IOWA-ILLINOIS SAFETY COUNCIL

A Chapter of the National Safety Council

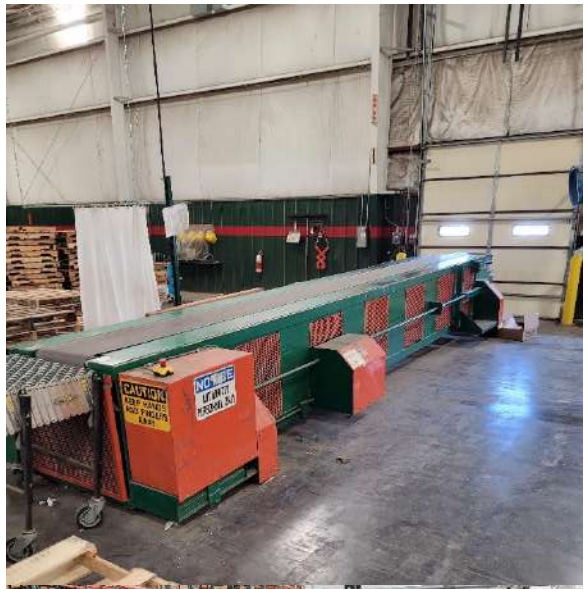
Work. Home. Communities

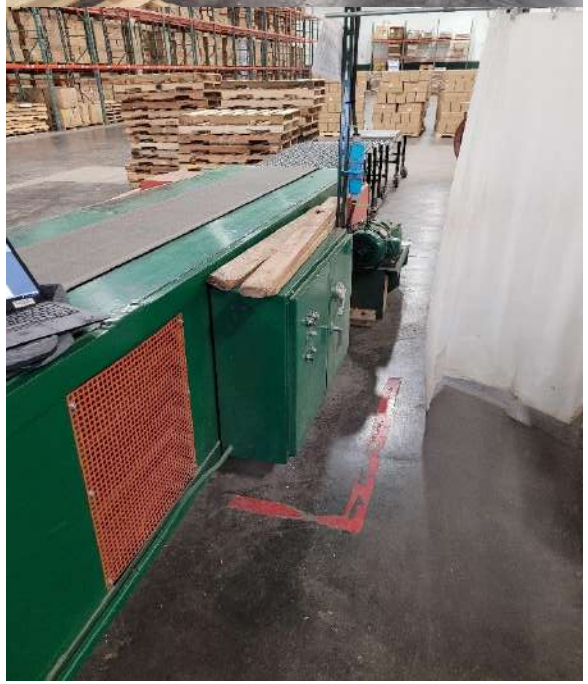
2023 Hazard Award Submissions Part 2

Colony Brands Inc – Clinton, Iowa

Truck Unloading – Truck Conveyor Improvements

Before Photos:





Before: The original truck conveyor was a stationary unit. Trucks either needed to wait to be placed in this door or skate track was added to other doors for unloading. The original unit also had the operating components on the outside of the conveyor creating tripping and struck by hazards. Being an old unit more pinch points were present or had to have specialized guarding made to protect against them.

After: The new truck conveyor traverses across three truck doors eliminating the need to utilize skate track. All operating components are under the unit eliminating trip and fall hazards, reducing struck by hazards and reducing potential pinch points. The front of the new conveyor has an extendable snoot that is height adjustable making it ergonomically sound for the employees unloading the containers. It also has improved lighting to make it easier to see inside of the container reducing the chance to trip and fall over materials not seen.

