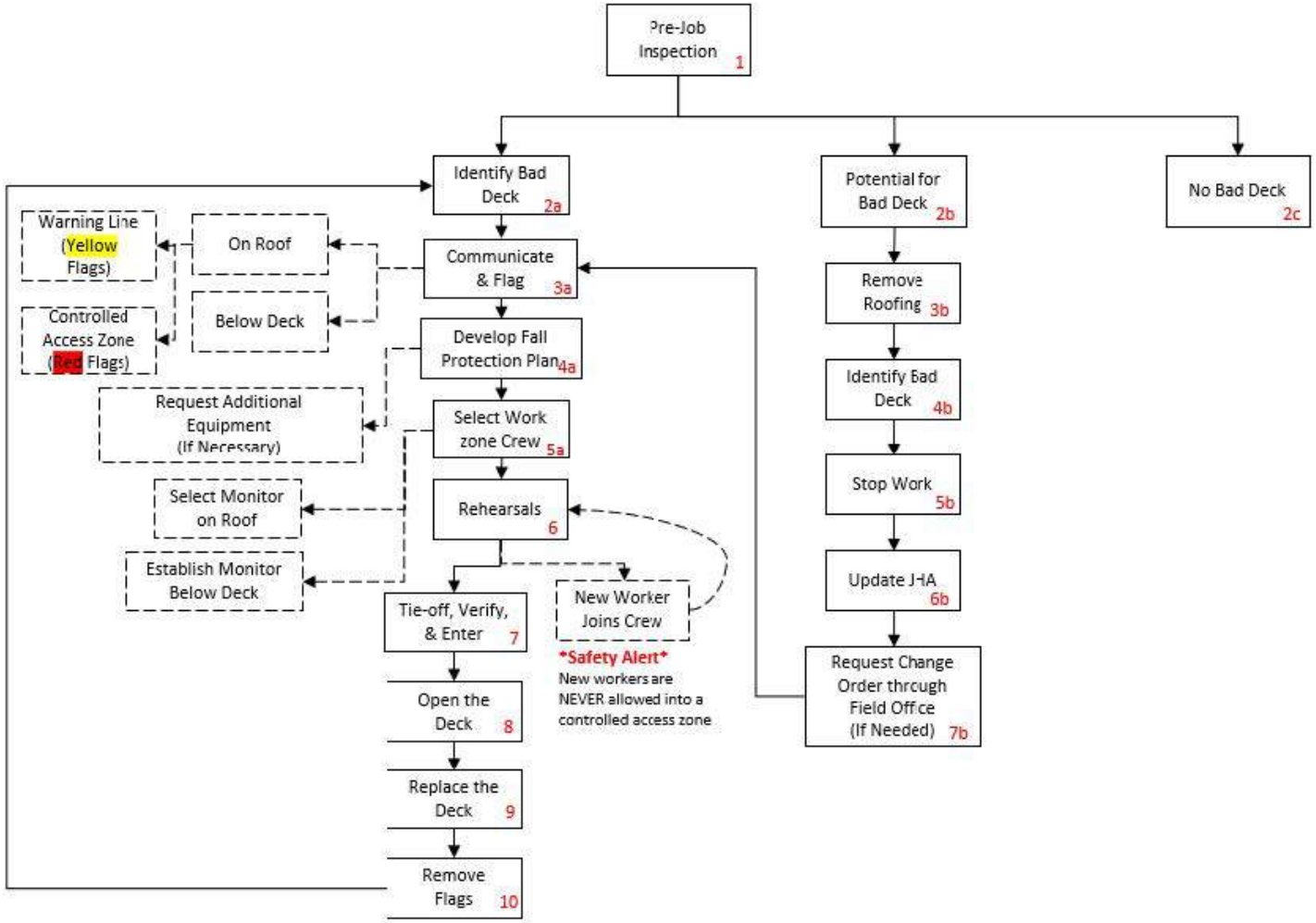
1. Supervisor and crew inspect the project area and develop JHA. Send to Project Manager.
2. Manager approves and JHA is delivered to crew with discussion and signatures.
3. Safety is mobilized and positioned on the roof based upon hazards and fall protection plan guidance.
4. Safety is approved by Manager, **Start Work Authorization** is provided in writing, and a safe project begins.

Competent Person Personal Fall Arrest Systems Biannual Electronic Inspections

- Our roofers are engaged in projects all over the United States which makes it extremely difficult to perform Competent Person Inspections on Personal Fall Arrest Systems (PFAS) on a routine, six-month basis. Consequently, we discovered fall arrest equipment in use that was substandard. We only had a handful of Project Managers that were trained to perform these inspections and they had fallen behind.
- In the winter of 2018 we trained and certified over 60 Project Supervisors and Lead Men in Competent Person Personal Fall Arrest Systems and through this process, began requiring that Supervisors and Lead Men perform these inspections biannually. We designated the months of May and November to perform the inspections.
- The month of May includes the National Safety Stand-Down to Prevent Falls In Construction week and we tie the inspections in with Fall Prevention Toolbox Talks and contests to enhance our crews' knowledge of fall prevention. Our Project Managers, upper management, and safety personnel all participate in this week's activities and help the Supervisors with their inspections.
- The month of November is toward the end of the heavy roofing season and we repeat the inspection process with the assistance of Project Managers, safety personnel, and any other team members who are qualified.
- The inspection process is logged on an electronic form on Supervisors' tablets and sent in to a D. C. Taylor Co. database to log and track inspections efficiently. We are able to quickly recall the data as needed and the Supervisor does not have maintain a log on-site.
- Since we have rolled this inspection and logging process out, we have been able to ensure that the equipment in use is in full compliance and our personnel know and understand the importance of a thorough inspection process.

D. C. Taylor Co. Deck Replacement Process

- As an industrial roofing company, we recognized through hazard analysis of our existing roof Deck Replacement Process that it was lacking in identification of unknown bad deck situations. It also did not specify a distinct controlled access zone and communication to crew and the Project or Safety Manager.
- We developed a decision-tree matrix that gives specific decision-making abilities to the Supervisor when there is known deck replacement in the scope of work and when the unknown hazard of bad or deteriorating deck is discovered after mobilization. It also identifies the flagging specifics for warning lines as yellow and controlled access zones as red with barrier tape identifying authorized entrants.
- This also outlines communication requirements, Job Hazard Analysis (JHA), and fall protection plan development for the job.
- This process greatly reduces the risk of a serious injury or fatality from a fall through a bad deck either known or not yet identified. It provides a process to follow to allow only authorized personnel who have been trained and have rehearsed the entry process for deck replacement scope of work.



Skidsteer Assembly Positioners

Before

As a result of the Skidsteer design, many assemblers required to perform assembly tasks in awkward positions on the assembly line. This created many ergonomic concerns which has resulted in 19 safety incidents since 2012.

After

Custom fixtures, incorporated onto positioners, allows the frame to be rotated and positioned to a height that fits the work to the worker mitigating ergonomic risks. Since implementation in the Spring of 2018, there has been 0 safety incidents involved with work performed at these positioners.

Automatic bulk hose cutting machine

Before

Assemblers have to cut 28 different hose lengths from 12 different diameters of bulk hose using a manual hose cutter on our Skidsteer line. This presents ergonomic hazards due to the repetitive work. The blade is also exposed as the lever is lifted causing a potential safety hazard with the sharp edge. Lastly, the varying diameter of bulk hose spools makes it difficult to incorporate a universal lifting solution so operators have to lift spools in excess of 40lbs to the cutting table.

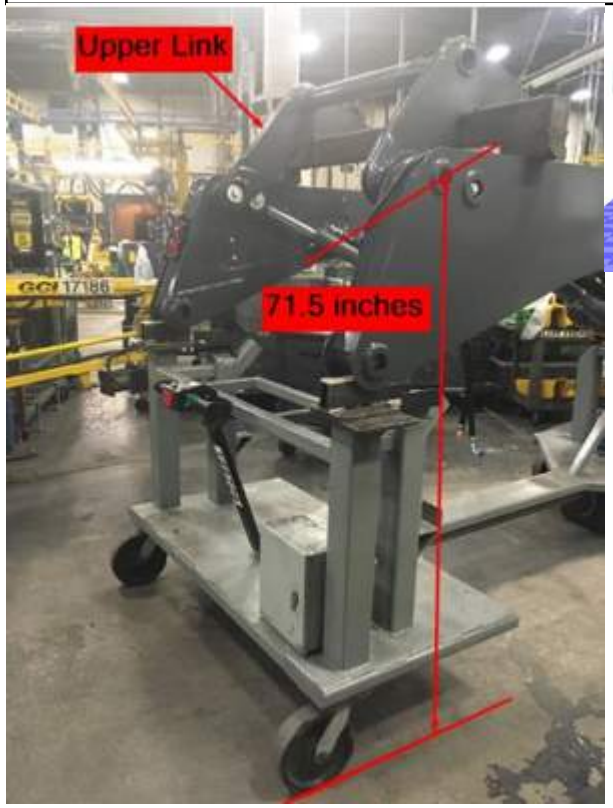
After

Implemented an automatic hose cutting & labeling machine which allows us to consolidate our 12 different diameter bulk hoses into one location. This machine also eliminated the ergonomic concern with the repetitive manual cutting and safety concern with an exposed blade since all the cutting is done within the enclosed machine. As a result of the efficiency of the machine, the operator can cut 1 days worth of material eliminating the need to swap out bulk hose reels; therefore mitigating any lifting concerns from before.

Boom Assembly Cart

Before

- Existing boom carts caused several ergonomic issues as a result of work being too high and operator has to work above their shoulders to install the upper link shown in red.



After

- Performed ergonomic analysis and fabricated new boom assembly carts which is more ergonomic and allows for better access. The upper link installation was lowered 22 inches as a result and the new cart design allows a step stool to be placed in the center of the boom which provides an adjustability factor for shorter operators.

Change of Engine Pump System

Spray trucks used gas powered engines to pump chemicals. This exposed employees to risk of injury by ergonomics, fall from heights, noise, fire, explosions, chemical releases, and hazardous material spills.

Before

After

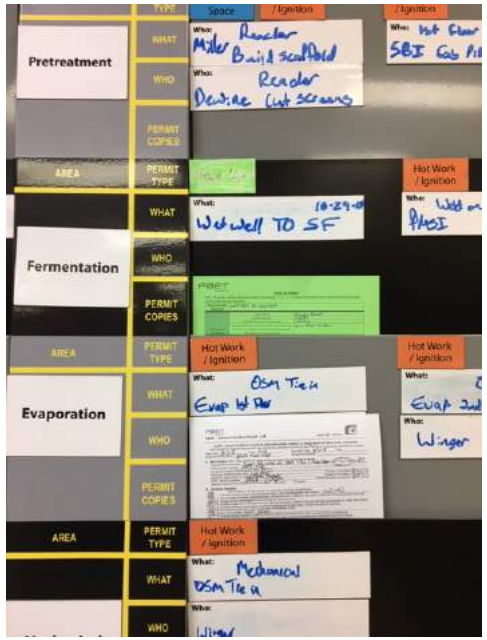
The change to an electric pump, reduced the noise exposure, the possibility of falling from the truck bed, having a fire/explosion with the gas containers, arm injuries from pulling the starter handle, skin burns due contact with hot surfaces.

An engine pump system is $1,400.00 and the electric pump system is $185.00. Running cost for gas is approximately $1,100.00 per season per truck. A couple of indirect labor hours per day were saved, previously used to cool down, fuel and restart the gas engine.

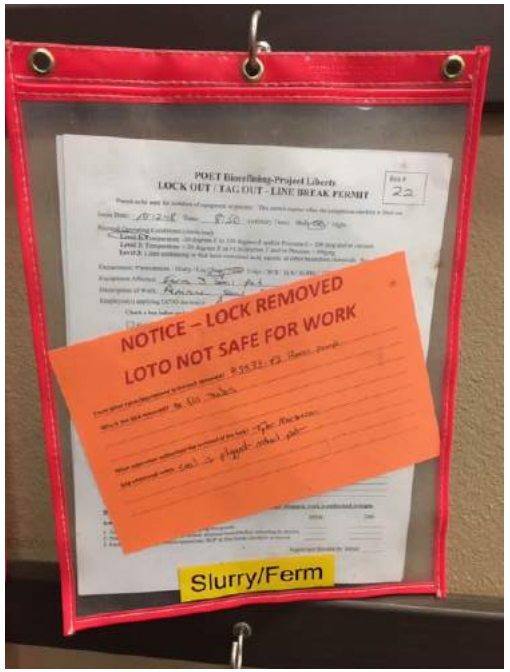
Lockout Tagout Program Change:

Poet-DSM Project Liberty had a communications board where all active permits were posted. There were several types of permits in the same area. An issue arose when changes had to be made to active lockouts and there was no way to communicate it to everyone. This led to the possibility of putting people at risk by letting them add their locks to a LOTO when locks had been removed to bump test equipment or a lockout had the scope changed.

Before



After



In addition to our communications board, we created a wall of see-thru pockets to house our LOTO forms so they can be easily seen. A lockout modification permit and notice were created and put in place so that no locks can be removed for bump testing or scope changes until it is approved by a supervisor and a notice is put in place for anyone who is attempting to work under that lockout. The documentation clearly states that the LOTO is not complete, what changes are being made and why. This has greatly reduced our risk of someone accidently working on a piece of equipment that is not fully locked out.

Non-hazardous material in the 55 gallon barrel has to be pumped into hand held spray bottles. Many times the material would spray on the surrounding walls and racks. The material was placed into a containment area to contain any spray and material was properly labeled.

Before

After

When using the pedestal sander, debris was distributed in the area around the sander. A containment barrier was made to maintain all waste debris into one isolated area which made housekeeping easier and eliminated a potential slip/ fall hazard in the near vicinity of the sander.

Before

After

The anvil was used for numerous hand-worked jobs but was only secured to the work bench by (2) C-clamps. Anvil was attached to the work bench to ensure better secure / stable position.

Before

After

A 55 gallon barrel of coolant had to wheeled to various machines throughout the Machine Shop. Potential for spills and inaccurate mixture of coolant and water. A metered pump was installed with a retractable hose that is extended to the various machines eliminating potential spills and ensuring proper mixture of coolant and water

Before

After

Before

After

One of ESCO Group client's facilities updated their work rules and everyone on site is required to wear Class 2 hi visibility outerwear. We decided is was beneficial for our company to take one step further and get all of ESCO Group's employees Class 2 arc rated hi visibility. As we are an electrical contractor, this provides our employees with the means of not having to take off their hi visibility to do their electrical work.

Before

After

ESCO Group saw the need to update our H2S air monitors that are required full time at one of client's facilities. It was becoming apparent that the old style of air monitors were showing signs of unreliability. They needed to be disposed of after two years and were not able to be calibrated for reuse. The style that we changed to can be inspected and calibrated. ESCO Group purchased a calibration station so we are able to quickly calibrate the monitors ourselves every month to ensure they are as reliable as they can be.

- <u>BEFORE:</u> Employees used to have to carry flash upstairs and manually lift to put into grinder opening above their head.

- <u>After:</u> Now employees put flash into a blue tote which is then lifted to be dumped into grinder. Fewer strains/sprains, also prevents tripping and falling hazards. (From the elimination of the grinder steps.)

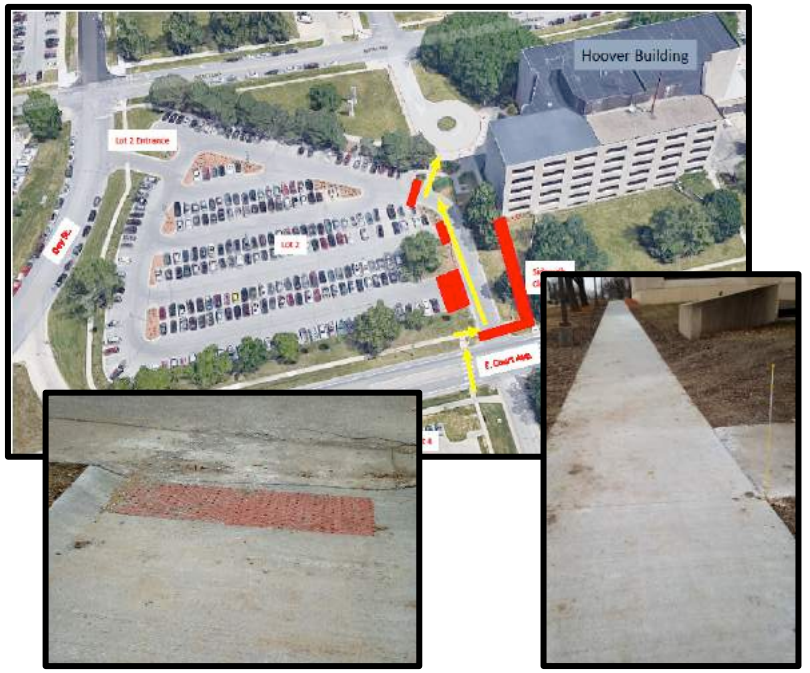
DATE: 1/2/2019
LOCATION: West Side of Hoover Building, State of Iowa Capitol Complex
HAZARD: Deteriorated Sidewalk and Damaged ADA Pedestrian Crossing Increased the Potential for Slip, Trip, and Fall Incidents.

Before Photo

The south sidewalk that leads to the west entrance of the Hoover Building had deteriorated over time. It resulted in uneven walking surfaces that contributed to slip, trip, fall incidents periodically reported by employees and visitors.

In addition, the damaged detectable warnings at the ADA pedestrian crossings created challenges for those accessing the Hoover Building via the south sidewalk.

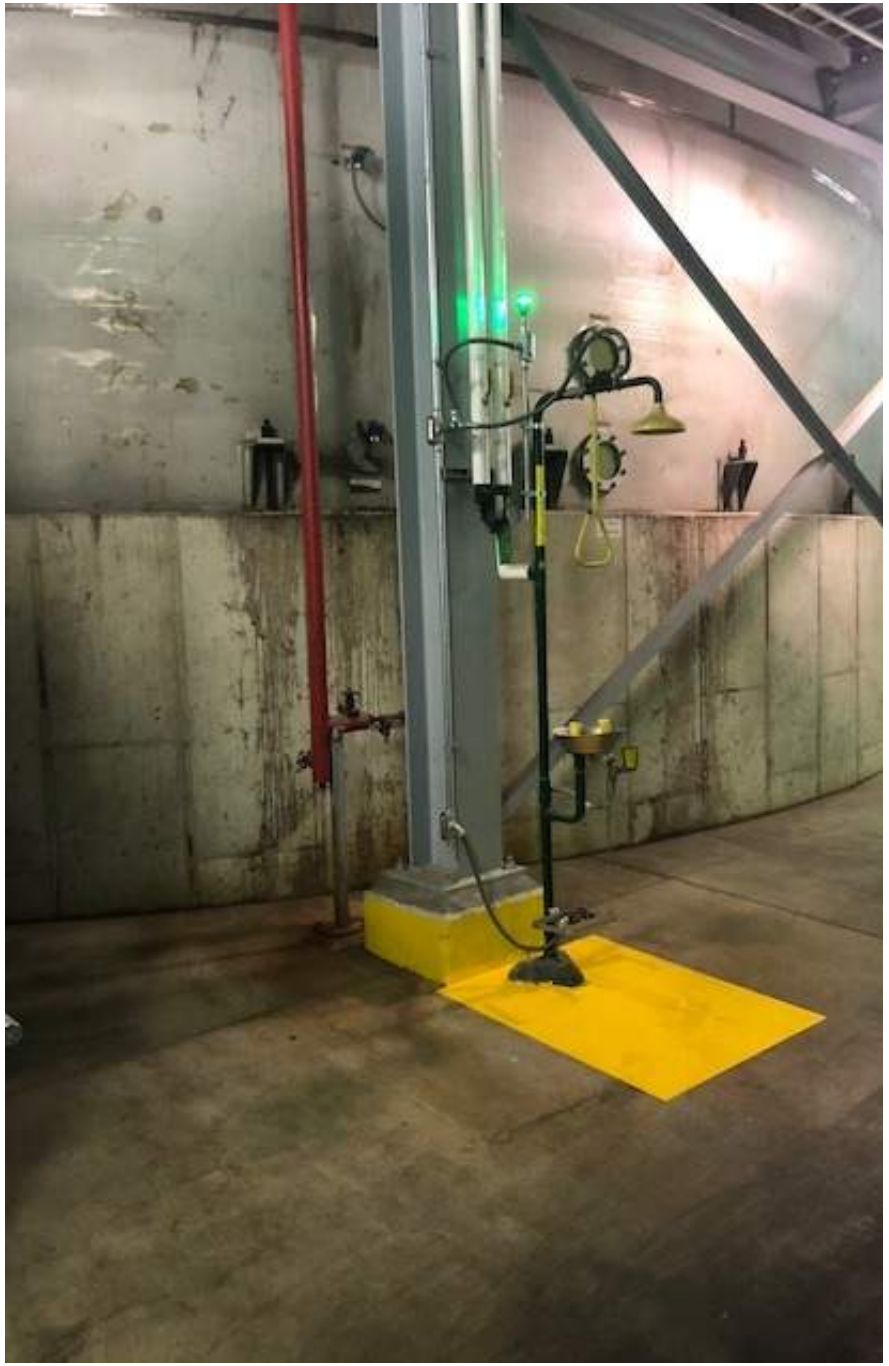
After Photos



A temporary pedestrian pathway was created. Sidewalk repairs began on November 13, 2018 and were completed on November 18, 2018. The project cost $4,944.20.

With the improved walking surfaces; the potential for a slip, trip, or fall incident in this area has been significantly reduced. The State's Workers Compensation average cost (Aug, Sep, Oct, November) for a slip, trip, or fall incident was $1691.44 (loss/frequency).

- We have a number of emergency eye wash and safety showers located around the plant. In order to get them to “stand out” more and be more noticeable, we installed green LED lights on top of each station. This will make them easier to locate in the event of an emergency.



Before
After

- Our driver's quarters for ethanol loadout were made out of wood and steel siding and were not very safe in the event of an incident.
- We constructed a concrete driver's quarters and moved all loadout screens to inside the building. While any loading is going on, the driver will safely be located in the concrete building.

During

After

- Changing our slurry strainer baskets put employees at risk of standing in 185 degree corn mash coming from the trench.
- We installed a concrete platform that employees could stand on keeping them from standing in hot mash while changing slurry strainer baskets.

- Our dryers have automatic graphite applicators for the trunnion wheels. In the past, as graphite was applied, it would fall to the floor and create a slip hazard.
- We took some old grain elevator buckets and attached them to the concrete pillars under the applicators to catch the graphite before it reaches the floor. Saves the floor from becoming slippery and we can re-use the graphite.

AGROPUR Hull Iowa
Elevated Safety Gates

BEFORE

AFTER

BEFORE

AFTER

A total of 15 safety gates were installed on elevated platforms in 2018

Fall Protection Added to Platform

BEFORE

AFTER

Trip and Ergonomic Improvements

BEFORE

AFTER

A total of 6 hose reels were installed in 2018

METAL PARTS AREA IMPROVEMENT

Before

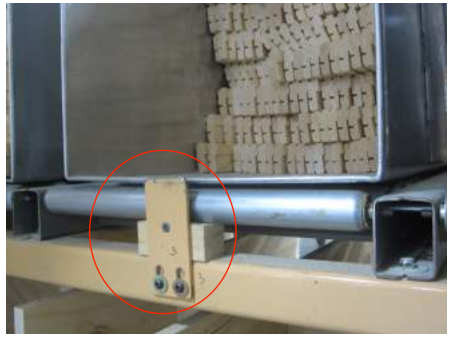
- Metal parts would extend outside the end of machine causing a risk of lacerations to team members walking around machine.

After

- Added guard to aware team members and cover the end of metal parts.

Kanban Cart Improvements

Operators would move this cart into position when needed. The totes would roll forward and potentially fall off rack when the operators would pull parts from tote.



We improved the process by adding spacers on the front legs to tilt the cart back. Gravity would then keep the carts to the back and not roll forward. Stops were also added in the back to keep the totes from rolling off the back.

Value Add Wrapper

We would have potential risk of windows tipping over from our table to the wrapper from the operator handling the units with one hand. This also would be a risk of injury to the operator. We made improvements in the area adding a halo type frame to place the unit in before it was moved to the wrapper.(pic1)

We also added a safety feature to the wrapper. This bracket that was added will hold the unit until the plunger can come down and hold the unit. (pic2, pic3) Now the operator is free to let the unit stand on its own while adjusting wrapper to correct height needed for the unit.


PIC 2


PIC 3


PIC 1

Working in a paper mill, injuries can occur when a product is not secured properly. An employee was injured due to a roll falling over. Our maintenance and production teams put their heads together and came up with the “Cut Buddy” a stabilizer for rolls unable to stand alone. These have been a great addition to our safety procedures and we have introduced them at our sister locations!

Before

After

Before: This was a plant that Precision Inc acquired and previous company was transferring gas bottles on a makeshift pallet exposing the end to be broken off during transit. **After**: Gas bottle cart was made to transfer bottle around the facility safely and secure.

Precision Inc, Pella Iowa

Before

After

Mori Sieki Lathe – Oil Mist Collection System SAFETY Improvement – **Before**: Previously the Mori Sieki lathe during operation would shoot a cloud of oil mist when the operator would open the door after the process was completed, the employee would be in the line of breathing all the oil mist from the machine **After**: We purchased a LNS FOX WS 2 oil mist collection system with the hose 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

Before: Old style dump hoppers for metal shavings were awkward to dump when full with old style mechanism. **After:**

Replacing with new style dump hoppers, the mechanism is more user friendly and added security with better locking system when attached to forks.

Precision Inc, Pella Iowa

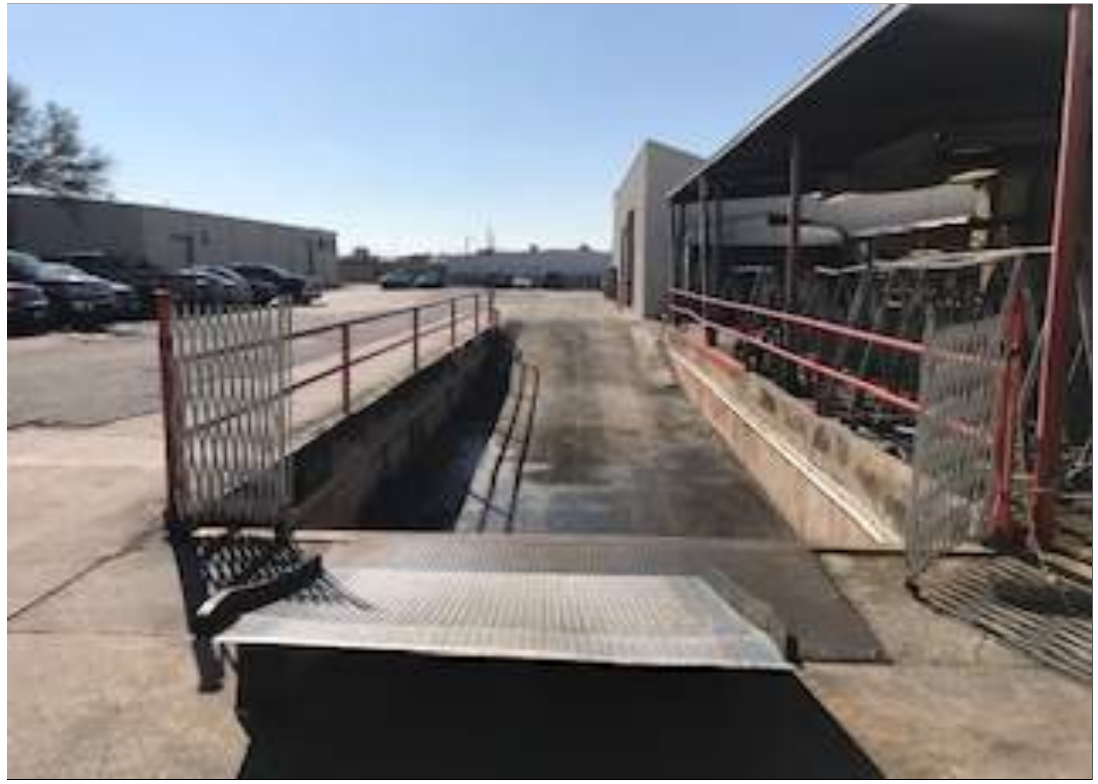
Before

After

Loading Dock – **Before:** The loading dock had the railings on the side but nothing on the side where the trucks backed into so there was a fall hazard. **After:** Extension Gate was installed to securely block-off the 5’ drop-off when not in use to eliminate the fall hazard.

Precision Inc, Pella Iowa

Before



After

BEFORE: Ready Mix drivers were responsible for removing concrete build up on the inside of their drum, approximately once to twice a year. To remove concrete the driver enters through the small hatch on the side of the drum. This hole is extremely small. Once inside they are exposed to the following:

1. Confined Space – Permit Required w/a spotter
2. Hearing Conservation – use of vibrating air chisel requires double hearing protection
3. Trip/Slip Hazards – the air chisel combined with water to reduce the silica dust, but creates a wet slippery uneven surface inside
4. Respiratory Protection – Silica Dust requires employees to wear respiratory mask and enter into the Respiratory Protection Plan for Silica
5. Falling Hazards – When chunks of hardened dead concrete break loose, could impact the employee. Hard Hats are required.

AFTER: The company instituted new state-of-the-art technology called the Ready Jet, the first in Iowa. A 3rd party comes twice a year with the machine and cleans all drums. No employees have to enter the drums anymore for clean out. This technology uses a hydraulic action along with water pressure of 20,000 PSI to remove the concrete, which doesn't damage the drum. The arm enters through the hopper of the drum. When finished, the excess concrete is dumped out the chute. We have successfully removed around 50 employees from the hazards above!

Before

After

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Before

After

Ergonomic Safety Concern

Hagie Mfg. performed a Safety Ergonomic Risk Assessment in our Fabrication Dept. for loading/ unloading of laser parts. Operator(s) had to do a lot of bending over causing back strain and other hazard risks. This was mitigated by designing and building ergonomic carts that brought the transfer of parts to an ergonomic waist level, eliminating the constant bending over.

Score went from 74 to a 10!

Safety 365 are series of informative Safety slides developed for discussion and training everyday of the year.
In the past, Supervisors used props or cards to present safety information at shifts meeting. TV's were installed and Safety 365 slides developed, shift meeting are more meaningful and better presented

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Step Up Riser Improvement

Workers were concerned when they stepped onto a riser, they felt that they could fall off and get hurt.

A Grab Bar was added to allow Operators to reach out and hold onto a safe and secure bar to help keep them steady.

BEFORE

It was documented during a Behavior Based Safety Observation, some employees could not reach the height of the door window. The door was modified and all of our employees can see the other side of the door before pushing it open.

Adopted Behavior Based Safety

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

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

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

Gloria Arroyo | Brandon Allen | Suzi Herrera | Cindy Cardenas | Elsa Romero | Cesar Perez | Acacia Murray | Randel Roby

A **Safety Representative** is an extension of our Safety Committee.

Their overall expectations are to:

- ✓ Promote our Safety Programs
- ✓ Be the “GO TO” Safety person for everyone
- ✓ Provide guidance to assist workers with Safety ideas or concerns
- ✓ Meet with the Safety Manager monthly
- ✓ Assist workers when they are conducting Behavioral Based Safety Observations
- ✓ Be a fresh set of eyes to promote a Safe work place
- ✓ Help us fight workplace Safety Complacency

Our Safety Committee recognized we needed addition representation specifically in the Operations area.

A team of Safety Representatives were identified, trained and now act on behalf of our Safety Efforts

IMPROVED

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Syngenta Seeds Jefferson, IA - Box Repair Ergonomics

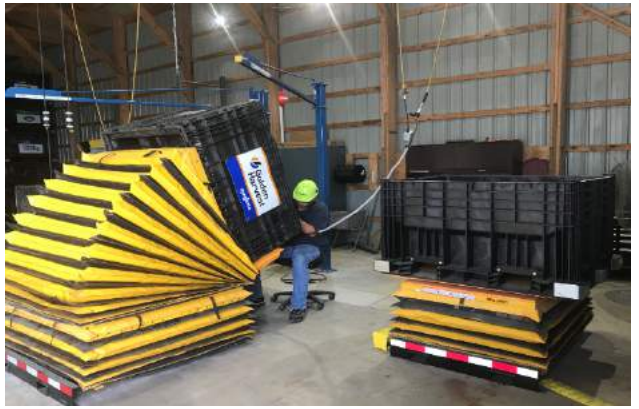
Upon completion of soybean planting, seed dealers return empty bulk boxes to warehouse from prior sales season. Unfortunately, some of these boxes incur various types of damage during use by customers. These boxes are expensive to buy new/replace on annual basis so Syngenta Jefferson, IA site repairs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

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

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

Over 2000 bulk boxes were repaired in a much safer and efficient manner in 2018, by eliminating awkward positions with proper box placement angles and tool assist.

Before



Syngenta Seeds Jefferson, IA – Back Safety

Conditioning seed requires our associates take several seed quality samples daily.

In order to get a sample, associates were required to reach over the top stairway rail to reach the hatch to get their samples.

By narrowing the stairway, associates can now stand on the floor, eliminating the need to bend over from the stairway to get their samples.

Steve Pope, Syngenta Seeds LLC, 300 American Ave. Jefferson. IA
(515) 351-8178
Steve.pope@syngenta.com

Ergonomic Risk Eliminated

Before

- Our “Small Pack” line originated years ago to pack quart and 1 gallon jugs so most everything on the line was a manual operation including palletizing. Over the years demand added 2 ½ gallon jugs. When packed two to a case the weight is between 40 and 50 pounds. An average shift will palletize 1,800 cases. Even with job rotation this was too much heavy lifting.

After

- We purchased a vacuum lift that supports up to 70 lbs. Now palletizing cases is almost effortless and can be done by any size person. We plan to expand this to other areas as well.

Alliant Energy
Moments That Matter

Alliant has begun a series of “Moments That Matter” videos by employees for employees. They are short stories by employees on events with safety in mind that happened to them that they believe others can learn from. They are filmed by smartphone and downloaded to our internal internet for viewing by all employees.

Feedback has been positive because it is employee based, telling their own story which is going over better than polished professional videos.

Titles: 360 Walk-Around, Traversing Rough Terrain, Pedestrian Safety, Look-Evaluate-Move, Speed and Body Movement

Syngenta Pekin IL striving to eliminate dropped qbits with Forklifts, making a safer warehouse

BEFORE:

When qbits are dropped for any cause, the potential for a serious injury occurs if pedestrians are close. The site has experienced 5 incidents of dropped qbits in 23 months.. Many factors contributed to the occurrences;

- Throughways are numerous sizes, allowing a variable # of qbits to pass through, but no markings were present to note the clearance around each.
- Pedestrians and traffic flow had been segregated by floor markings, but they had become worn. Throughways are not wide enough for both passage of pedestrians and forklift traffic flow.
- Employees experiencing the dropped qbits were 3rd party returnees from lay lacking experience, not verifying the amount of qbits selected for movement
- The rows were dark when pulling into pick a load as the qbits are black and stacked tall and deep.

AFTER:

- Throughways were measured and each labeled with pictures to identify the # of qbits able to pass through with a forklift.
- Walkways repainted and additional training on areas where no pedestrians are allowed.
- Created a minimum set up driving hours required under mentorship for new drivers and returnees before certification
- Enhanced Forklifts with LED lighting
- Installed visual and audible eyebeam sensors on top of throughways to signal driver load exceeds the height limit.
- Installing 2nd Q 2019 Eyebeam sensor for visual aid for pedestrian presence near forklift traffic.
- Forklift safety rules reviewed quarterly, including number of qbits allowed to be moved.
- Hosted Syngenta 10+ employees at Pekin, IL with National Safety council's Forklift Train the Trainer course.
- Most recently, after a sensor failure(secondary layer of protection) from extreme cold temperatures(possibly), a monthly inspection program to include eyebeam sensors.
- More work will continue to be done to try and eliminate dropped qbits.

signage

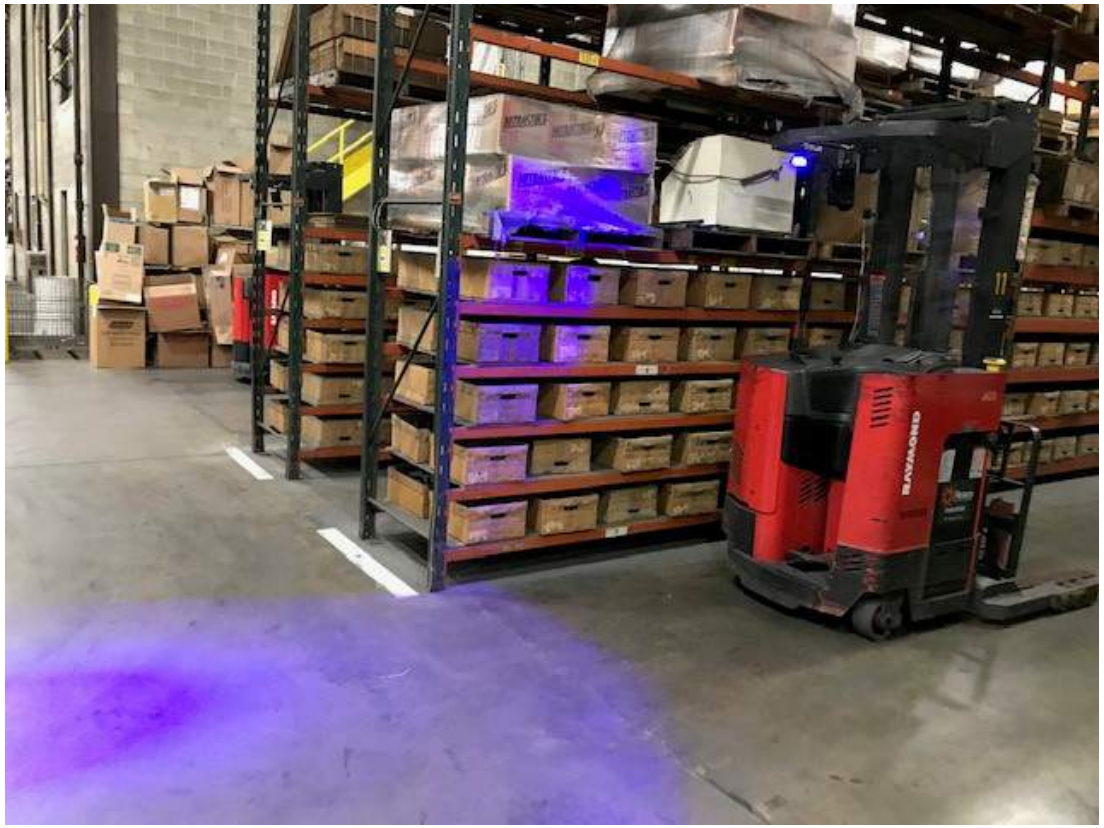
Work practice changes that eliminate or reduce the risk to a hazard: Verification procedure

Location has many new hires who have not worked with propane, gasoline, diesel, and NH3 and need reminders for working on tanks containing these materials. Tags created to ensure decontamination of tanks prior to hot work.

Engineering control, redesign, guarding: Installation of Jersey barriers

Power lines, guy wires, junction box, and propane tank were noted as at risk for vehicle collision on internal inspection. Jersey barriers installed with reflective tape to guard against vehicle collision.

Engineering control, redesign, guarding: Installation of warning lights on fork lift trucks



Employee who was walking on the dock was nearly hit by a forklift backing out of a truck. Blue LED emergency lights installed on forklifts to improve visibility.

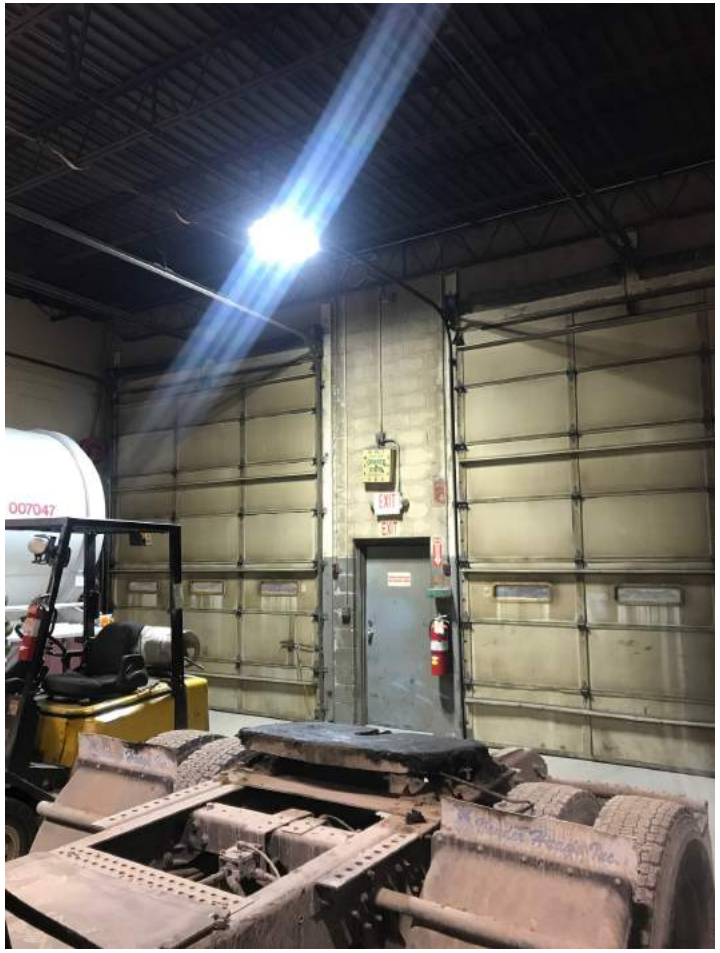
Engineering control, redesign, guarding: Stabilization of catwalk; installation of motor guard

- Replaced cracked 2x4 catwalk support with metal beam.
- Replaced electric motor guard of large auger that was found to be rusted.

Engineering control, redesign, guarding: Installation of in-rack sprinkler system

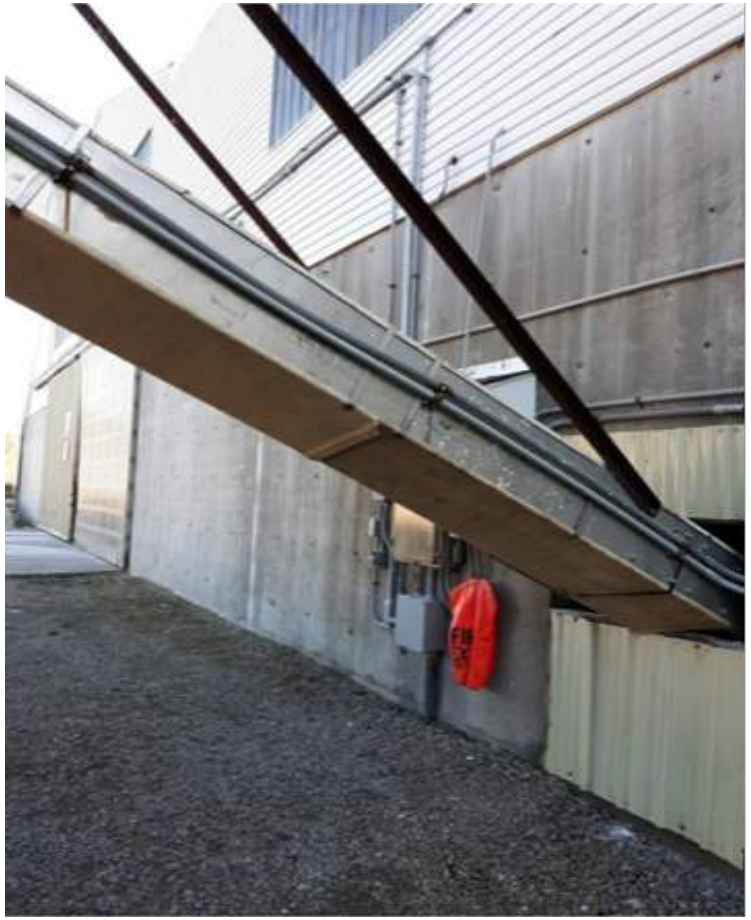
In order to protect employees from fire hazards associated with lubricant storage, in-rack sprinkler systems were installed

Engineering control, redesign, guarding: Installation of LED lighting



Installed lighting to improve visibility

Engineering control, redesign, guarding: Installation of guarding



Guarding installed below conveyor at buildings 6 and 7.

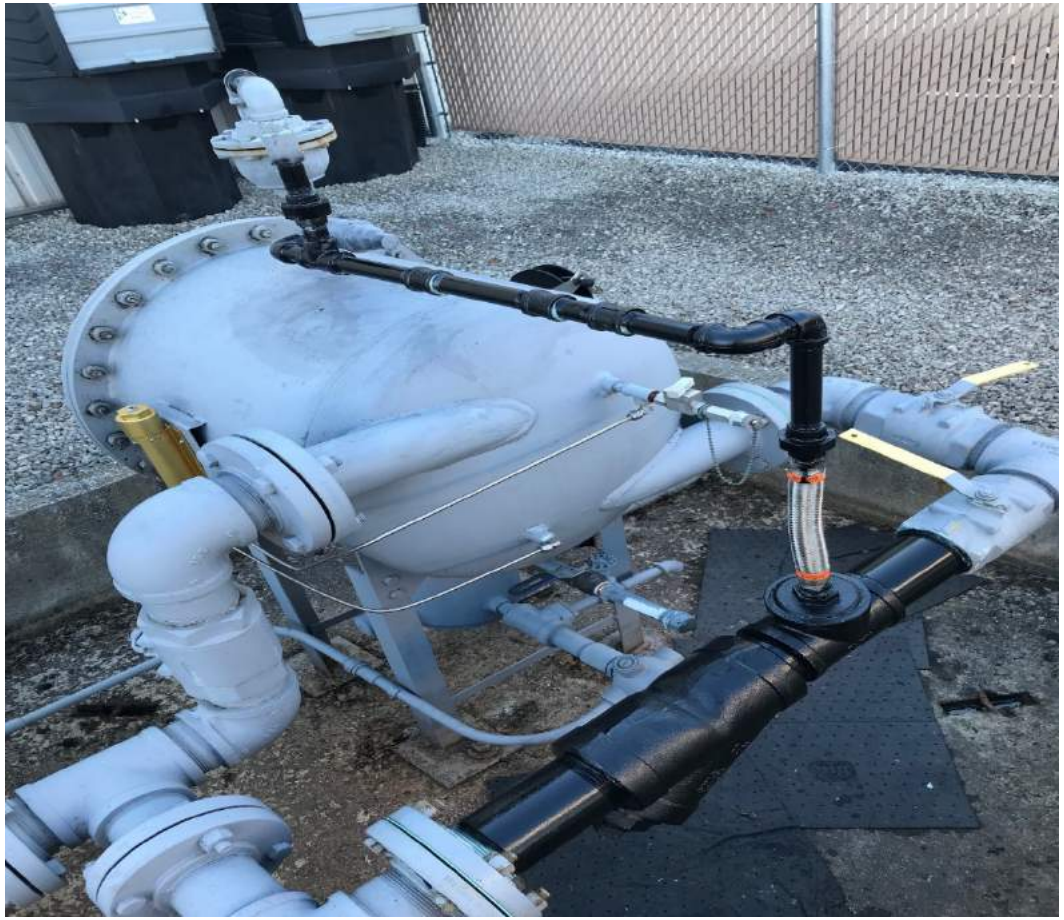
Engineering control, redesign, guarding: Fabrication and use of detachable steps

Lower step on trackmobile was too high for safe dismount when vehicle was parked on sloped elevation. Detachable steps fabricated to prevent the need for jumping from the bottom step.

Engineering control, redesign, guarding: Installation of sound insulation panels

Noise levels increased by resonation in open shop area. Insulation panels installed in the ceiling and on walls to reduce noise levels.

Engineering control, redesign, guarding: Reduction of potential for explosive atmosphere



The idea was to make the system a closed loop to minimize a possibility of a fuel leak. A strainer was added in case of having to fill the tank via gravity feed. The strainer would stop large particles from entering the tank. Additionally a return line was added from the bypass line coming off the relief valve and air eliminator. If the relief valve or air eliminator was to ever leak, fuel would go back into the fuel system and not externally leak.