After Photo

Colony Brands Inc – Peosta, Iowa

Cardboard Unloading – Clamp Improvement

Before Photos

After Photos

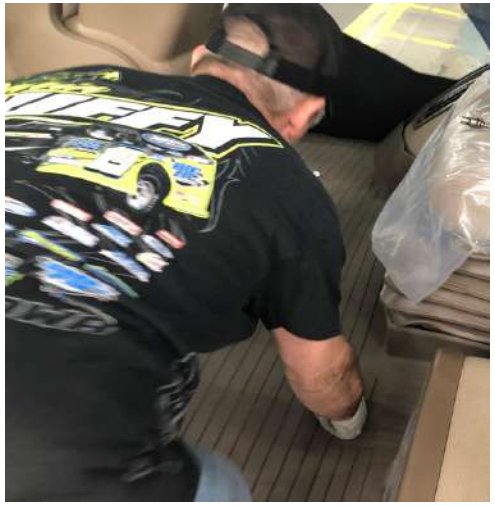
Prior to the purchase of a cardboard clamp, loads of cardboard boxes were picked up with a forklift from inside a shipping container without a pallet. The cardboard would then be placed on a pallet where second employee would hold the cardboard by the metal or plastic banding while the driver tried to remove the forks. This had risk of a forklift and pedestrian collision, a struck by hazard of a 1,000 lbs. or more of cardboard, and a hand cut hazard from holding the banding.

With the purchase of a cardboard clamp on a designated forklift, the manual portion of this process is removed as well as all 3 hazards associated with it. We also removed the potential hazards of putting on and removing the cardboard clamp by dedicating a forklift to this process only.

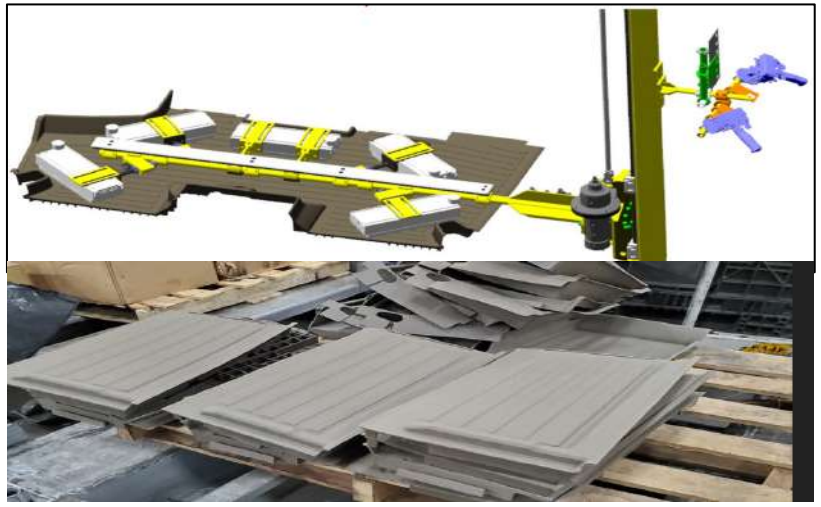
John Deere Waterloo Works – Tractor Cab & Assembly Operations – Waterloo, IA

Three Piece Floor Mat Design Implementation for Improved Ergonomic Installation

Before Photo



After Photo



Description of Before

- Floormat installation on large tractors has been an ergonomic challenge on all platforms for many years. Previous assembly aids and manipulators have not been able to mitigate ergonomic risks such as excessive force, bending, twisting, and awkward body positions.
- The one-piece floor mat weighed approximately 40 lbs. and was large and awkward to install into the tractor cab creating ergonomic risks to the back and shoulders.

Description of After

- With the opportunity for a design change during a product update, the identified ergonomic risk was mitigated by changing to a 3 piece design.
- The awkward shape of the floor mat, which made the use of a list assist device difficult, was improved to make it able to be lifted with a manipulator.
- The heavy portion of the floor mat is now able to be installed into the cab with no manual lifting.
- The two smaller and lighter remaining piece are then installed with ease and eliminated the ergonomic risk.

New Front Door Frame & Security Intercom with Buzzer

2021-08

Old door – not secure-needs to be replaced

Before

Sign on outside of door – explaining procedure due to safety concerns

Door has emergency push panic bar-locked from outside, push open from inside

After

Outside intercom button – sends doorbell alarm & is a speaker when I push "talk" button

Under desk drawer button -talk & door release – labeled!