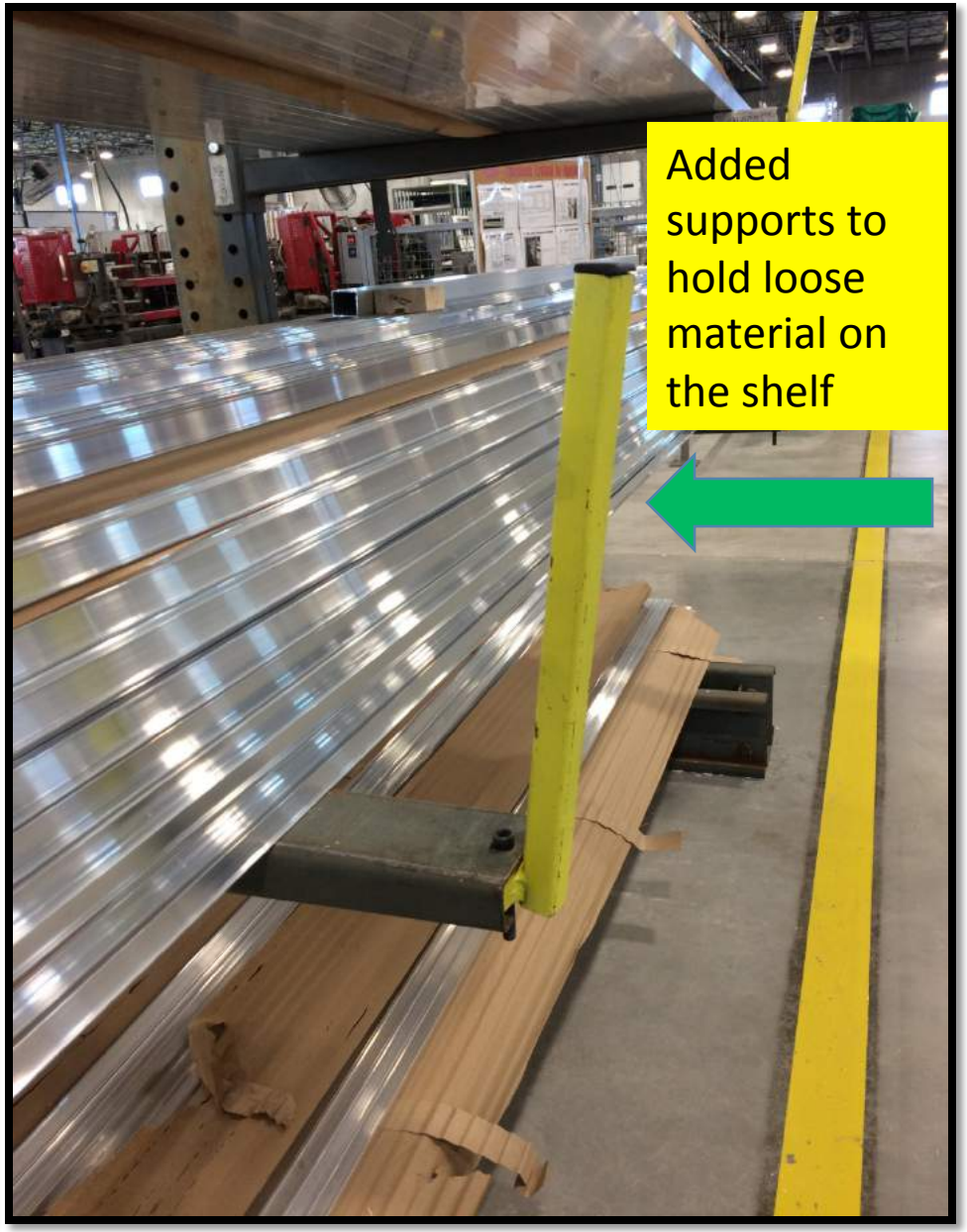
After a Near Miss was reported involving a Truck Driver walking thru our Fab Shop trying to find someone to sign his paperwork; we designated a Shipping / Receiving Door which includes a “Ring Bell for Service” posting and Button to call for assistance instead of wondering thru the Shop unprotected.

BEFORE

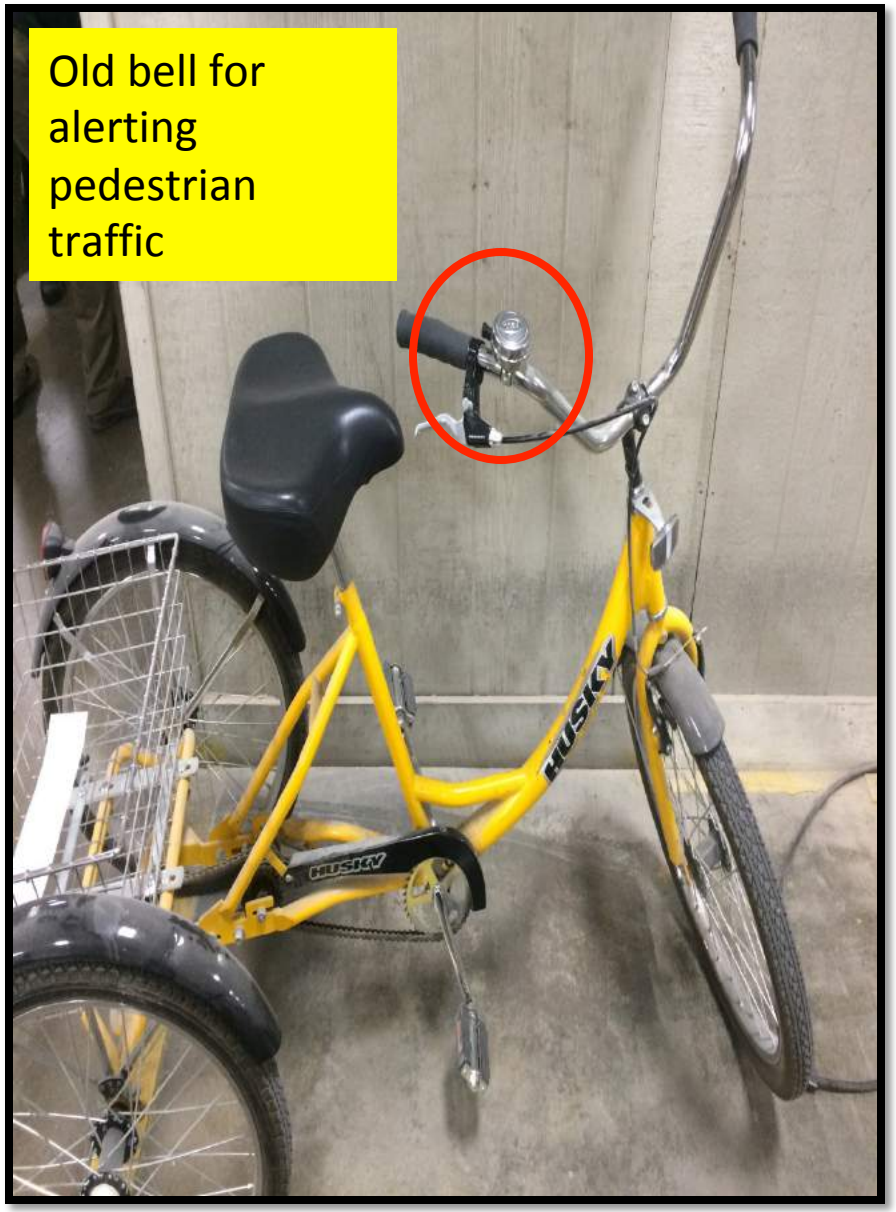
AFTER

BEFORE

AFTER



Before



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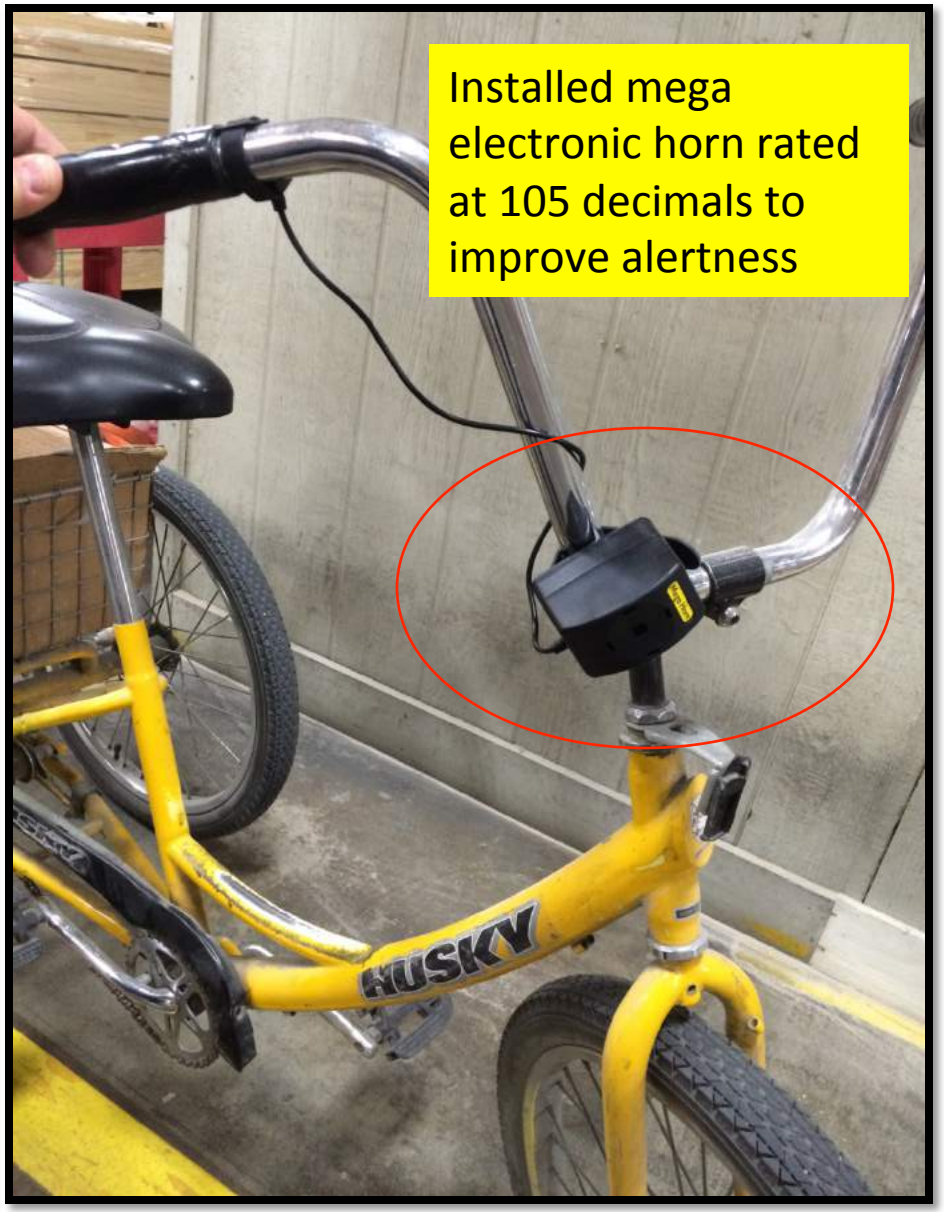

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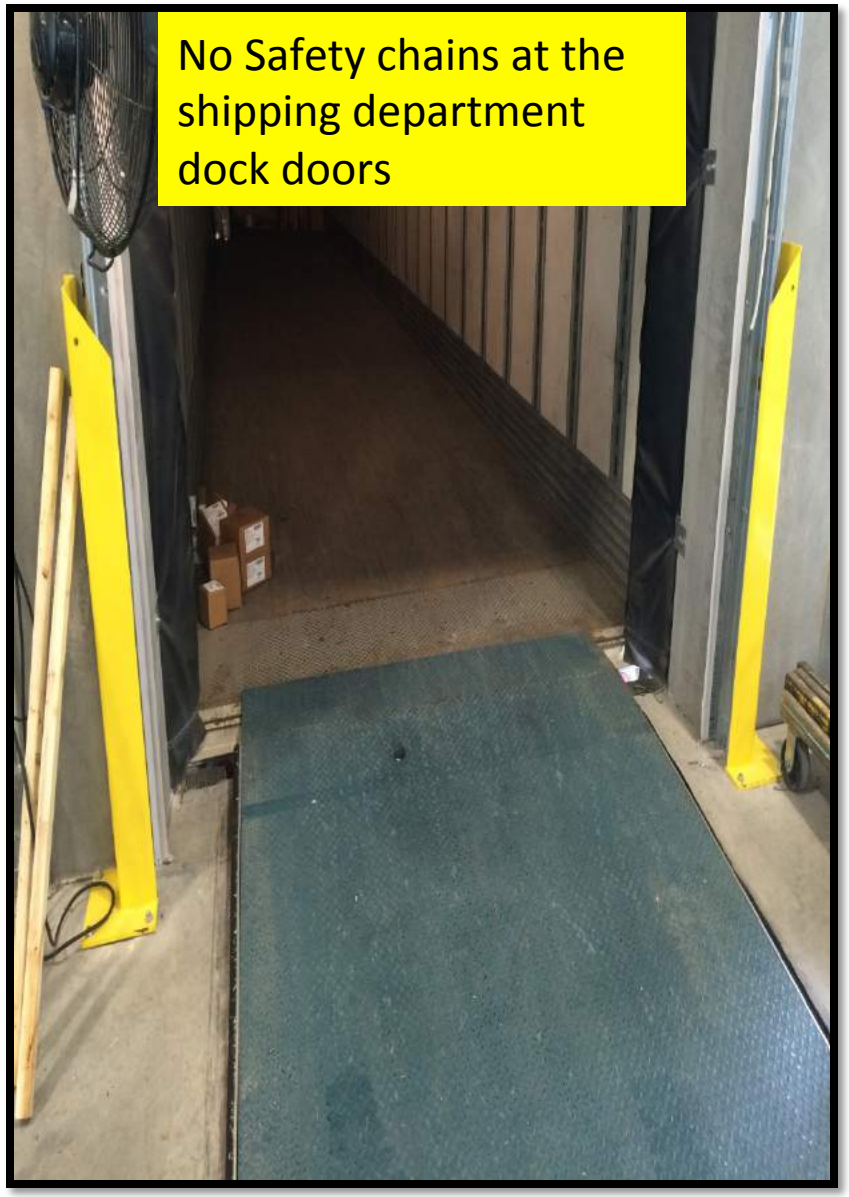

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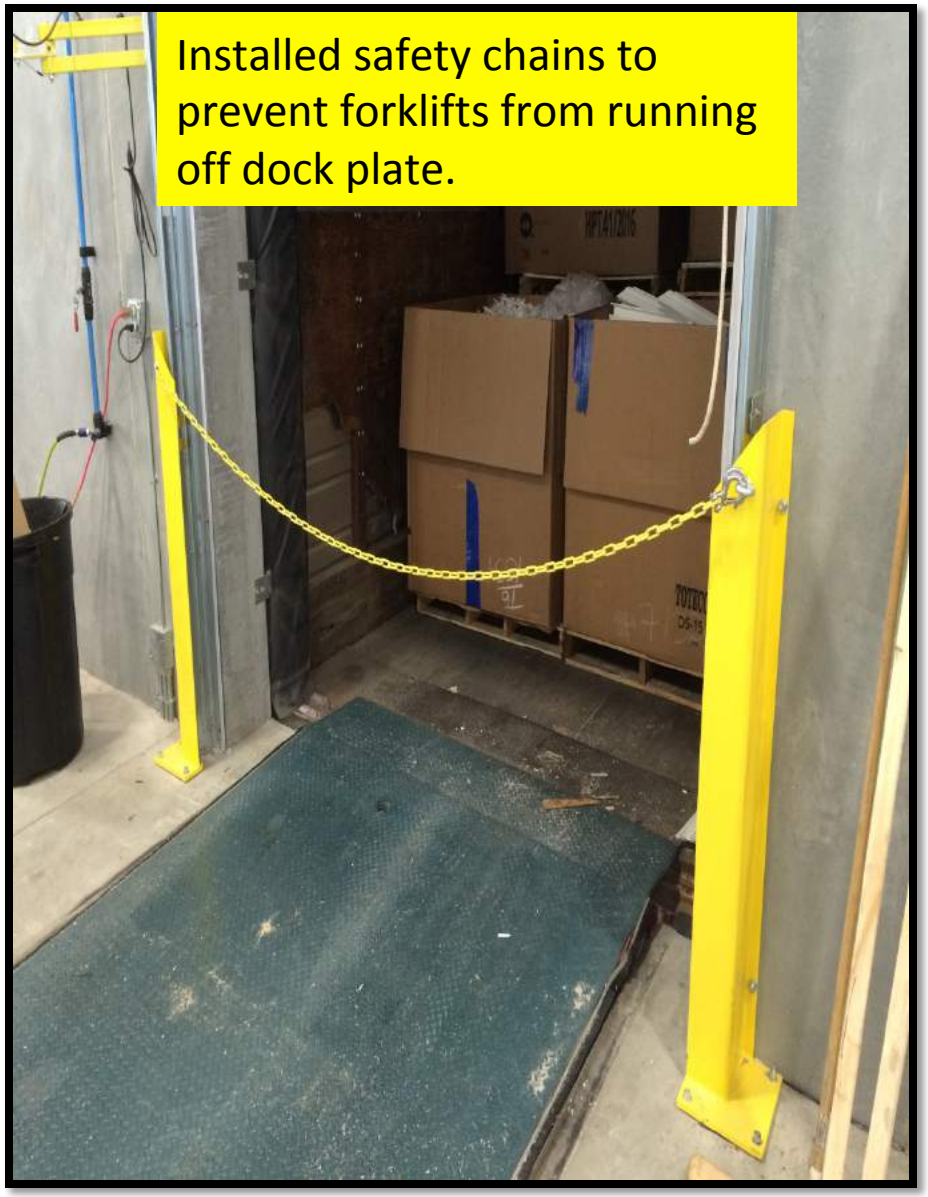


Activated Carbon Columns

BEFORE

Activated Carbon Columns are utilized to remove fatty acids from product. Previously, carbon addition was performed manually with personnel standing on a work platform, cutting open, lifting, and pouring approximately 500 lbs of carbon into the columns from 50 pound bags.

AFTER

A Bulk Sack Handler was designed and purchased for the dispensing of carbon into the columns. This allows the operators to move the columns under the dispenser and simply press a button to feed carbon from the bulk sacks into the columns. This significantly reduces the possibility of fall hazards, muscular injuries, and cuts from utility knives. Also, personnel can be further away from the dispensing, reducing exposure to carbon dust.

Proliant Biologicals, Boone, Iowa

University of Northern Iowa - Cedar Falls, IA

BEFORE

AFTER

An employee doing computer work complained of soreness in her arm and shoulder. An investigation showed that she does a lot of mouse work. In using a regular mouse, the wrist and shoulder must be turned in an unnatural position. By changing to an upright mouse, the wrist and shoulder are in a natural position. The employee reported that the pain in her wrist and shoulder is gone.

Extension on Bullnose Press

Before:

We use the bullnose press to straighten blades, when we have blades that are over 6’ in length they stick out the back of the bullnose. We have to lay a straight bar on top of the blade to verify straightness and the longer blades will tip down when the operator is trying to put the bar against his blade causing the potential for pinch points and dropped parts.

After:

We added a removable extension to the table to allow the team member to quickly put extension in place and have a solid surface to lay the blade on while using the straight bar.

Extension Table

Before:

For our long blades, an extension table needs to be put up at the end of our wash line. This process was a two person process and there is a pinch point to get it set up.

After:

We attached the extension on a hinge and added a support bar that could now be handled by one person without the pinch point.

Blade Flipper

Before:

After our steel blade gets punched, it was manually flipped on the rollers prior to entering the wash system. Operators had to flip these blades weighing up to 200 lbs. They would need to get assistance from a co-worker in order to flip the larger/longer blades. There was always an opportunity for injury during this process.

After:

We installed a blade flipper. This has automated the flipping process for blades 5’ and over thus eliminating potential injuries from flipping larger/longer blades manually.

Light/Buzzer

Before:

We have semis back into our warehouse so our operators stay out of the elements. The area that they back in to is in the middle of our shipping and receiving area and there were not any notifications to area team members when a truck was going to be backing in.

After:

We installed a light/alert buzzer on the door so there is an audible and visual alarm notifying area team members that a truck is backing into the area.

Assembly Cart

Before:

We receive pallets of parts in and there is one particular product that gets shifted while in transit and we have had a couple team members have near misses because the parts fall as soon as the bands are cut.

After:

Our team designed a special cart that the pallet goes into that has a drop down door that allows them to drop it down as they are unloaded and the cart holds the parts together so it doesn't drop on a team member.

Improved Test Room Safety

- Prior to Mi-T-M's improvements to our test rooms, the light switch and exhaust system switch were separate. This left room for human error of forgetting to turn the exhaust system on before testing machines.
- There was no way to tell if the exhaust system failed unless an employee were to notice there was lack of air flow into the room.

- Mi-T-M improved all of their test rooms by adding a visual and audible alarm that is tied into the exhaust system in the event that it fails the alarm will go off to alert employees to stop testing machines until the problem is fixed.
- Also the lights and exhaust system are tied into one switch so the exhaust system cannot be forgotten to be turned on eliminating human error.

Purchased a lift machine to retrieve boxes of paint

- Previously employees used a work platform to retrieve approx. 50 pound boxes of powder. Maintaining 3 points of contact while carrying a box of powder was difficult especially with the added weight of a large box.

- Mi-T-M purchased a machine called the Ascender to help retrieve the boxes of powder without requiring employees to carry them down a ladder. The ascender has a shelf on it to place the box of powder once it is retrieved from the racking reducing the risk of back injury and falling off the ladder.

Added warning lights to high traffic areas

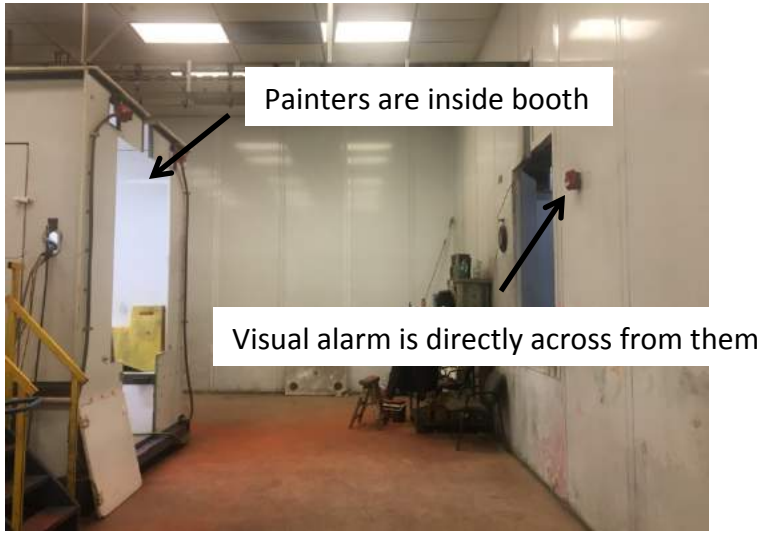
- Aisles with high levels of fork truck traffic and racks filled with boxed product cause intersections to be hard to see around when approaching them. Mi-T-M purchased 2 lights to install above the intersections to indicate if there is a fork truck or pedestrian movement from any of the other directions. The light blinks red if there is movement on the other sides of the intersection. The lights are more noticeable than dome mirrors which was another option for those intersections.

This is a four-way intersection with a pedestrian walk aisle running down the main aisle. Also right beyond where the gentleman is walking is where our material handlers unload the conveyor line of finished boxed product.

Visual Severe Weather & Fire Alarm added to paint booths

- Prior to the addition of a visual alarm it was very difficult for the painters to hear the audible alarm for fire or severe weather go off while inside the paint booth. The factors that contributed to the difficulty of hearing the alarm were that they wear air supplied suits to paint and the paint booth is inside a temperature controlled room. There are also automated sprayers running next to them in the booth.

- Mi-T-M added a visual alarm to the paint booths to alert the painters if a fire or severe weather alarm is going off. This way they do not have to rely solely on hearing the alarm but will also be notified by a strobe light going off within their view.



A rubber stopper was added to one end of all butyl picks. Butyl picks have 2 sharp ends used for cutting butyl.

Before

After

An opening where metal coil is passed through had some rough edges and created a laceration hazard. We cut the jagged edges and squared the opening and wrapped the expanded metal with some rubber gasket material.

Before

After

Ragan Mechanical, Inc. – Hazard Recognition Control
Before: When employees were using the saw to cut pipe forklifts were being driven near and around the work area. Employees could be struck by a forklift causing an injury and the saw could also be struck causing property damage.

Ragan Mechanical, Inc. – Hazard Control Recognition
After: Ragan Mechanical employees installed steel posts secured in the concrete with high visibility plastic covers to protect employees from being struck by forklifts and also protecting the saw from being struck causing damage. The high visibility covers increase awareness for forklift drivers.

Closed Wrench

Before

Team member has to remove dies from our Alpha bender about 20-30 times a shift.

After

Made a closed wrench for roll bender to remove the nut.

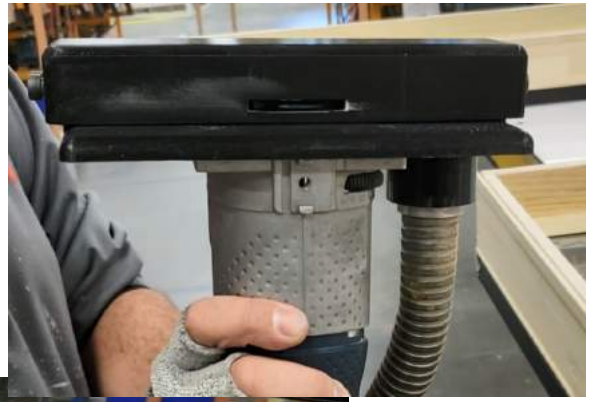
Kerf Router Vacuum Guard

Before

Kerf router had exposed blade and debris would fly everywhere when in use.

After

A guard was designed and 3-D printed to cover the blade. It is now only exposed when in use. The guard also allows for a vacuum attachment to eliminate the debris.



Portable 4-Gas Monitor

The refined fuel terminal purchased a portable 4-gas monitor

- Oxygen
- CO
- LEL
- Hydrogen Sulfide

The unit will assist in detecting the source of leaks or responding to releases and will provide an added layer of safety when performing maintenance throughout the terminal

New Piping Maintenance Tools

Location personnel are occasionally required to remove pumps and other equipment or to separate pipe connections to replace gaskets.

Piping does not always perfectly align, so terminal personnel were required to manhandle piping or use heavy equipment with chains/straps to align bolt holes in flanges.

The terminal purchased flange spreaders, brass (non-sparking) punches for bolt-hole alignment, and electrical grounding cables for bonding separated flanges.

Emergency Monitoring Upgrades

The terminal recently integrated many of their emergency notification equipment into their Simplex/Johnson Controls 24-hour monitoring system.

Previously, many of these alarms would have been localized and only notified personnel on-site of an emergency. There will now be 24-hour monitoring of all emergency systems at the terminal.

Portable 4-Gas Monitor

The refined fuel terminal purchased a portable 4-gas monitor

- Oxygen
- CO
- LEL
- Hydrogen Sulfide

The unit will assist in detecting the source of leaks or responding to releases and will provide an added layer of safety when performing maintenance throughout the terminal

Nuisance Dust Engineering Controls

Facility personnel are required to unload seven 1,800-lb. bags of urea prills into a conditioning hopper two to three times per day. Initially, dust from this process was excessive and IH monitoring was scheduled to determine if respiratory protection would be required.

Employees experimented with equipment settings and determined that the hopper and conveyor could be run at a slower speed without being detrimental to production. This modification completely eliminated the presence of dust and subsequent IH monitoring confirmed that dust was not present at actionable levels.

Secondary Entrance & Overflow Parking

The terminal was accessed through a single gate that was the only point of entry/exit for trucks.

During peak times, traffic congestion resulted in fuel transports parking in close proximity to the underground pipeline and backups on the 2-lane highway outside.

A secondary entrance was installed to relieve congestion and to provide overflow parking during peak times.

Facility Lighting Upgrades

The location added lights inside the loading rack and around the additive tank farm to improve employee visibility and upgrade site security.

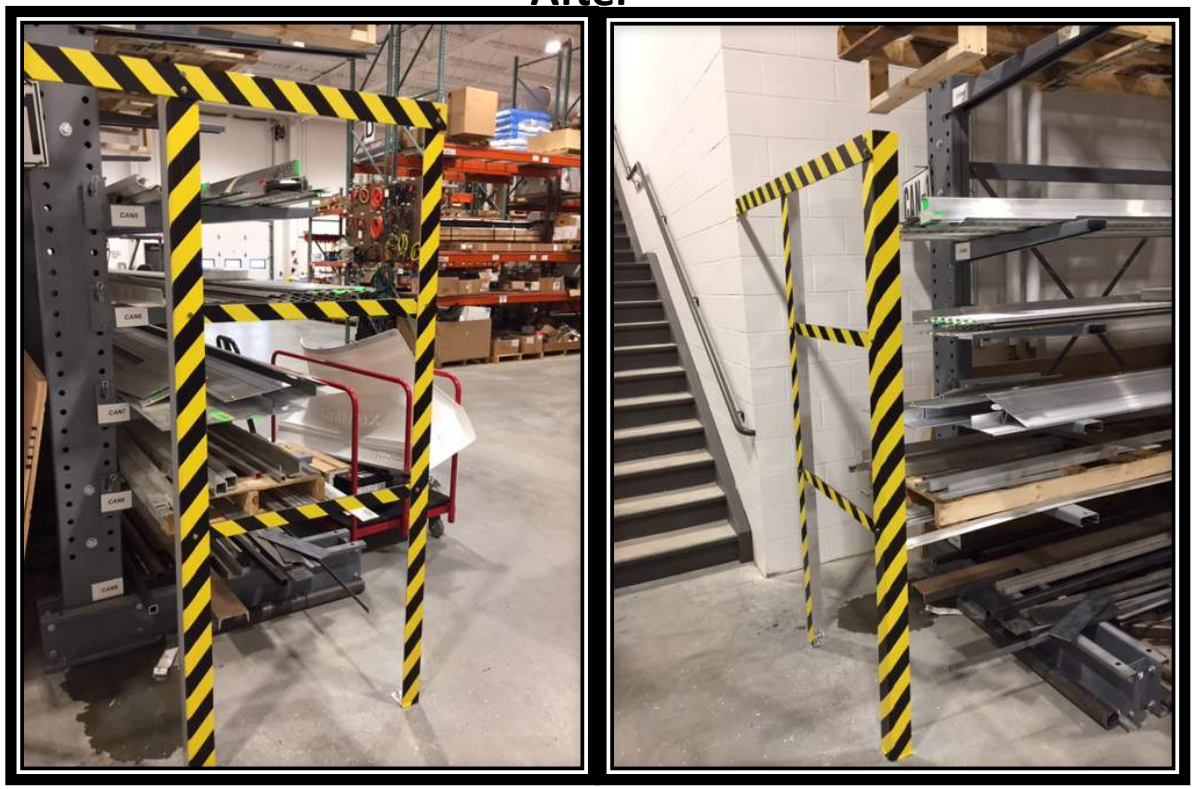
The facility operates 24-7/365, so the lighting improvements will also improve safety for drivers accessing the terminal after-hours.

After completing the warehouse in our new facility a safety hazard was discovered with our Cantilever racking system. Being positioned next to a stairway we started having near misses with individuals walking past the racking. This racking holds our metal trailer rail parts and other flat metal for use in trailer repairs. The ends on much of this is very sharp. As people would walk past, instinctively they would cut close past the racking, at times barely missing brushing up against it. In addition, our warehouse personnel at times would push the metal out even further without realizing it. Temporarily we placed yellow poles and chain to alert others, however, being light weight, they would many times still get moved.

To alert others of the hazard physically and visibly on a more permanent basis we installed a bolted down barrier and wrapped it with yellow and black caution tape. Not only does it force individuals walking by to bypass further way from the hazard but it also provides a visible mark for warehouse personnel to use when loading the racking.

Before

After



After moving to our new facility we realized that many of our trailer jack stands were not only old and cumbersome but also handmade (made out of trailer dolly legs, making them hard to inspect and risky due to not knowing rate capacities. While they worked for years, the shop decided it to purchase new jack stands that crank easier and are easier for employees to move. Additionally, we implemented an inspection program where all stand equipment is numbered and inspected on a monthly basis to supplement user inspections.

Before

After

Eliminate leaning over equipment to reach controls

Before

After

Had to use step ladders to work on Baghouse

Before

Safety solution

Lid falling on tank

Safety concern

- The lid on a holding tank would fall if it was not held up by an employee.
- A locking lever was installed to the lid so that it can be propped open when need be.

Safety solution

Acid and Chlorine lines together.
Separated lines and ran in conduit.

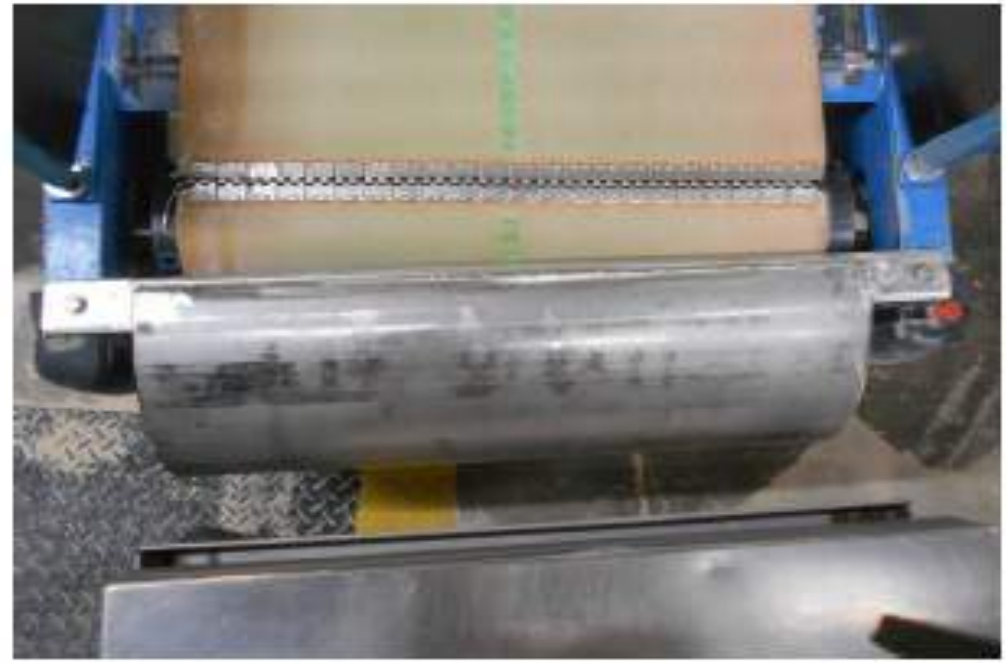
Safety concern

Safety solution

Guard on Conveyor Belt

After

Before



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.

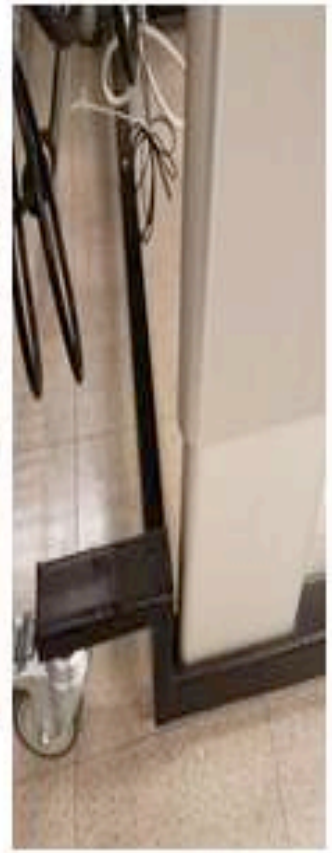
After

- Shielding
- Anti-Restart

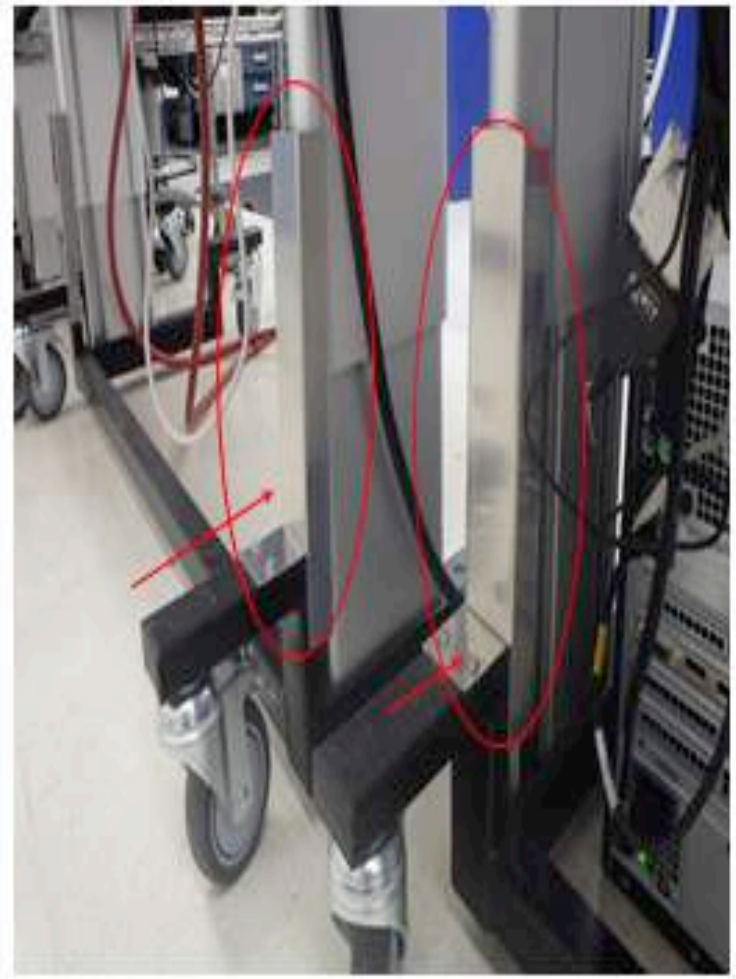
ELECTRICAL SHOCK AND COMPRESSED AIR HAZARD IDENTIFIED

Adjustable workstation pedestal bases posed a pinch hazard for electrical cords when adjusting height periodically. The pinch hazard has the potential to damage electrical cords/insulation creating electrical shock hazards.

Containment, including workstations for 200+ employees, was managed via shoring up slack in cords and air lines. Then, by installing the cover, we eliminated the pinch hazard entirely.



Actual photo of guard, in place.
Steel guard secured with 2 bolts.



Hazard control

- Shadow Boards have been implemented throughout our entire facility.
- The Shadow Board provides a location for all of the tools while ensuring the safety of our employees and our product.
  - The organized tools allow for quick and safe access by eliminating hand and finger injuries.
  - Every tool has a home location, ensuring all tools are returned.

Before

After

Product Assembly Improvement

Original Process

Employees used floor jack to raise Portable Grain Dryer to install axel sets.

Employees repeated process at each corner of the unit.

Jack required 25 pumps to reach required height

Process consumed several minutes for each cycle.

Recognized Hazards

- Fatigue
- Repetitive Motion
- Over Exertion
- Strains

Improved Process

Employees now use two Airbag Jacks installed on spring loaded castor frames.

Employees effortlessly move the Airbag Jacks into position.

Both jacks are controlled with one hand operated valve. Physical exertion is minimized

Results

Eliminated hazards associated with physical exertion

Reduced cycle times to less than 60 seconds

Material Handling Improvement

Original Process

Moving Portable Grain Dryers during assembly

Several employees pushed dryers up to 60 feet.

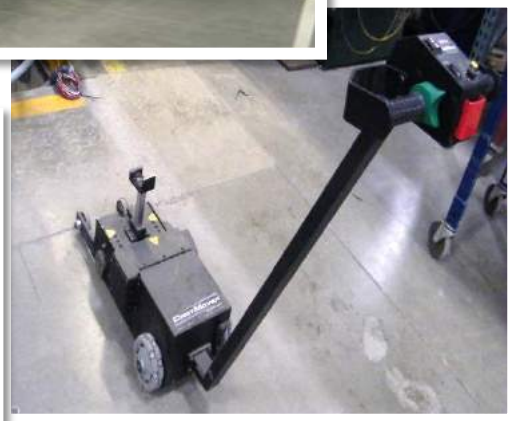
Employees divert from assigned task to assist with moving the dryer

Recognized Hazards

Strains
Muscle Fatigue
Excessive Pushing and Pulling
Over Exertion
Falls at same level

Improved Process

Purchased a cart mover that allows one employee to easily move a dryer with one hand.
(Just showing off)



Results

Eliminated hazards associated with physical exertion

Reduced cycle times

Material Handling Improvement

Original Process

Employees would lift, carry and slide heavy saw horses across the floor to position them.

Recognized Hazards

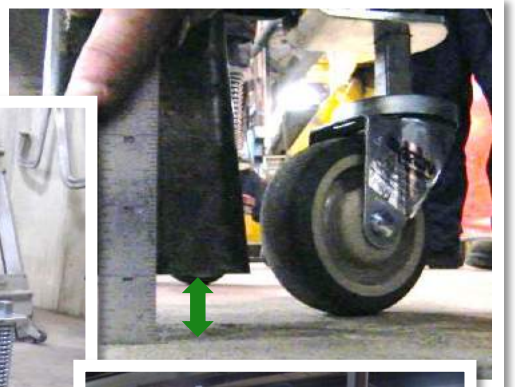
Muscle Fatigue
Strains
Over Exertion
Excessive Pushing and Pulling

Results

Eliminated hazards associated with physical exertion.

Improved Process

Saw horses are now equipped with spring loaded castors



Process Improvement

Original Process

Mechanics used an air jack to lift the back end of industrial trucks to preform routine maintenance.

Employee would then lie on a mechanic creeper to perform maintenance.

Improved Process

Installed a industrial truck service lift to perform routine maintenance.

Employee now drives industrial truck onto the platform and adjusts the height to the task.

Recognized Hazards

Crush
Cumulative
Trauma

Results

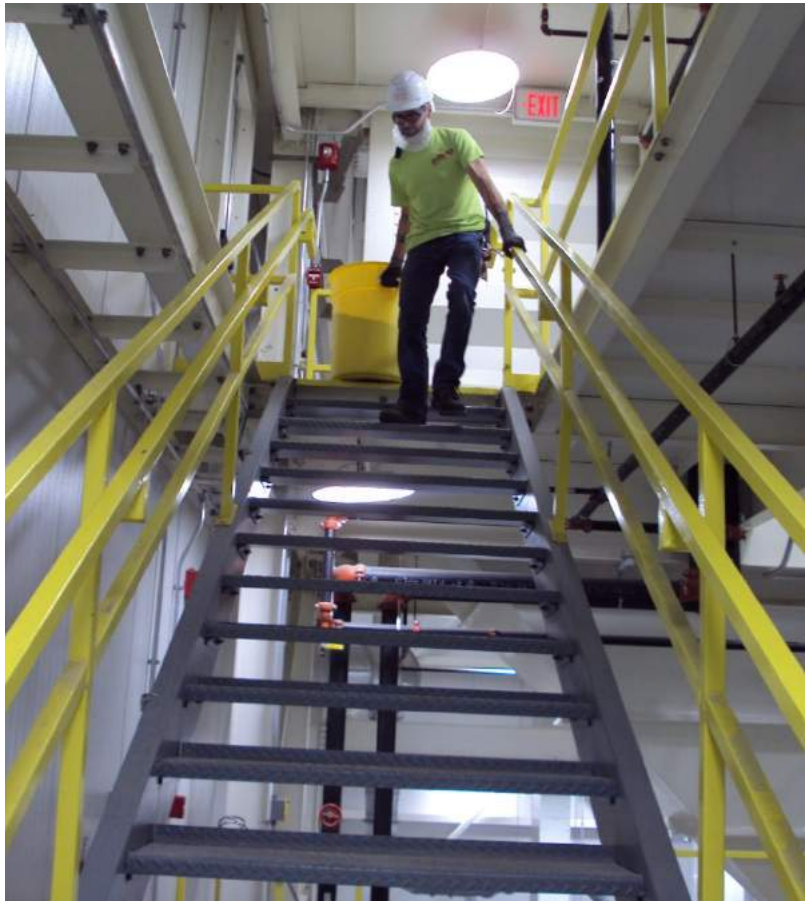
Minimize Crush Hazards
Adjustable Work Heights

Patient Lift Device

Our facility is an outpatient clinic. With the demographics of our current staff, there is a limited number of individuals available to safely lift and transfer patients. These individuals expressed concern about the potential for injury to themselves and also the patients. Many of our immobile patients that present to us for care are wheelchair bound which does not allow us to use sliding type patient transfer devices found in many hospital settings. As a result, finding lifting devices that would work for our facility was very difficult. After much research, our facility decided to purchase a Niklas Free Standing patient lift. We received a $2,500 grant to help us secure the equipment and required training to use it. Since it has been in use, both our employees and our patients have expressed how beneficial implementing this equipment has been.

Before Seed Waste Chutes Project

- During the cleaning and roasting of our seeds product, the seed must travel 7 flights of stairs, at each level of the cleaning/roasting process waste seed (due to informalities) is “kicked” off into waste barrels. Before the chute project was implemented employees were required to perform an hourly check which consisted of manually handling the waste barrels. Employees would “drag” each barrel down multiple flights of stair to the ground level where they could then be dumped into a waste tote, only to repeat the process again the following hour. This could mean traveling up an down 100’s of steps daily and the waste barrels weighed up to 150 lbs., creating a huge safety concern.

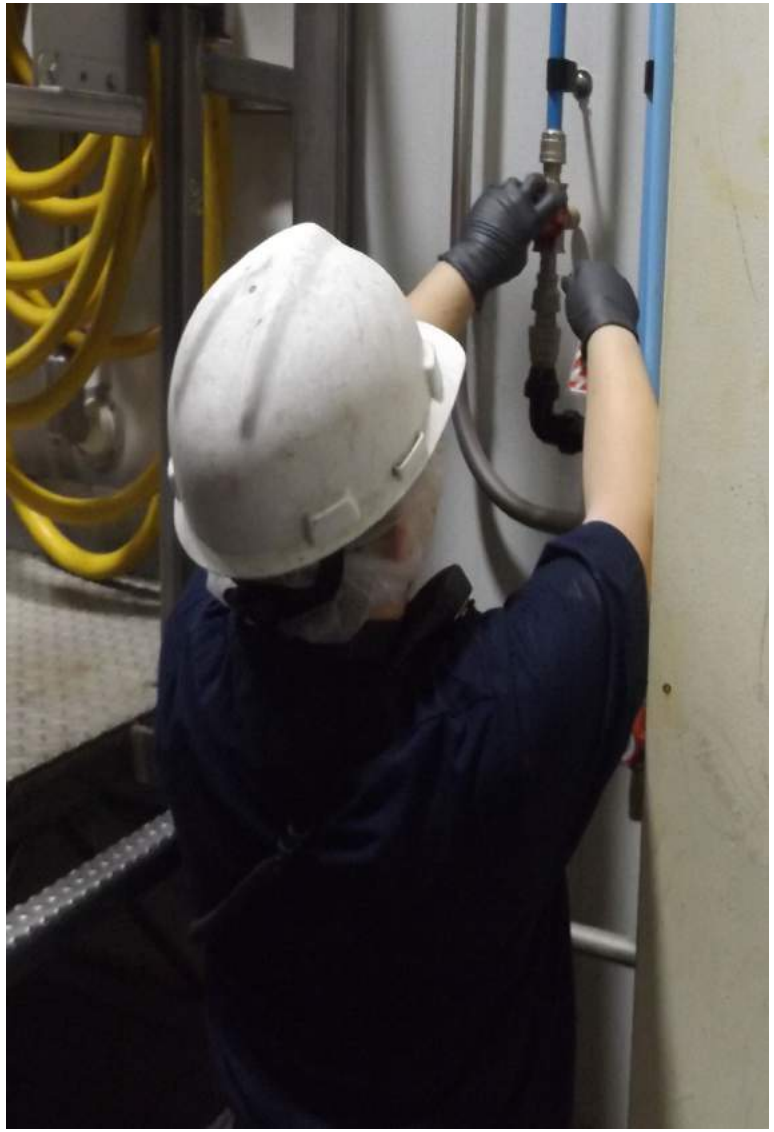


Addition of Seed Chutes

- To mitigate all of the safety risks that came with the original process, it was decided to develop a chute system that would take away the “waste” seed. Now this seed is taken from each level through a tubing chute system and dropped down to the main floor into larger wheeled totes.
- Not only have these chutes greatly reduced the safety risks that came from manually handling these heavy barrels, but by eliminating this time consuming, risky task, employees have considerably more time to safely manage other tasks associated with their job duties.