-Building Security & Safety- a couple of times people have entered the building that have raised safety concerns
-The door frame, construction & lock needed to be replaced
-The wind would blow door open-hard to secure it during the day

Sort: received various bids on door replacement & security intercom system
Set in Order: scheduled door install & ordered security intercom on Amazon-we installed the security intercom system ourselves instead of using $1600 quote
Shine: removed tarp protection & put back, new door-cleaned debris inside & out
Standardize: sign on the door explaining procedure –door locked, push buzzer
Sustain: door & security intercom buzzer working, shared procedure w/employees
Savings: we bought & Brian M. installed security & Nate installed button drawer

element

Des Moines

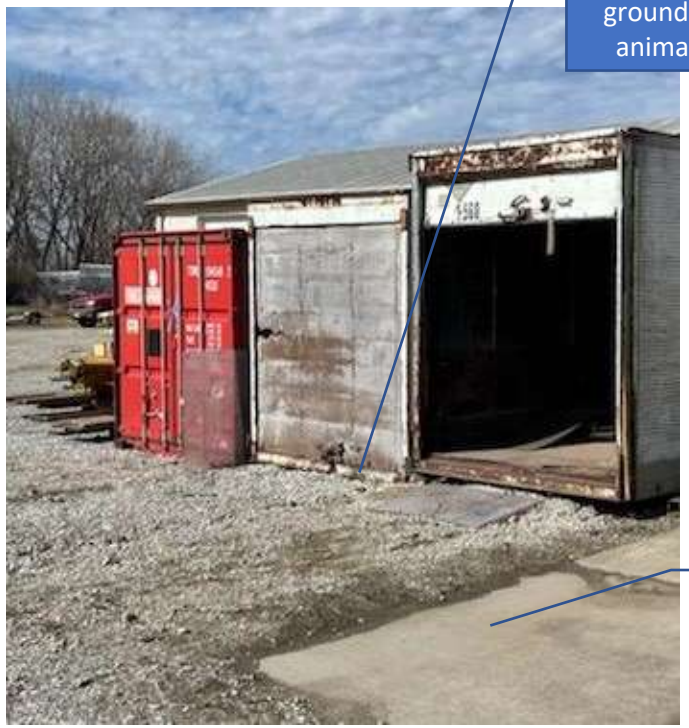
5S Participants: Brian Escherich, Brian Martin, Nate Mracek

Outside Storage Containers

2022-02

Before

After



- The old semi trailers had become a dumping ground.
- Not safe to get in and out of them
- Haphazardly placed west of the building
- Wind-Farm trailer removed from property –far left off-white
- Safety – animals in and around the trailers

Outside Storage Container Clean-up
Sort: containers emptied-items from containers & in front properly disposed of-samples disposition forms filled out-
Set in Order: red container moved. Containers level w/ building
Shine: cleaned out, lowered to the ground-moved to protect & make all of cement area usable
Standardize: red container fen window corners-list created-middle one-test fixtures used less frequently
Sustain: containers have usage criteria & disposal dates on file-yearly purge
Savings: organization, appearance, safer

element

Des Moines

Participants: Nathan Mracek, Brian Martin, Ethan Webb, Michael Molina & Austin Heiselman

Stellar Industries – Garner, IA

New Overhead Hoist for Loading Bodies

Before Photo

After Photo

Description of Before

Before the addition of an overhead hoist, we were loading bodies on chassis with one hoist in the front and a forklift on the back. This took tremendous coordination and skill from everyone involved to accomplish loading bodies. It also increased the chances of injury due to skill needed.

Description of After

With the addition of the second hoist, we now use a spreader bar on the back end of the truck to lift and position the body over the chassis. These lifts can be linked by a controller as well, enhancing the predictability and leading to less incidents with this multiple times a day process.

Stellar Industries – Kanawha, IA

Lifting Device for Loading/Unloading Bodies from Transport Trailer

Before Photo

After Photo

Description of Before

Before this lifting device, we were using an overhead and a forklift in combination. This required a lot of coordination and multiple spotters for a successful unload and load. We would then have to back the trailer into the shop while the load was suspended to position it on the trailer. It created potential lifting and transport hazards.