Before LOTO Relocation Project

- Our facility had several locations in which performing lock out tag out was made difficult due to the location of different lockout points. Some locations required a technician to locate a ladder and bring it to the lockout point all of which took extra time, and would sometimes lead to rushing. This process was frustrating for our technician's. The thought process for our facility is that the easier we make it for our employees to do the right thing the better we can insure compliance (This picture is one before example of several relocations we did, this airline LOTO point was located on the top-side of one of our roasters).

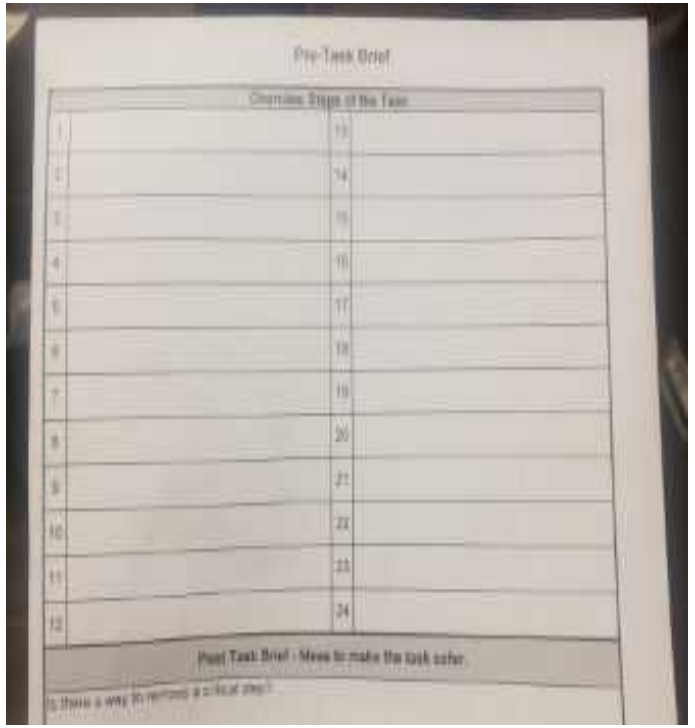


Relocation of Lockout Points

- By identifying these areas and working with both engineering and early equipment management, we were able to not only relocate these hard to reach lockout points but mitigating future risk by reiterating to these groups the importance of having convenient locations for lockout points. (The picture is the new location of the previous lockout point picture.)

L & M saw the need to do a better job of labeling our high pressure bottles. We have decided to make color coded tags that tell what state the bottle is in for safer and better handling. In-use, empty, or full. Knowing the difference between full and empty is very important.

L & M partnered with a local company and sent some of our employees through H.O.P. training. Very insightful and I believe all employees gained safety knowledge and realized a better way to incorporate safety into everyday!



L & M Committed to a project with safety and ergonomics at the forefront. We have a plas cutting table that we use to cut patterns out of metal. It was very hard for employees to lift the full sheets sometimes needed to the table. So, we decided to install a trolley to lift metal to the table and installation will begin soon!!

L & M has decided to number and label all welding machines. We are doing a better job of tracking routine maintenance and repairs with this system. Cutting down on handling and having to make repairs in the field. This also helps maintain fluid levels and keeps an eye on our environmental policy for machines.

Ventilation Improvement

- As a foundry, we experienced several heat related illnesses in summer months. We invested in a large ventilation improvement project which:
  - Improved comfort and air quality in the foundry
  - Reduced heat related illnesses to zero illnesses
  - Generated very positive feedback and appreciation from employees

Lifting System

- ATEK is growing and beginning to cast new products which are heavier than we want our employees to handle. We implemented a lifting system which:
  - Eliminates need for manual heavy lifting
  - Reduce risk for strain injury
  - Improves employee satisfaction

Safety Mats

- Creatively utilized weight sensitive mats manufactured by our sister company as a safety device on our molding machines and melt stream delivery carts
- These mats replaced a metal safety platform that often created a slip hazard when they were dirty, and would also stick and stop functioning

- http://atekmetaltechnologies.com/downloads/Modern_Casting_ATEK_Metal_Larco_Safety_Mat_article.pdf

Hazard Control Recognition Award

The site has several different trucking companies hauling product in and out of our warehouse, and with inconsistent and damaged under-ride bars our current dock locks did not always match up and hold the trailer secure.

We purchased Rite-Hite stabilizing trailer restraints. This type of dock lock adjusts to any height under-ride bar and a steel hook wraps around the trailer bumper securing the trailer to the dock. It also features a stabilizing bar to prevent trailer creep. The employees have found these restraints to be much more secure and help eliminate the chance of a truck pulling away from the dock.

Hazard Control Recognition Award

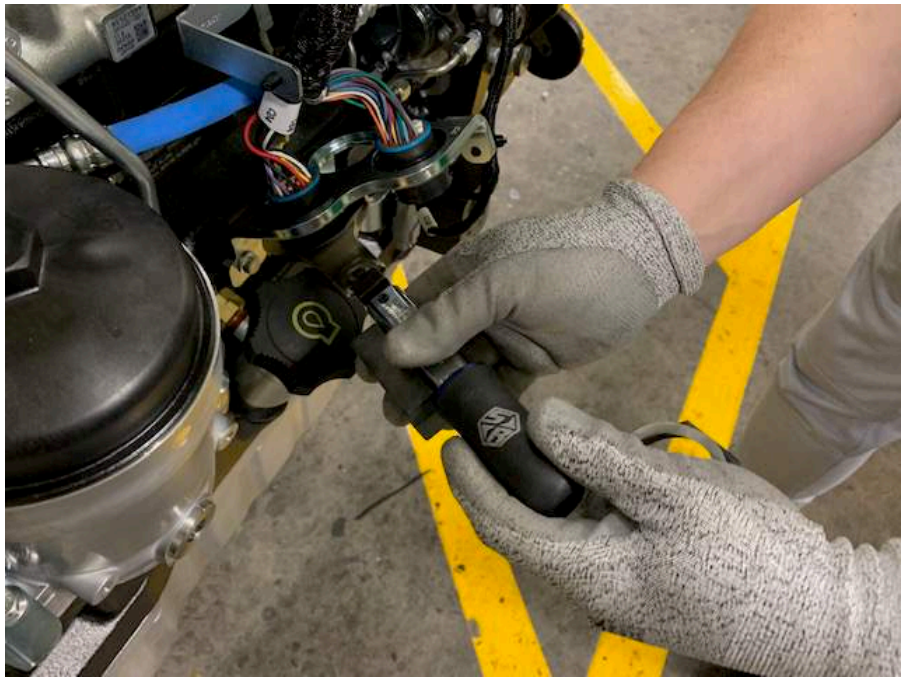
We had recognized that our site confined space training was not as exciting and informative as it once was, employees had a hard time paying attention, and were not getting much value out of it.

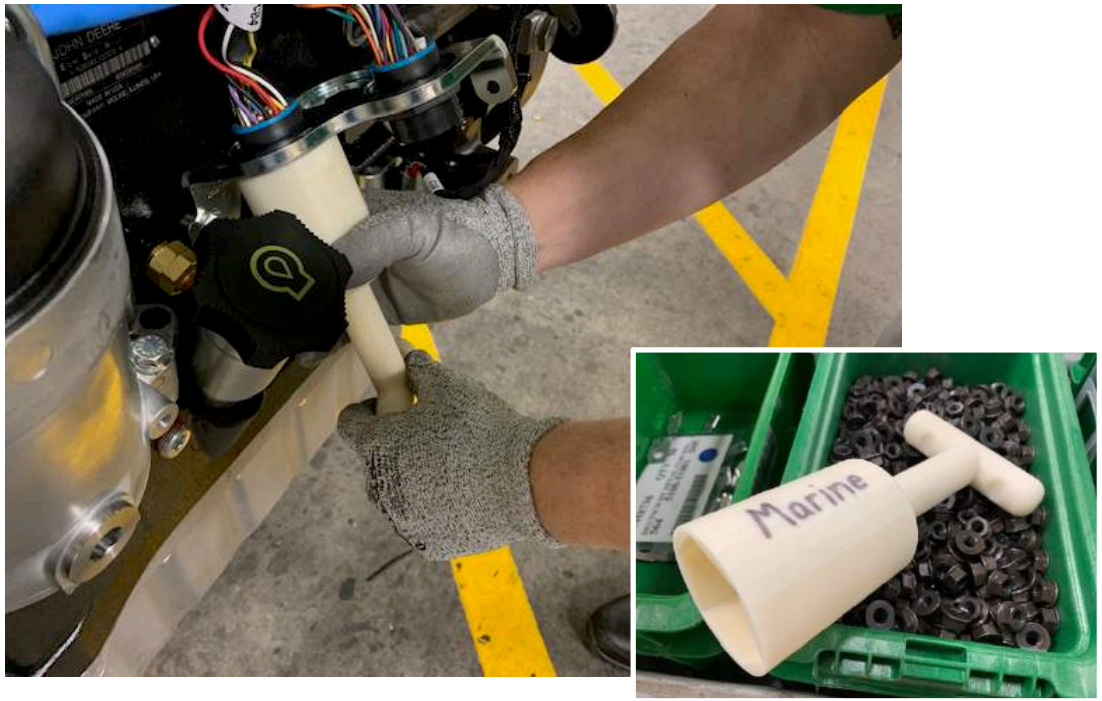
This year we brought in Eric Thompson with the IA/Ill Safety Council. The training was much more interactive and informative. Our employees truly benefited from Eric's knowledge.

3-D Cap Screw Tool

Two larger screws need to be tightened in a location with very little space for hand movement. The 7 nm torque tool needed to be ratcheted 10-15 times in small, repetitive movements.

A tool was made using a 3-D printer. It allows the operator to torque the cap screw in 2 turns. The torque amount is not critical so the thickness of the material was engineered to break if the screw is over- torqued.





Reusable Masking

Tape was being used to mask dipstick tubes before the engine was painted. After it was painted and warmed the tape became brittle and difficult to remove. Operators hands became tired applying and, mostly, removing the tape.

The tape was replaced with reusable masking. The rubber-like cover is unaffected by paint or heat and is very easy to apply and remove.

Order Picker Step

Part runners lift full totes off an order picker shelf. Shorter part runners have difficulty lifting because the totes are at or above shoulder height.

A pull out platform was fabricated. It raises the part runner 12 inches so they are able to lift closer to waist level. A light near the order picker controls let's the driver know when the shelf is extended. This helps ensure it is pushed back in to prevent damage to the platform while moving.

Reducing Extended Reaches

Two processes required operators reaching over 25 inches using lifting devices: Loading engine heads onto a fixture and loading and removing cranks from treating and washing.

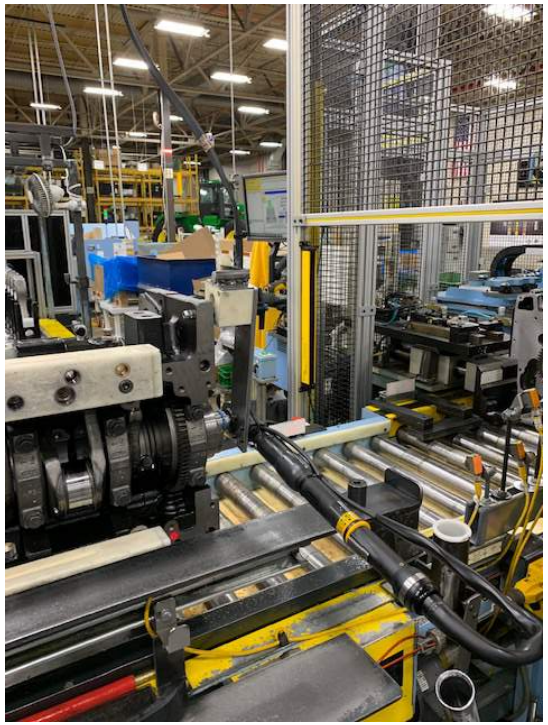
Extensions were added to both lifting devices. Reaches were reduced to 18 inches or less. The reduced reach also keeps the operators from leaning against the conveyor and machinery.

The crank device also features a handle that swivels so the operator can change orientation between processes.

Powered Crank Turning Tool

Operators were required to turn cranks of engines manually using a socket wrench. The pull force required averaged 18 pounds and the crank was turned up to 12 times per engine and around 800 times per 8 hour shift.

A powered tool was designed and hung from a balancer. With their arm in a neutral position, the operator turns the crank with the push of a button.



Flint Hills Resources Davenport Iowa

In recent months we have found our employees needing to work on top of the heating unit's economizer stack. The unit does not provide suitable tie off points. (See picture to the right) The operations team completed a management of change meeting and even though the area was less than 6' but over 4' the decision was to install permanent hand rails with toe plates. See the completed picture below.

Heating Unit W/O Handrails

Heating Unit with Handrails

Work in this area is directly related to maintenance and proper testing of critical interlock devices directly related to mitigating process safety risk.

Part of a steam system improvement project included the addition of a condensate pump trap located in a building occupied by working employees. The piping and tanks associated are extremely hot and could not be effectively insulated while still maintaining proper function. The solution was a manufactured guard that eliminates burn hazards, while still allowing access to authorized employees for maintenance and repair.

Flint Hills Resources Dubuque Iowa

Identified Risk

The pipe crossovers at our facility are in place to help us gain access to areas of the facility that pose ergonomic constraints or challenges when conducting work tasks. Our original versions were made of wood and had started to deteriorate over time causing them to become weak allowing movement in the structure when accessed. These structures also posed the potential to cause hand injuries due to splinters in the wood handrails as well as slick stair treads in the winter months.

Solution

Recognizing these potential hazards, we looked into options to replace the existing crossovers that were in place. We started by working with a local vendor that could accommodate some of the custom cross-over needs we were faced with. We decided to make the investment into steel structures that could be provided by a local fabrication vendor. These structures provide a low maintenance galvanized coating, stability, slip resistant stair treads and smooth handrails to address all previous integrity concerns. This design truly meets and embraces employee *safety first and* gives us the comfort to concentrate on our daily work tasks.

Flint Hills Resources Dubuque Iowa

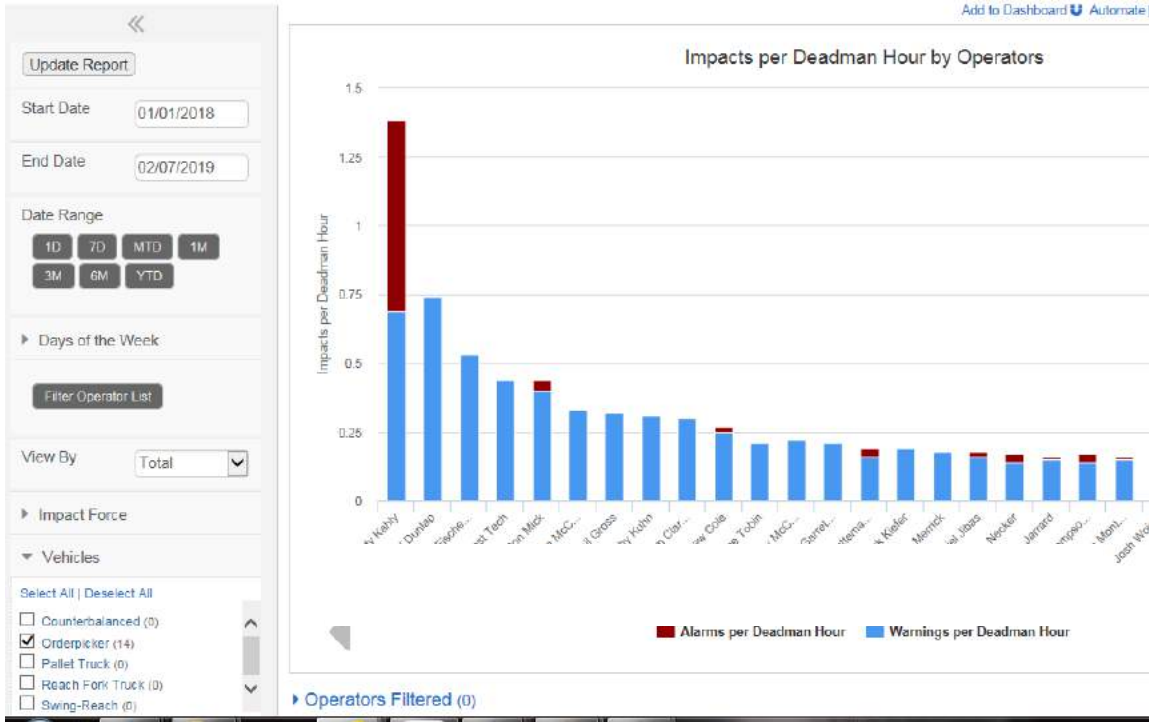
Identified Risk

To ensure optimal efficiency of our steam boilers operation, we run a series of tests on a weekly basis where we need to get a water sample from the boilers make up water. Our previous design required us to take a sample directly from the boiler at an elevated temperature of approximately 200 deg. Even though proper PPE is worn as a layer of protection, we wanted to find a better way to reduce the hazard of handling hot samples of water to perform this type of task.

Solution

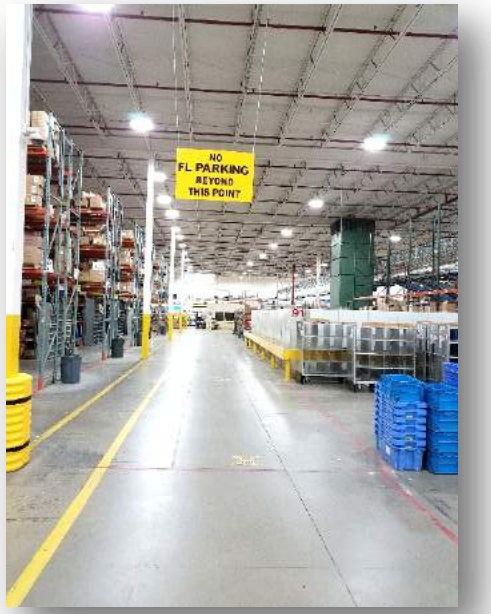
In tasking ourselves with finding a safer way to pull samples. We worked with our 3rd party boiler treatment vendor to help us identify any industry equipment solutions. By doing this we were able to learn of a unit called a “sample cooler” that is put in on an in-line sample stream. This piece of equipment was able to bring our sample temperature down from +200 degrees Fahrenheit to approximately a 70-degree sample temperature. This was a great example of challenging the status quo with the current way we were performing a routine task. This solution created a safer way of handling our samples reducing the previous temperature hazards dramatically.

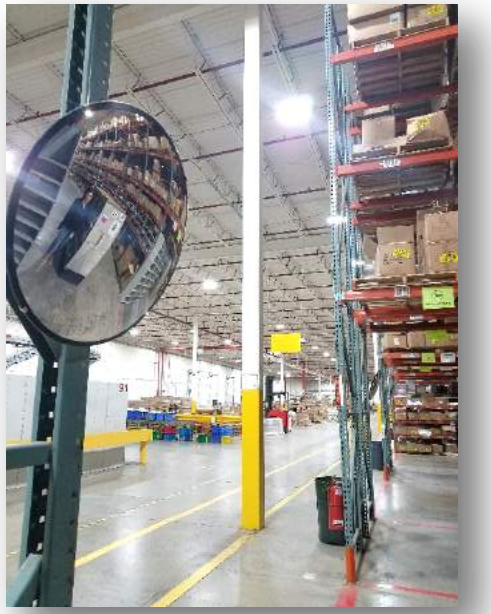
Forklift Management System



Colony Brands – Peosta had just under 190 forklift operators in 2018. Of those operators 111 of them were brand new drivers. To go with a very thorough training program, Colony Brands, Inc. installed I-Warehouse a forklift management system to 40 forklifts in Peosta. This system has allowed the facility to use training speeds on forklifts allowing drivers to get familiar with driving a lift before going full speed, track training expiration dates, eliminate the potential for unauthorized use of a lift, monitor forklift inspection times to ensure the drivers are thorough, and track impacts to identify and coach aggressive drivers.

Forklift / Pedestrian Traffic Team





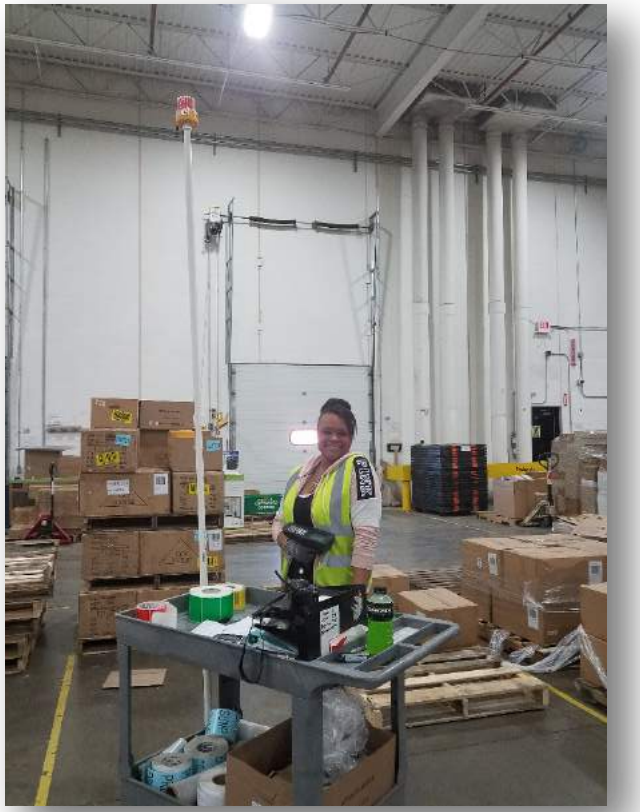
Colony Brands – Peosta in 2018 reached capacity limits unseen in prior years. This caused a large amount of forklift traffic, pedestrian traffic, and general storage issues. To combat these concerns, the Peosta facility developed a team of individuals who meet quarterly to identify problems, find solutions, and in general improve forklift / pedestrian traffic patterns. In just one year the facility has started a 5S floor storage program, created safer traffic patterns that remove forklifts from pedestrian spaces, increased visibility, opened up drive aisles by moving all equipment to a single side , adding cart traffic only aisles, altering forklift parking to decrease forklifts in high traffic areas, adding more red stop lines to blind intersections, and removing forklifts from predominately pedestrian areas.

Forklift Driver Coaching

Operator	Impacts	Alarms	Warnin	Impacts	Deadma	Orderpicker	Pallet Truck	Reach Fork Truc	Counterbalance	Swing-Reac
Driver 1	22	2	20	0.52	42.1	21	0	0	1	0
Driver 2	19	0	19	0.58	32.78	19	0	0	0	0
Driver 3	16	1	15	0.54	29.8	15	0	1	0	0
Driver 4	13	0	13	0.46	28.23	12	0	1	0	0
Driver 5	14	0	14	0.36	39.1	9	0	5	0	0
Driver 6	9	0	9	0.26	34.03	9	0	0	0	0
Driver 7	8	0	8	0.17	46.61	8	0	0	0	0
Driver 8	8	2	6	0.2	39.76	8	0	0	0	0
Driver 9	7	0	7	0.12	59.61	7	0	0	0	0
Driver 10	7	0	7	0.16	43.81	7	0	0	0	0
Driver 11	7	0	7	0.35	19.94	7	0	0	0	0
Driver 12	10	2	8	0.17	59.45	6	0	3	0	0
Driver 13	6	0	6	0.13	44.7	6	0	0	0	0
Driver 14	23	0	23	1.58	14.54	5	10	0	8	0
Driver 15	13	1	12	0.36	35.66	5	0	8	0	0
Driver 16	33	2	31	0.76	43.56	4	25	0	4	0
Driver 17	12	1	11	0.27	44.77	4	0	8	0	0

Colony Brands – Peosta has taken the data from it's forklift management system and broken it down further to allow drivers to be rated and compared by type of impact, frequency of impact, and lift type. This information has allowed the facility to determine what drivers need to be coached, what drivers are good on which lifts, and which drivers excel from a safety standpoint. Positive and corrective coaching both occur to improve driving habits throughout the facility. Since implementation of the I-Warehouse system a downward impact trend was seen in 2018.

Visibility Project



Colony Brands – Peosta wanted to increase the visibility of pedestrians in the workplace. This was accomplished though adding high visibility vests to all employees in forklift areas, adding strobe lights 12 feet high on all carts, requiring carts to be with employees performing functions in forklift zones, and adding LED lighting to the entire warehouse that increased the foot-candles of the building in some areas over 15 foot-candles.

Stellar Industries 3 D Printing

2018 brought new and exciting ideas to the Stellar manufacturing floor and the world of safety. With the purchase of two 3 D printers. We quickly found ways to ensure personal protection adding soft plastic to areas eliminating blunt or sharp edges throughout the shop floor. These are just a couple of examples of making a safer place to work.

Stellar Industries 3 D Printing

In addition to personal protection. Stellar engineers started looking at 3 D printing and how it could be used to improve ergonomics by reducing the weight of our weld fixtures.

Taking 100 pound weld fixture made out of steel and transforming them into10 pound weld fixture made from heavy duty plastic material called PLA.

Stellar Industries 3 D Printing

3 D printing was used to develop and make light weight templates used throughout the shop. These new light weight replaced older heavy metal templates.

Stellar Industries Kanawha Plant
Easy Arm Intelligent Assist Device

Ergonomic concerns; Placing parts in and out of our small shot blaster.

The G force lift devise. Makes it easier to lift larger pieces of metal out of the unit. Reducing the possibility of back strains

Solution:
Easy Arm lift Assist and the G force lifting devise

Fall Protection (Before)

- Roofers and other trades are typically left to figure out proper fall protection on their own.

Fall Protection (After)

- Russell has begun purchasing and installing permanent anchor points for all trades to utilize during construction.

- These will be left in place after construction is completed.

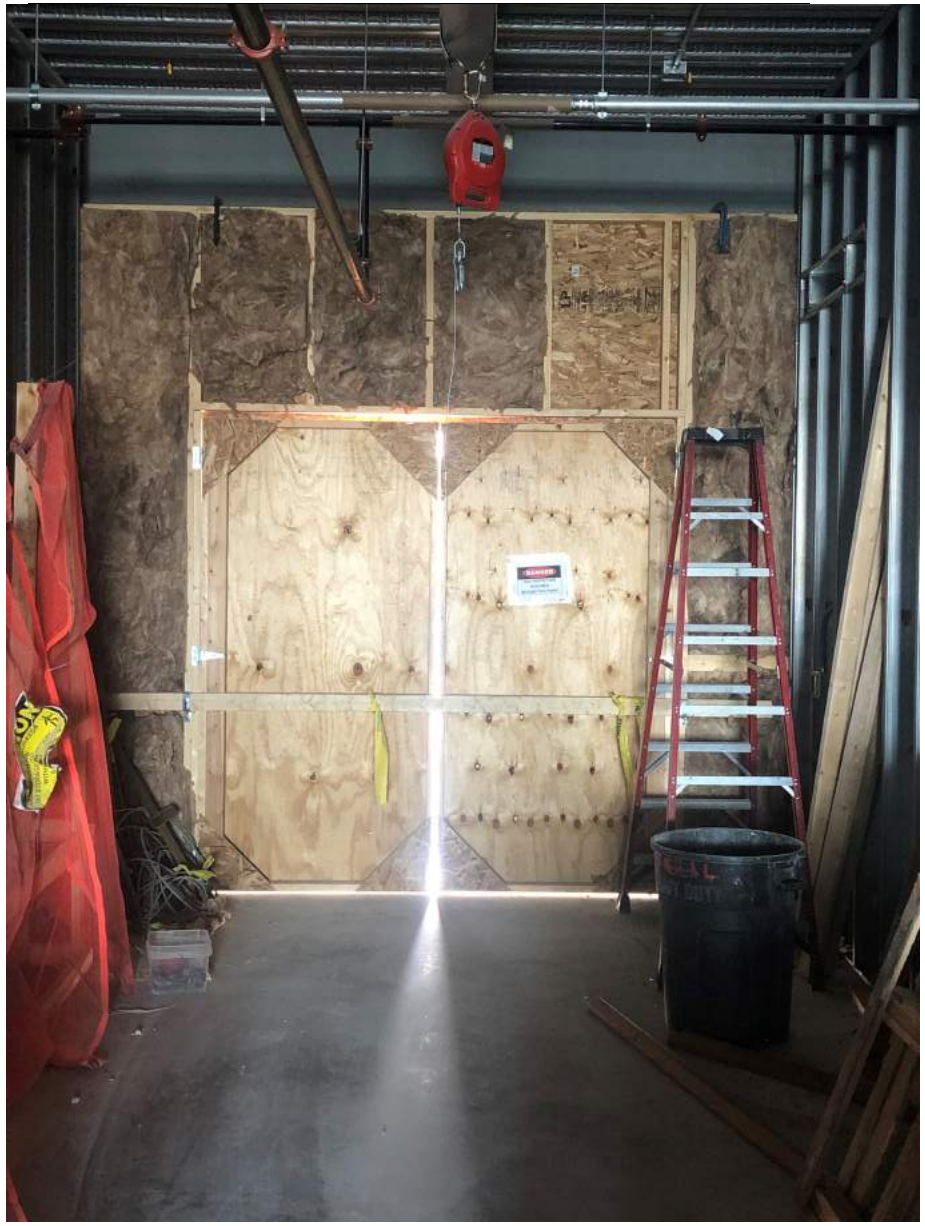
Fall Protection (Before)

- Other trades are typically left to figure out proper fall protection on their own for material access points or try to get by without it.

Fall Protection (After)

- Russell has begun installing temporary anchor points and SRL's at material access points on multi-story buildings for all trades to use.

- Additional fall protection signage is also installed.



Iowa Select Farms

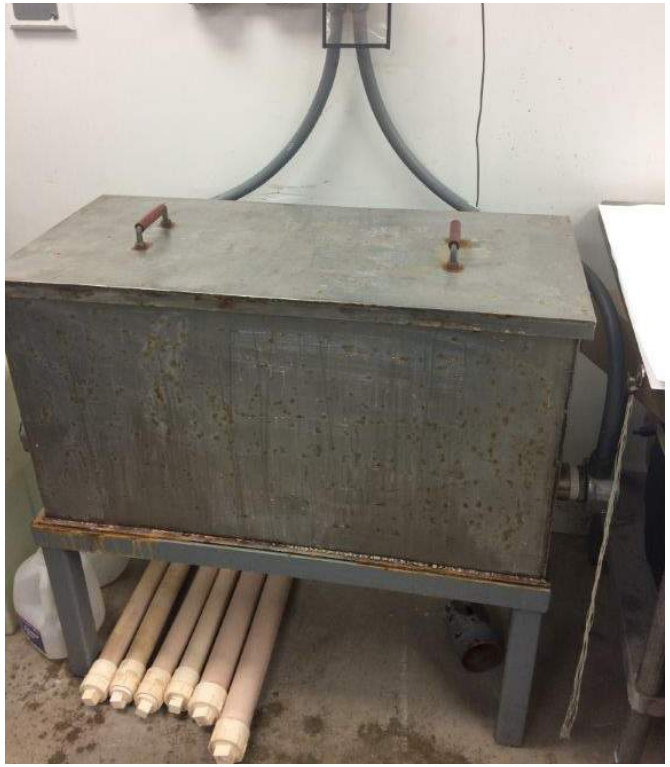
Everyday Iowa Select Farms employees do thousands of animal movements across the company. All these movements are one of the biggest hazards the employees face. We had already implemented sort boards to protect the employees as well as the animals, but we decided we needed to integrate some other ideas to help. These ideas included man pass gates as well as a 2 lane highway system in the hallways between barns. The man pass gates allow an employee to get out of the way if needed, or to access an area without having to open a gate or climb over a gate. The highway system allows employees a clear path away from the animals, or the ability to move animals each direction without coming in contact with others. This has greatly reduced injuries and near misses from moving animals in our sow farms.

Man pass gate

Highway System

Several ovens and boiling water tanks around the lab were labeled with “Hot Surface” stickers to relay the hazard to those in the area to the hot surface.

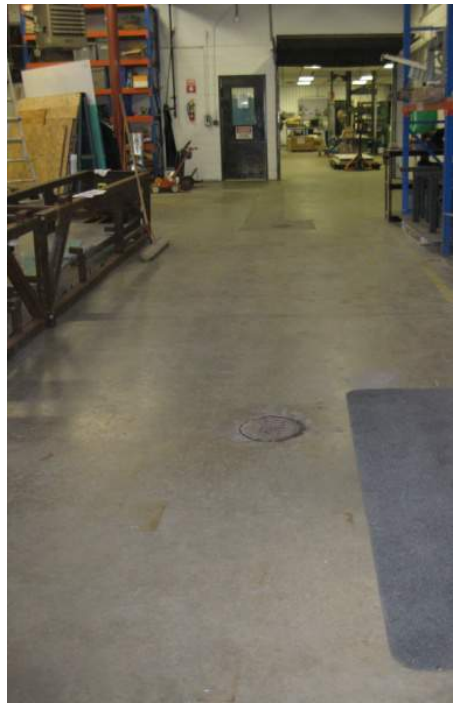
Before

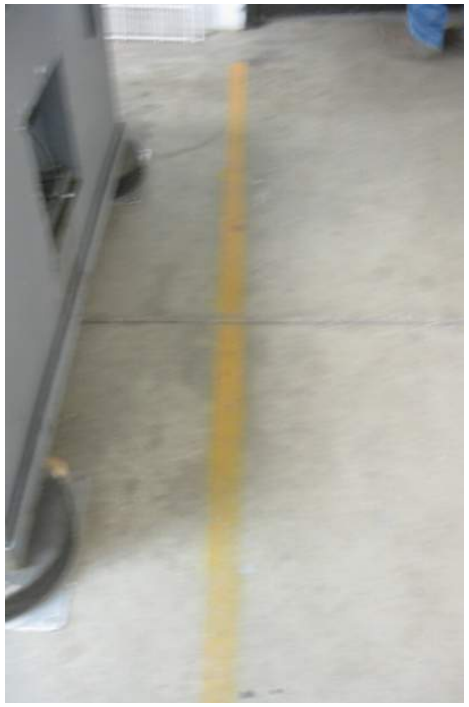


After

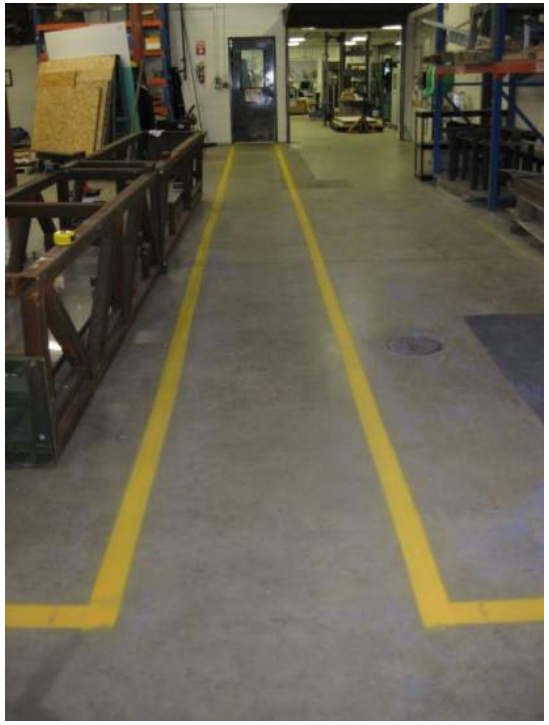
The walkways throughout the building were faded or had been shifted due to reorganization . Some areas used to be marked with fencing that is no longer present due to movement of testing fixtures. Proper walking aisles were marked throughout the lab to designate the safe walking path through the area.

Before





After



Pallet racking for the storage of larger testing fixtures and setups was missing load ratings and was not secured to the ground. All racking was secured and load ratings were determined and clearly marked on the shelves.

Before

After

Unpackaging 8’ Entry Door Panels

Before

During the winter months, 8’ panels are shipped in wooden crates on their side. Team member manually unbox, tilt panel up, stand it upright and then slide it into a panel container. These panels are very heavy and some are concrete panels.

After

Designed a metal crate to hold the wooden crates, then used a fork truck with rotating forks to tilt the panels upright and then the team member can easily transfer the panel into a panel container. Manual lifting was completely eliminated.

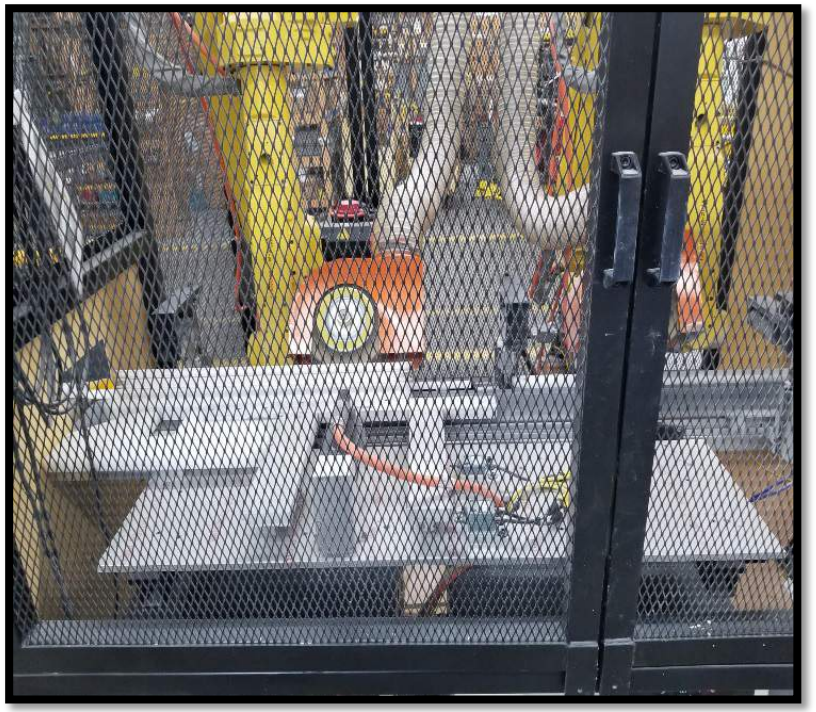
Prefinish Sanding

Before

Team members had to hand sand every painted part as it came out of the oven before it transfers to the top coat booth. This was an estimated 3,000 parts per shift.

After

A Robotic Sander was designed and installed which sands the parts as they come down the conveyor to the top coat booth. The robots are programed to adjust the position of the sanding heads depending on the profile of the part being processed.



Iowa-Illinois Safety Award
Hazard Recognition
Skyline Center, Inc.

Skyline Center, Inc., identified a safety issue concerning Forklift Operators inadvertently striking a structural support beam. The beam was located in our warehouse area and in close proximity to the loading dock. Since the beam could not be relocated, Skyline installed a cement barrier and painted the barrier bright yellow to maximize visibility. 0 forklift incidents have occurred in the last 6 months since installation.

Overhead Door Switches in Control Room

- We installed remote switches in the control room that can activate the overhead doors in our fermentation & general process areas. It gives us the ability to vent any excessive buildup of CO2, CO, or smoke without subjecting team members to potentially hazardous air conditions. Coupled with a CO2 sensor in the fermentation area that alarms in the field and control room, we are able to safely alleviate the risk of harmful respiratory exposure.

Emergency Response Trailer




We have designed an emergency response trailer to give us the ability to quickly and efficiently respond to spills at our facility.

Some of the tools the trailer is equipped with include: fire hoses, a small generator, trash pump, Caution/Danger tape, cones, absorbent booms & rolls, an inflatable plug, and hand tools.

This trailer acts as a centralized and mobile one-stop shop for any reactive tools to mitigate spill events.

Cardinal IG

Before

We filled 55 gallon barrels with Sieve for our spacer process. The employees would have to use a scoop and bend over into the barrel to get it out and put in the fillers.

After

We installed gravity fillers that now automatically put sieve into the fillers for our spacer process. This eliminated the human element of bending over and manually doing it. A great ergonomic improvement in engineering out the hazard.

Waste Water Treatment Train Project
Hazard Control Recognition Related to the Environment

BEFORE

This is a picture of the waste water pit where the 5 Stage Washer empties into. The water from this pit is piped into the Macomb Water Treatment Plant and has been an approved methodology since Yetter installed the equipment 10 plus years ago. This water is tested quarterly per the permit conditions . This process required the simple opening of a valve and the water was on its way. When there are multiple manufacturing facilities in a small town water treatment can be both difficult and perplexing.

AFTER

In July of 2018 Yetter purchased a treatment train for the waste water. The purpose of this treatment train is to filtrate the metals and phthalates from the waste water prior to sending it to the City of Macomb. The treatment train barrels were chosen based upon the lab results from the quarterly testing. This was a win for both Yetter and the City of Macomb as the water once released requires less processing for metals and phthalates per documented lab results.

Bandsaw Blade Not Fully Guarded.

An internal audit discovered that some bandsaws (both old and new) have blades that are not fully guarded by the manufacturer. These guarding deficiencies can be both above and below the bandsaw table.

On bandsaws where the manufacturer's guarding was inadequate, an addition guard was fabricated to prevent accidental contact with the blade. In some cases, guarding needed to be added both above and below the bandsaw table.

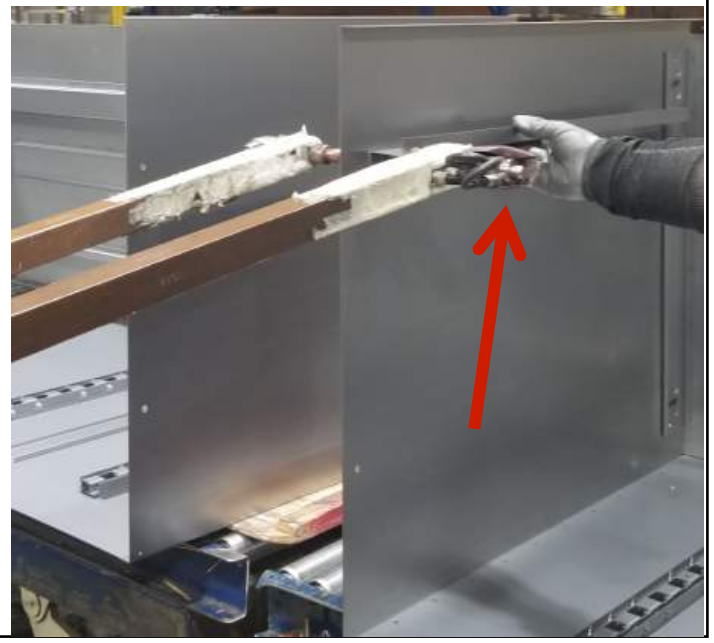
Bandsaw with additional guard.

BEFORE - Hazard:
Operator had to hold the fixture and spacer with one hand while operating the weld gun with their other hand.
This placed hands, fingers, etc. in a pinch point/hazard area.

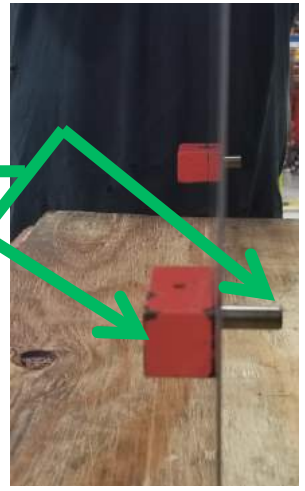
AFTER: Corrective Action

- A magnet was added to the fixture.
  - Magnet now holds the spacer and fixture in place.
  - Eliminated need for operator to hold it in place with their hand when welding.
  - Magnet/rod eliminated a potential pinch point and took operators hands out of hazard zone.

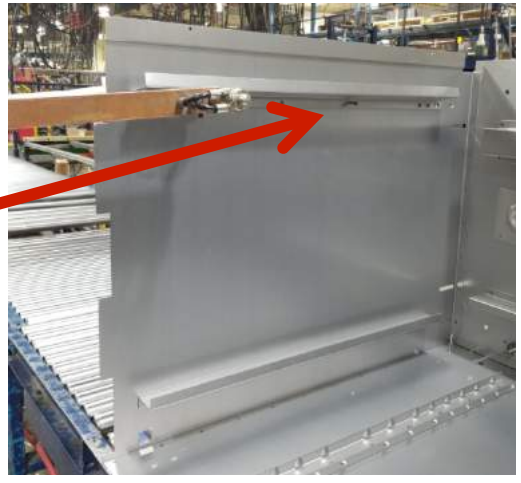
Picture:
Red arrow shows Operator holding spacer in place with their hand while welding. Hand in hazard zone.



Magnet/ rod added to fixture.



Magnet/rod now holds spacer in place while operator welds, removed hand from pinch point.



REN1 Ergonomic Improvements

Treater Area

Ergo Assessment before Slide Gate Tag Station & Lid Clip platform were built was **86**. Awkward postures were in a **high risk zone**.

Ergo Assessment after Slide Gate Tag Station & Lid Clip platform were built was **20**. Awkward postures **were no longer a risk.**

Treater Area With New Platform In Production

Operator can now stand to pull slide gate and put on tag

Operator can now stand to insert clips and be protected from potential interaction with forklift

Using a lift table, Operator can now slid 30 # lid across railing to put on box without lifting

Before

After

715 Remote Fill Box Assembly Rebuild

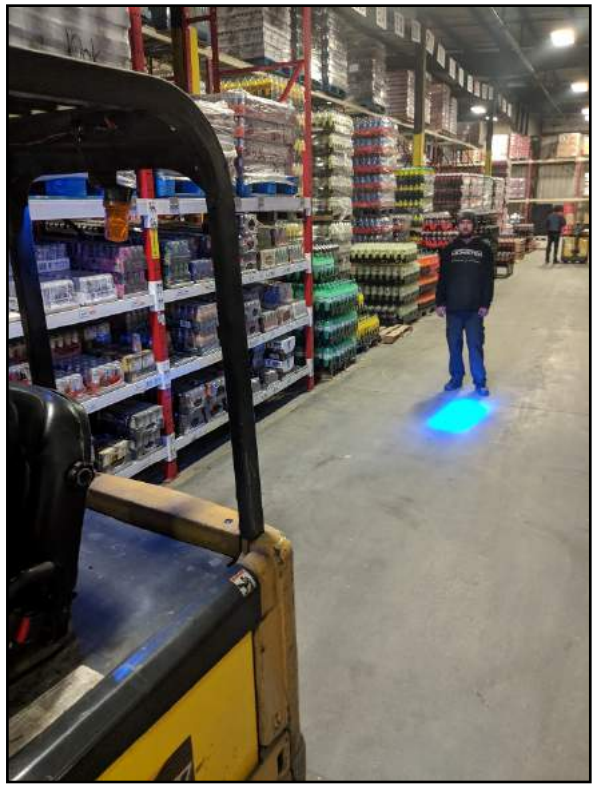
Morrison Bros. Co. manufactures remote fill boxes. Our previous assembly area was very congested and required the assembler to lift and flip the heavy boxes. The build also required a lot of hand cranking, extended arm reach with awkward movements, and bending in and out of the tank to attach parts. This process was evaluated and considered high risk for ergonomic stressors. To reduce the risk of injuries, the Morrison Bros. Co. Ergonomic Task force decided to completely rebuild the 715 assembly area. The entire assembly was moved to a separate building that allowed the use of an overhead crane for the heavy lifting. New adjustable ergo benches were fabricated. All needed assembly items and tools are now organized and within reach of the cell. A new holding fixture was fabricated along with the purchase of a new high rise pallet jack. The new fixture allows the box to slide in underneath the fixture using the pallet jack, then it is safely held in place. The fixture can then be raised or lowered to appropriate working height. A 2nd holding fixture was then fabricated for a few of our different models allowing the boxes to be assembled at the appropriate height as well. This entire rebuild has eliminated all the heavy lifting, and has greatly reduced all awkward body movements reducing our risk of injury.

Polyurea Spray Robot

Morrison Bros. Co. at their Stackis and Morrison location has installed a spray robot to coat wooden manhole covers with a polyurea spray. (The polyuria spray is a 2 part chemical that uses a proportioner machine to heat, mix, and transfer the material through a hose to the tip of a spray gun) Previously, employees would have to manually spray the manhole covers inside of a spray booth wearing full chemical suits, boots, and gloves using a supplied air respirator. Operators could only spray for 2 hours at a time spraying only 20 covers due to heat and exhaustion. This process was also considered high risk for ergonomic stressors, as 1 manhole cover required over 200 passes to coat to get to a certain thickness. In the 2 hours of spray time, the sprayer would have over 4,000 passes of awkward body movements. This created strain on the arms, shoulders, neck, and hands with risk of injury. The installation of the Spray Robot removed the sprayer from the spray booth entirely, eliminating the risk of injury. The sprayer now runs the operation safely from outside of the booth. Production has also increased.

We had a hearing impaired forklift operator in our Mason City Warehouse. Simply honking a horn didn't alert him to other forklifts coming around a corner or backing up. We installed blue LED lights on the back of our forklifts to give him, and all of our employees, visual awareness of forklifts backing up.

Blue Light In Use



Ham Boning – Bone belt modifications

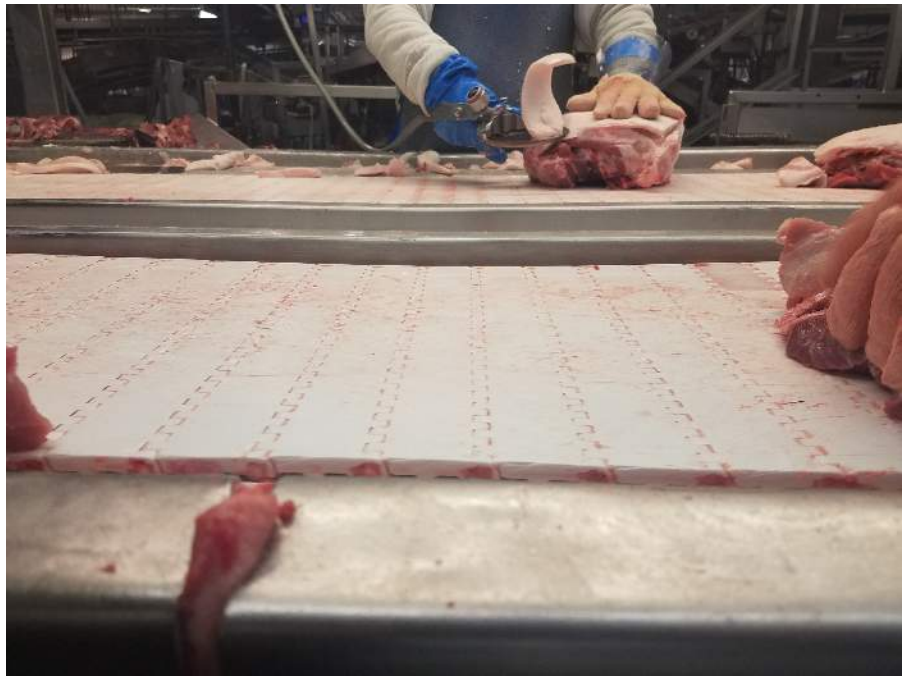
Before we had 4 employees standing side by side using knives to remove the femur bone from the ham and putting onto conveyor. They were standing pretty close together due to the space they were given. We lengthened that bone conveyor, which allows these 4 employees (on 6 different lines, 24 people total) to stand farther apart and feel more comfortable with their work.

Before

AFTER

Cut Floor – Leveling butt line conveyor

Before the conveyor belt where they trim the pork butt was uneven and lower than the surrounding framework requiring the employees to pick up slightly on the product to push onto takeaway middle conveyor. We leveled this conveyor out allowing for an easier transition to other conveyor.



Before

AFTER

Roof Air Scrubber Door Access Catwalks

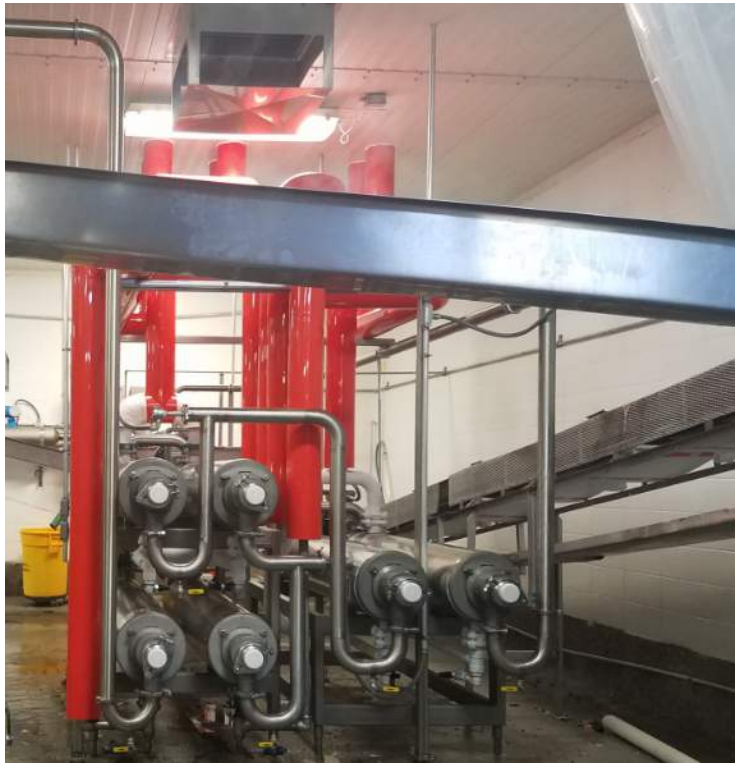
Before we had to use extension ladders set up against side of the tank in order to access the doors on the scrubber. This made for difficult work when we had to service the process equipment inside. We had a catwalk system constructed to access these doors and give the mechanics a working platform by each door.

AFTER

New votator and ammonia valve relocations

Before we had an older votator system (which is a tube and shell ammonia refrigeration heat exchanger) that had the refrigeration valve station located in the room with our employees. We installed a new votator when we did a layout change of the entire area which allowed us to move all the valves to the roof which almost eliminates the possibility of an ammonia release in the production area.

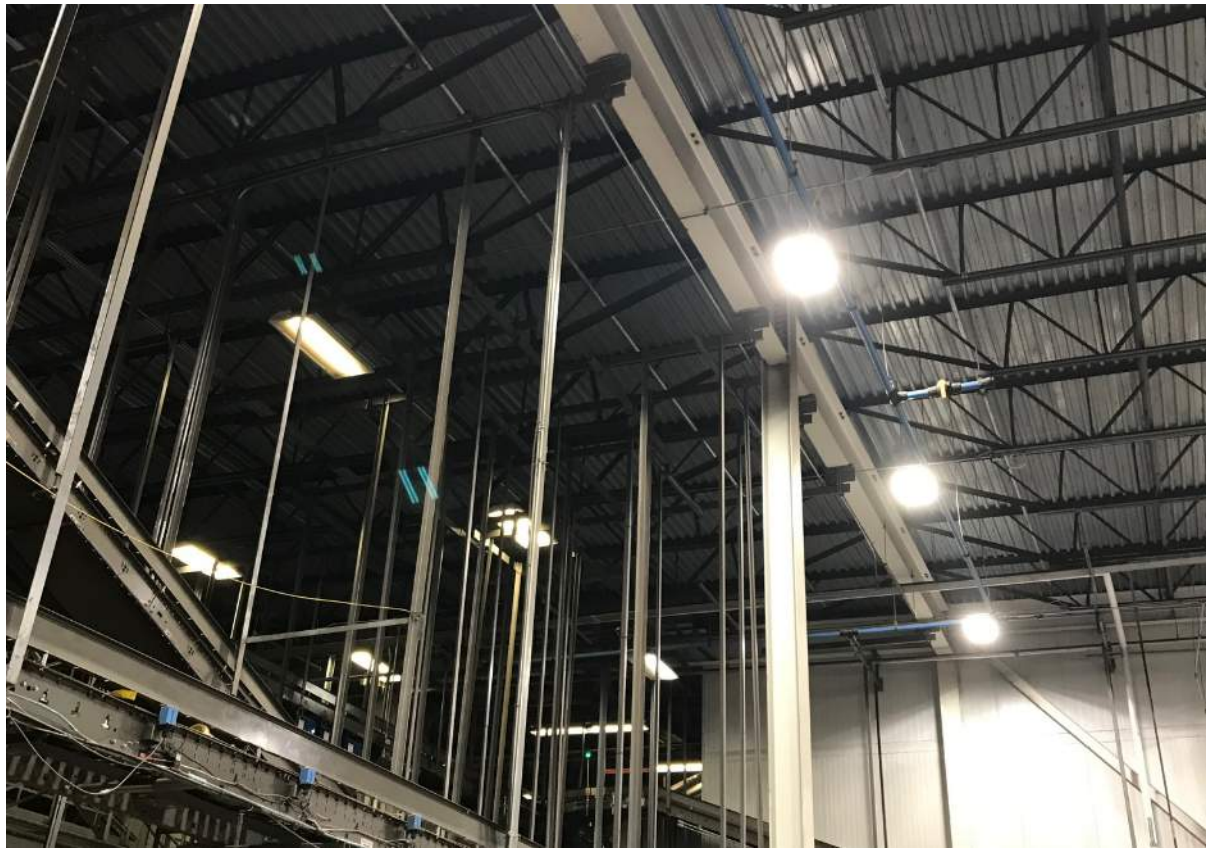
Before



AFTER

Facility LED Lighting Upgrade

Every light in our facility has been upgraded to LED fixtures.
Not only will we see a significant energy savings, we also are supplying our production areas with brighter, better quality lighting for their work.
Example in our Distribution Center below.



Before

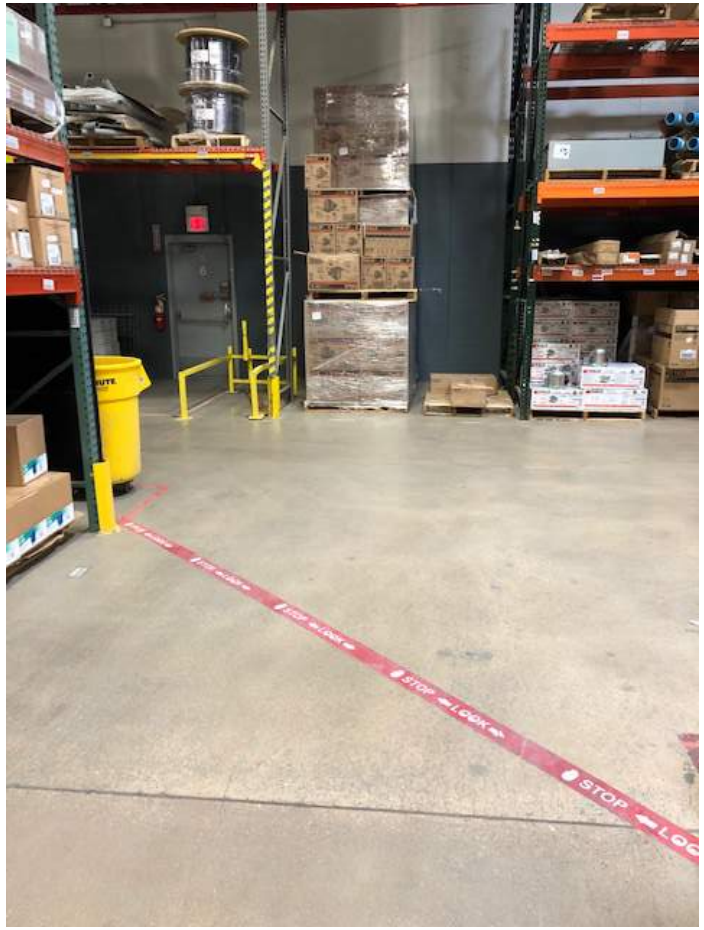
AFTER

Hazard Identification: Opening seed storage container doors creates an ergonomic strain on employees. To open the doors employees have to bend down to reach the lower door handle and pull on the heavy doors. This task creates strain on their shoulders, arms, hands and back.

Control Solution: A door assist handle was designed to allow employees to pull the handle downward with minimal force prying the door open for easy access. The handle was fabricated long enough to prevent employees from having to bend over to access the handle. Once installed the door assist handles prevented ergonomic strain on employee when opening seed storage container doors.

Problem

We had a blind turn at an intersection of our warehouse that had frequent pedestrian traffic. We had no control device for safety.



Solution

We put in a stop line to remind all forklift traffic to stop and look for pedestrians before proceeding through.

Problem

Previously, we had a staircase that was unstable. The steps weren't even, the handrails were mounted uneven and not securely fastened to the wall. This was a hazard to our employees and an "accident waiting to happen."

Solution

We demolished those stairs and put up a sturdy steel staircase with steel railings..

Hazard Control Recognition Award #1

Hazard: large, heavy steel tubes were difficult to off-load, transfer through factory. If tubes toppled from a truck, or when being transferred by fork truck, the could have caused a serious injury. The photo below shows how the tubes were received at our factory.

Several employees requested that we contact the vendor and recommend to have them "pre-cut to size". The photo below shows the results of the project. We receive the parts in various lengths up to 23 inches. They are much easier to handle and transfer and we have eliminated a serious hazard. A " risk assessment" was completed, and the result was a risk reduction of nearly 95%.

Hazard Control Recognition Award #2

The “horseheads” in the left hand photo are placed flat on a pallet . The person is required to bend and stoop to attach a magnet to load.

The right hand photo is a rack with “horseheads” placed in a vertical position. This eliminates bending and stooping when transferring parts to the” hitch fixture”. A safe and efficient operation. A “ risk assessment” was completed, and the result was a risk reduction of 86%.

Hazard Control Recognition Award #3

The portable platform was not adequate to access the “laser tables”. This was an “off the shelf” item. It reduced the hazard of stumbling while climbing onto the tables but was not the answer to eliminate the hazard.

The portable platform below was custom designed to “bridge the gap” between the rail and laser table. Hand rails on steps and platform eliminated the trip and fall hazard. A “ risk assessment” was completed, and the result was a risk reduction of 93%.

Hazard Control Recognition Award #4

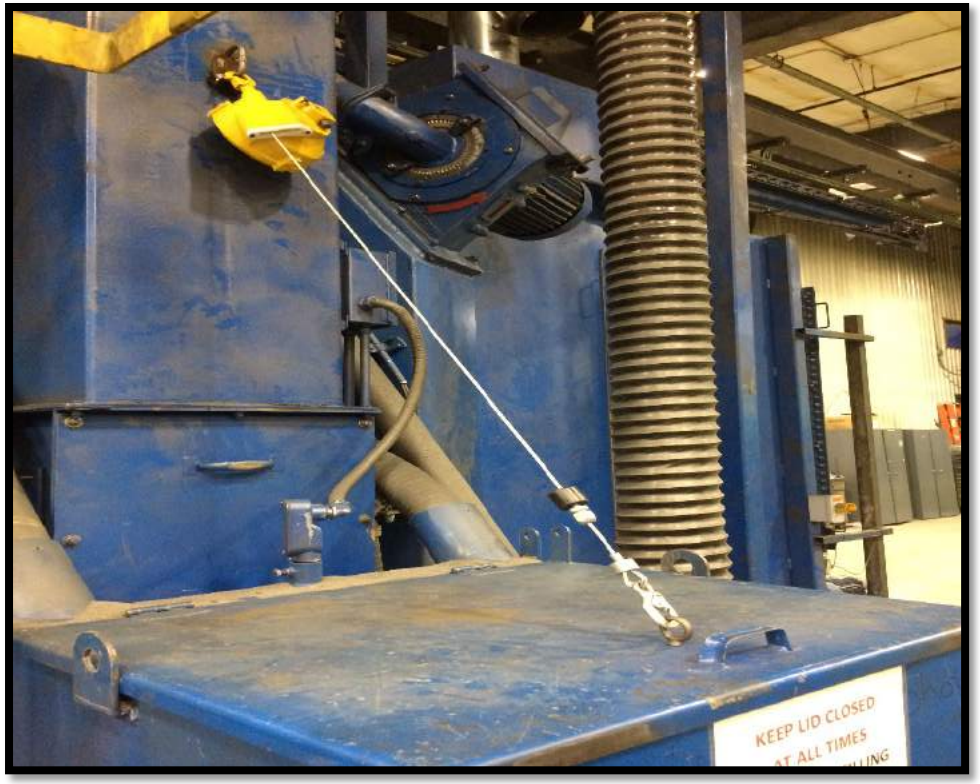
“Row Units” for planters were mounted to wood pallets. Very difficult to lift & transfer to be installed on planters. Potential hazards-pinch/crush of fingers or back strains.

“Row Units” are received on steel “shipping racks” that are very easily lifted and transferred to be installed on planters. A “ risk assessment” was completed, and the result was a risk reduction of 94%.

Hazard Control Recognition Award #5

Hazard: Lid is heavy and had potential to slam down and crush fingers or fracture hand. A simple "tool balancer" was installed to eliminate the hazard.

"Tool Balancer" installed to control up and down movement of lid. Also reduced strain on muscles and tendons when opening & closing. A " risk assessment" was completed, and the result was a risk reduction of 93%.



Expanded Safety Committee

Before: The Safety Committee consisted of management who did not regularly work in safety sensitive positions.

After: Non-management employees working in safety sensitive positions were added to the committee from departments throughout the company. This has opened another line of communication from frontline workers to management, leading to a more insightful and productive committee.

Physical Therapist Visits

Before: Elements of stretching and ergonomics were regular parts of safety meetings and training, but always as generalized principles, not tailored to individual employees.

After: We started a program with a local physical therapy clinic to offer onsite, one-on-one consultation with a certified physical therapist to interested employees twice each quarter. Many employees are no longer experiencing soreness that they had before, and even those who do not sign up are glad this is offered.

Reporting Unsafe Acts

Before: While there was a system in place for reporting hazardous conditions, numerous unsafe acts went unreported because many employees did not know who to tell about them.

After: Guidelines were established to use the current system for reporting hazards as a way to report unsafe acts as well. Use of the system was promoted through a gift card drawing. Since then we have followed up on dozens of unsafe acts that otherwise would have gone unreported.

New Truck Safety Features

This year we added active brake assist, lane departure warning, and side object detection to the suite of safety features included in new tractor purchases, making for a safer fleet down the road!

University of Northern Iowa-Safe Walking Surface

HAZARD

Employees were walking on aged steel rafters to gain access to perform maintenance on equipment

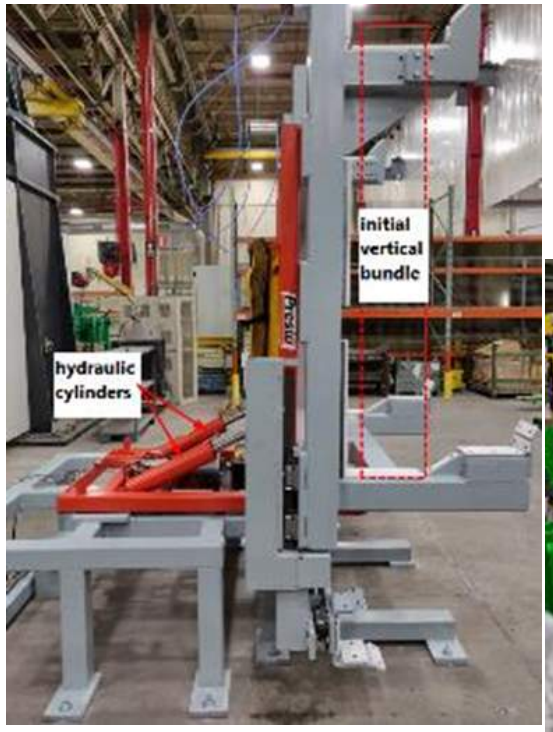
HAZARD MITIGATION

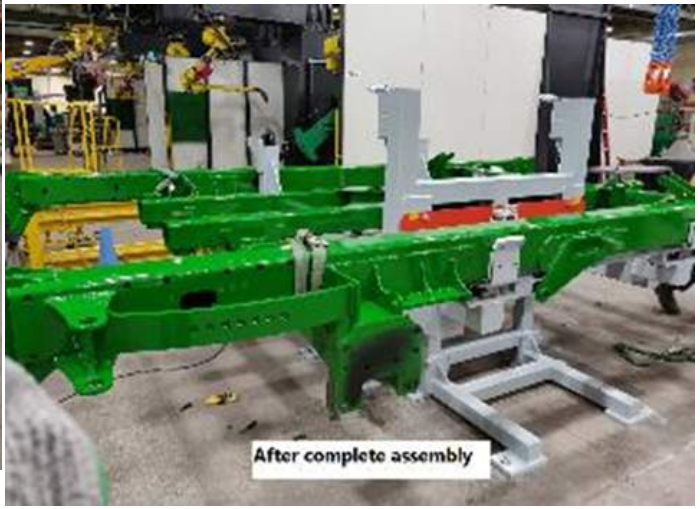
An engineering solution implemented to reduce employees' exposure to he hazard. Platforms were engineered and constructed so employees have a safe and effective means to access equipment

Current method of unbundling of mainframe uses two fixtures. Operator has to use hoist to lift each frame from vertical to horizontal and then assemble using moving carts. Process time is 55 min. 3 near misses have happened in the process in the past 6 months. Fixture is not height adjustable, which increases operator fatigue while working. Operator has to bend down to remove shipping brackets.

Before

After





Solution Description :

- Tilting fixture which can make frame bundle horizontal from vertical using hydraulic cylinders.
- Then small frame can be lifted and placed with same orientation on extra sliding attachment with same fixture.
- Sliding attachment and ergonomic fixture height makes it easy for operator while assembly.

Aisleway was only stripped to separate employee walk ways from material movement aisle. New Guardrite retractable guard rails were installed along aisle. Railing is removable and posts are able to drop flush into the floor to allow fork trucks to deliver products in work area.

Pail De-nester: Employees would separate stacks of pails from a pallet 1-by-1 and place them on the line. Now employees put the stacks on a roller-conveyor for the de-nester to unstack and place on the production line.

Before

After

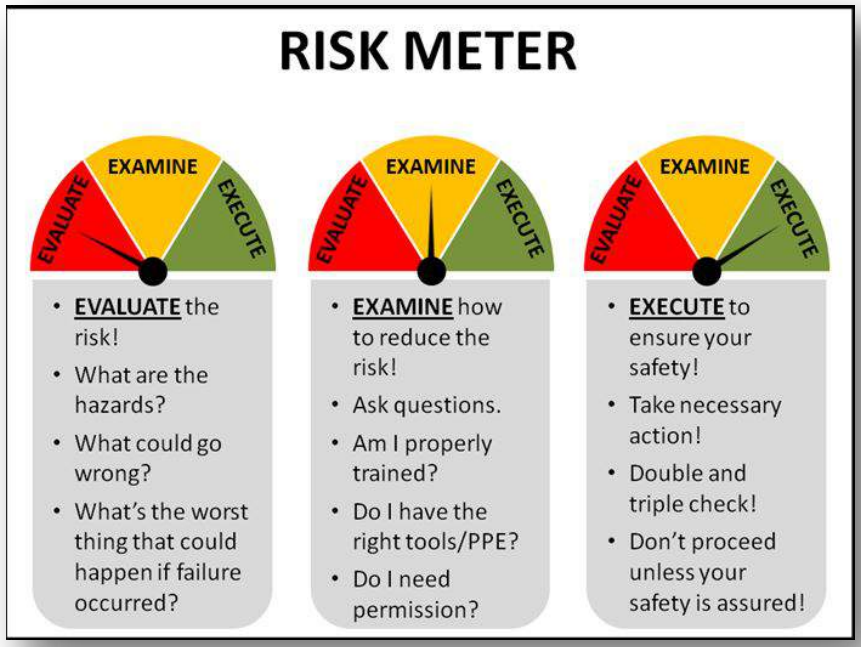
Crane Automation: Employees were involved with using a remote control for the crane to move material in the mill. Now the crane is automated to remove the employee out of a situation with potential hazards and oversee from a balcony.

Before

After

Take 5 Program

Fort Dodge and Sperry both implemented a Take 5 program designed to focus on non-routine tasks. Employees we provided wallet cards (among other material) to help assess the hazards/risk associated with tasks that are performed less often or in upset conditions.



Evaluate	• Is this task new to me? • Is this the right time for this task to take place? • Can I be struck by or against something? • Can I come in contact with a harmful object or substance? • Am I putting myself in an awkward position? • Am I exceeding my physical capacity? • Is there a risk of slipping or tripping? • Am I exposed to a fall or overhead hazard? • Are there energy sources that might harm me?
Examine	• Is there a VWI? • Is there a safety rule? • Do I need special PPE or a tool? • Is a permit/permission required? • Should I review the SDS? • Where are the nearest emergency supplies? • Have I asked enough questions and sought guidance from those who know?
Execute	• If you're unsure, ask. • Use caution. • Follow all rules and procedures. • Stop and reevaluate if conditions change or are not as anticipated. • Do not put yourself or your coworkers at risk for any reason! • Warn others who you believe to be at risk! • Once you're done, provide any input to improve job procedures.

Adaptive Force Clamp Truck: Rather than just replace the fork truck, we also replaced the clamp with a newer adaptive force clamp to better protect against dropped paper rolls. (~7,000 lbs.) The system monitors hydraulic pressure to ensure that the roll is properly clamped and secure prior to lifting..

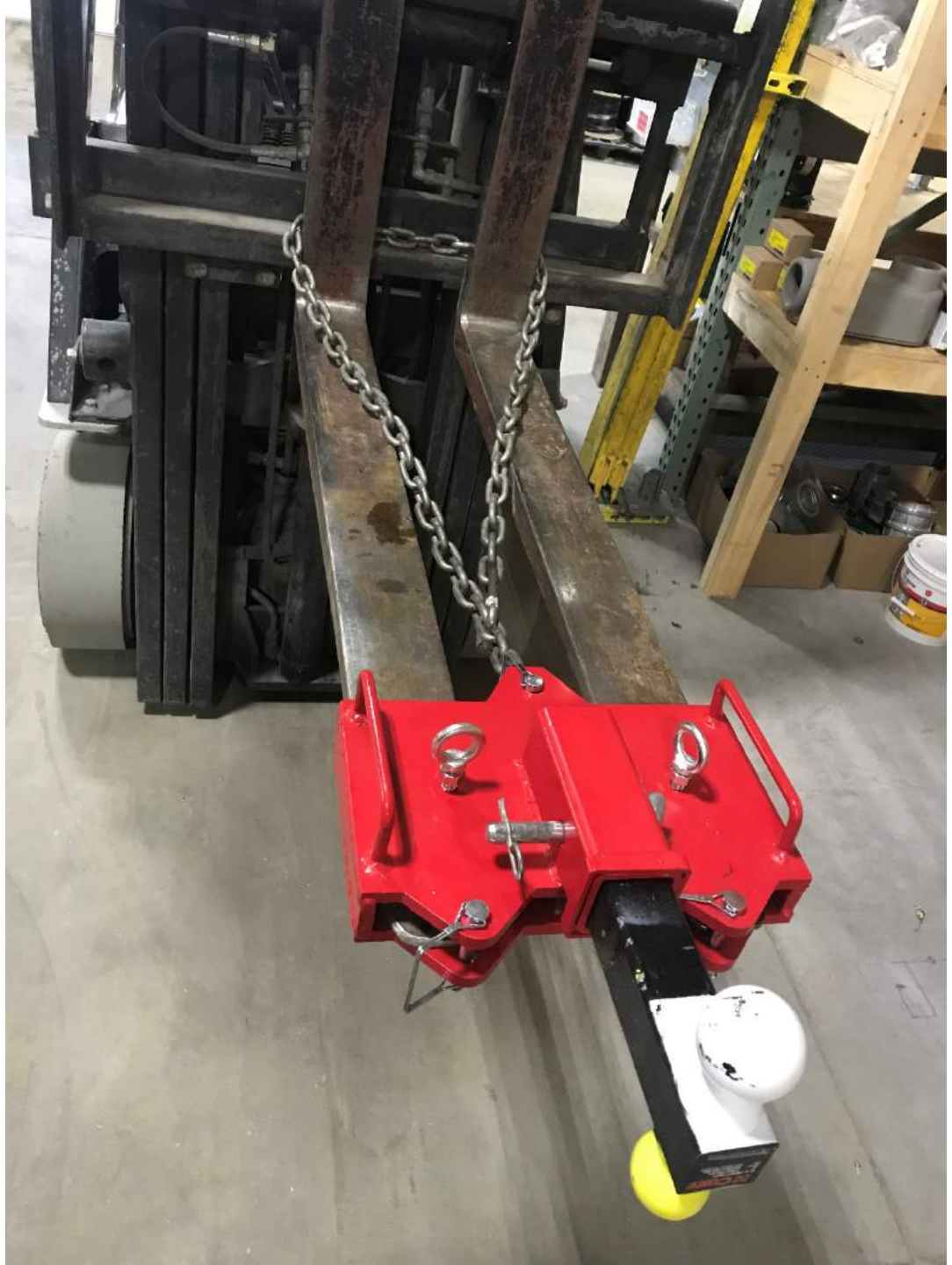
Before

After

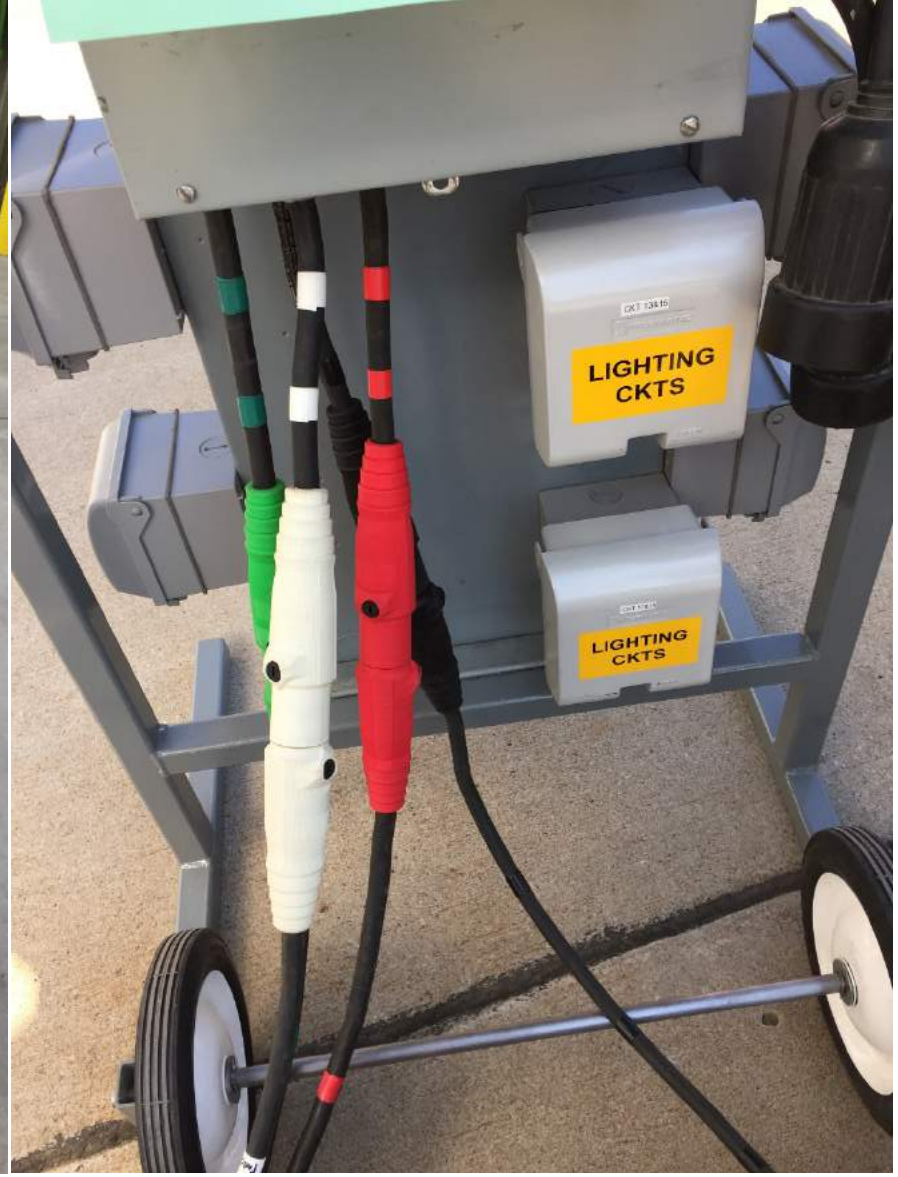
Pedestrian Safety: Flashing orange lights have been added to a common walkway that cuts through the warehouse. Although, it was a known passage, these lights bring added visibility where pedestrians and mobile equipment share

Before

After



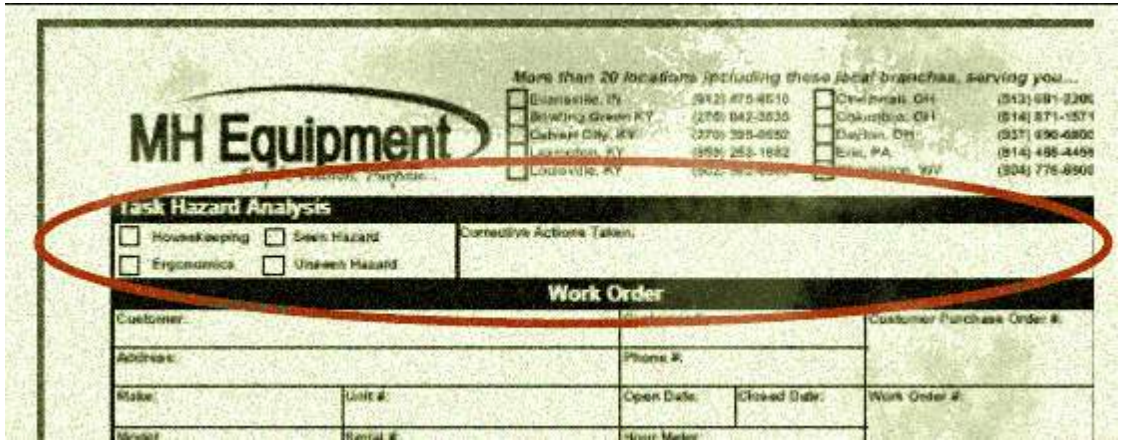
Warehouse and prefabrication employees are loading and moving utility trailers on a daily basis around the shop yard. These trailers had been manually pushed and maneuvered. In an effort to eliminate any strain/ overexertion injuries, an appropriate attachment was selected and purchased to be placed on the warehouse forklift. The hitch balls were color coordinated to represent the size of ball for the correct tongue size. Utilizing the forklift attachment for utility trailers maintains the ability to maneuver around in tighter spaces, but mitigates the injury risk.



In an effort to mitigate hazards and risk associated with temporary power on the jobsites, temporary panels and circuits were redesigned. Lighting circuits were created using twist-lock connectors to ensure they remained on their own dedicated circuit. Branch circuit buckets were developed to allow for receptacles to be remotely placed closer to the task areas. This eliminates the amount of extension cords laying around the jobsite that pose significant trip hazards. Lastly, the panels and branch circuit receptacles were designed with mobility in mind for easy relocation with reduced risk of strains and overexertion injuries.

Mechanic's Hazard Control Procedure Update

- **Past:** Prior to 2018 our industrial equipment technicians completed paper work orders for each repair request. These work orders were somewhat general in nature and had little room for comments, notes, etc. So we revised them to include our task hazard analysis in a small boxes on top of the forms. This gave room to select hazard categories an jot a small note on what control measure was used. These were monitored for both hazard selection and for hazard control, and any deficiencies reported weekly.



- **Present:** Starting in 2018 we replaced all technician laptops with new tablets that contained electronic work orders, thereby eliminating paper forms. These tablets contain multiple equipment specific, detailed work order templates so our technicians can ensure safety items specific to a machine are given attention and addressed. Also, when attempting to open these new work orders, the technician is required to identify the task's and equipment's specific hazards, and then enter the control measures taken before the tablet allows them to proceed.
- To aid the technician, we've loaded into the system key hazard categories such as Unseen, Housekeeping, Ergonomics, PPE, etc. With each one selected there is a dropdown menu that further defines specific hazards. For example, **Unseen Hazards category**, then lists specifics like **sharp edges, hot engine parts, stored hydraulic pressure, gravity from raised forklift forks**, and many others.

John Deere Ottumwa Works: Hazard Control Recognition Award Submittal

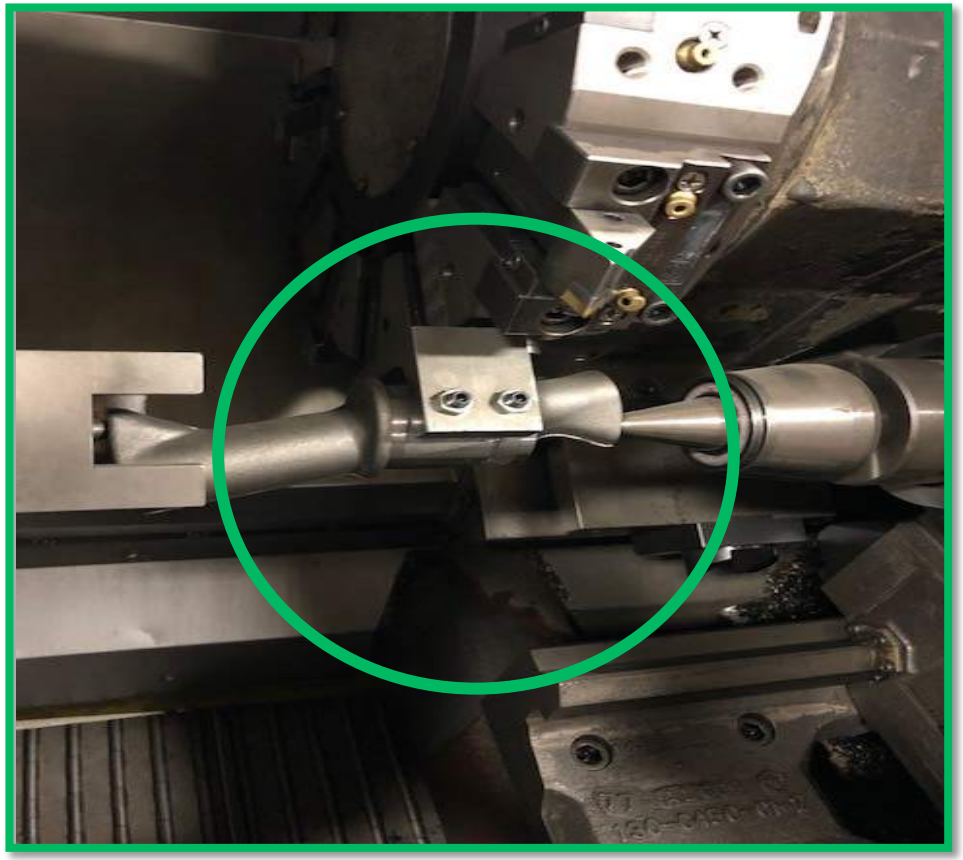
Where: Wobble Shaft Lathe

Issue: Injury to hand inside machine to hold shaft during loading process

Solution: Make Tooling to hold shaft to keep operators hand out of machine during load process

Before

After



PACMAN FIXTURE

Hazard

Process involved employee placing Reel Frame onto table and flipping several times to gain access to all necessary weld locations. This created Ergonomic Hazards such as Muscle Strains along with Pinch, Smash, Crush and Contact hazards should the frame fall from table.

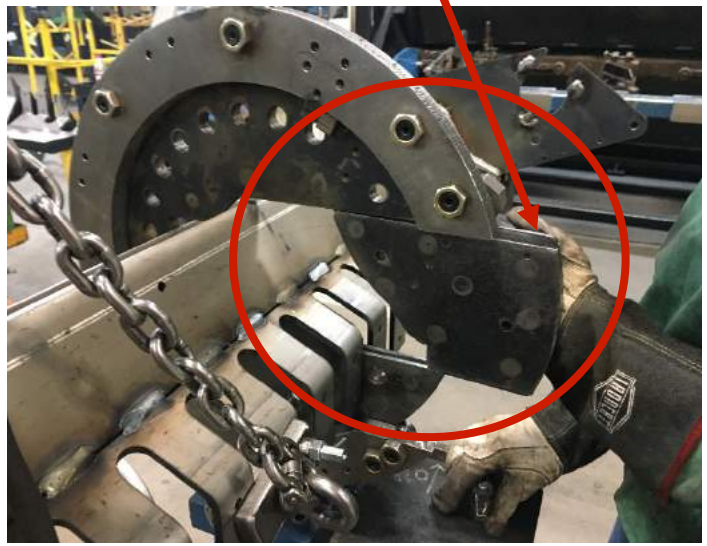
Solution

Engineering and tool maker in experimental developed a fixture that allows the Reel Frame to be inserted into the side of the fixture and held in place by two detail inserts that lock frame in place. The frame is then able to be spun in the fixture allowing employee to reach all necessary welds. Eliminating the Ergo, Smash, Crush and Contact Hazards.

Table Process Before Pac Man

Pac Man Fixture

Detail insert into Pac Man Fixture holds frame in place



John Deere Ottumwa Works: Hazard Control Recognition Award Submittal

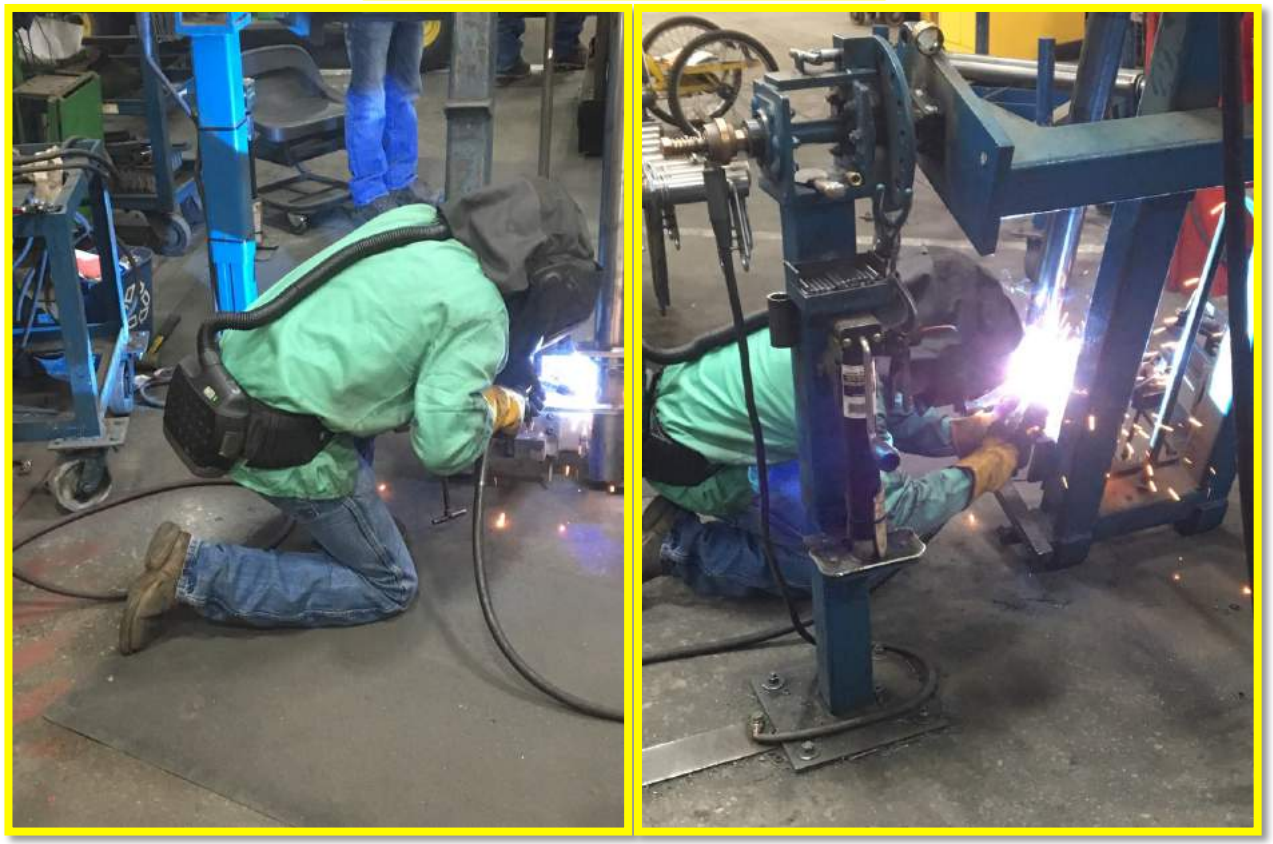
Where: Upper Tension Arm Weld Fixture

Issue: Operator welding in unergonomic positions

Solution: Make Fixture adjustable

Results: Reduction of 264 RPN thru Ergo Program, Operators are happy with improvement

Before



After

Warehouse Conveyor

Hazard

Process involved an employee unloading heavy/ awkward packages off the conveyor to pallets on the floor. In addition, the employee would have to manually push each package along the roller ball table. Both processes had ergonomic risk factors such as bending and stooping over to place packages on the ground, along with repetitive motion of moving each package down the conveyor to be sorted.

Solution

A new electric conveyor was installed which eliminated the use of the operator pushing each package down the conveyor. In addition, a specialized cart was purchased to aid the employee in moving heavy/awkward packages from the conveyor to the pallet on the floor.

Round Baler Tack Fixture

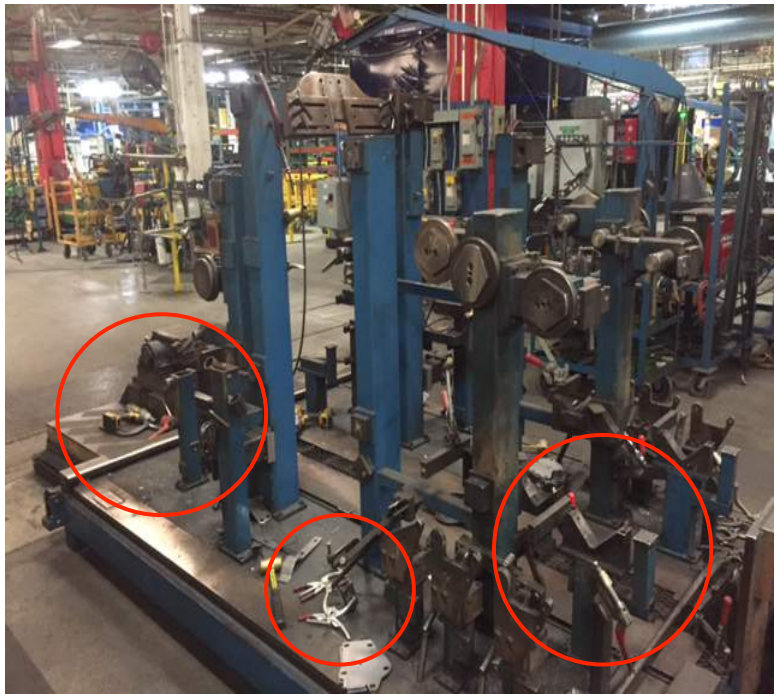
HAZARD

1980 era weld fixture created Ergonomic concerns with out of position welding. There were several manual clamp with high force requirements to hold material in place. In addition, there were trip hazards with stepping up onto platform. Older and worn technology did not allow for accurate fit-up , creating other complication requiring spreader bars to gain correct dimensions.

SOLUTION

- 2 new rigid tack fixtures
- Programmable trunnions for height adjustment
- Pneumatic clamping
- Eliminate crawling into fixtures
- Eliminate the need for spreader bars
- Eliminate manual clamping at key “Y” points
- Eliminated 90% of all hand clamps
- Fixture is lowered to floor level

Fixture with hand Clamps



Fixture with Hydraulic Clamps

A-Line E.D.S. Inc.

In the recycling process of transformers and electric distribution equipment at A-Line E.D.S. Inc. several thousands of gallons of oil get pumped to various bulk tanks and tankers every year. This process is performed in several locations and at different angles so the use of permanent loading and unloading stations has never been practical. However, the hoses which range in diameter from 1 ½” to 3” may have to run across walk ways at times to drain or fill a unit. Fortunately we have never had any accidents but decided with slips trips and fails being one of the leading incidents hose ramps would great mitigation tool. We purchased 5 of these ramps for all areas that load or offload oil, and made sure that they would be able to contain hoses up to 5” in diameter which is larger than anything we currently have. By selecting a larger diameter ramp we can also get 2- 1/1/2” hoses through one ramp.