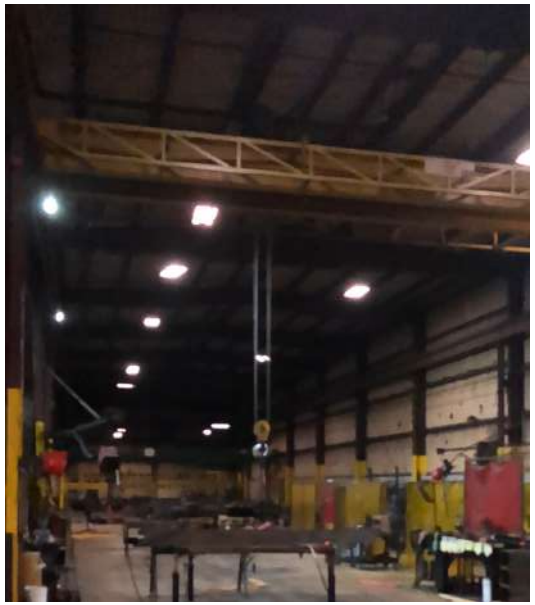
Description of After

Our manufacturing engineers designed a device that attaches to the forklift and hooks into the D-rings of our bodies. The updated process has made for a much more consistent lift and eliminated the need to back a trailer into the shop to load/unload the trailer. It is a more safe and efficient process with the new lifting device.

Stellar Industries – Mason City, IA

Lighting Upgrade

Before Photo



After Photo

Description of Before

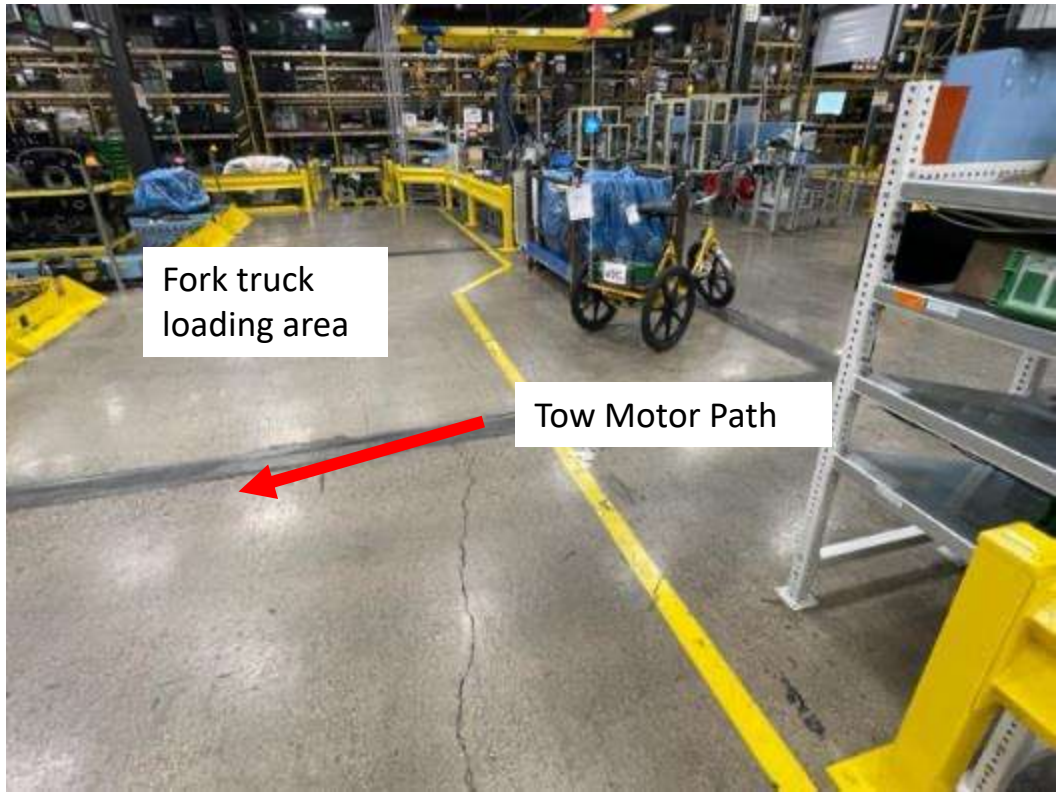
We purchased a new Mason City facility in June. After purchase, we needed to address the lighting throughout the plant. Some of the lights didn't work, and the ones that did were inadequate for a proper manufacturing facility.

Description of After

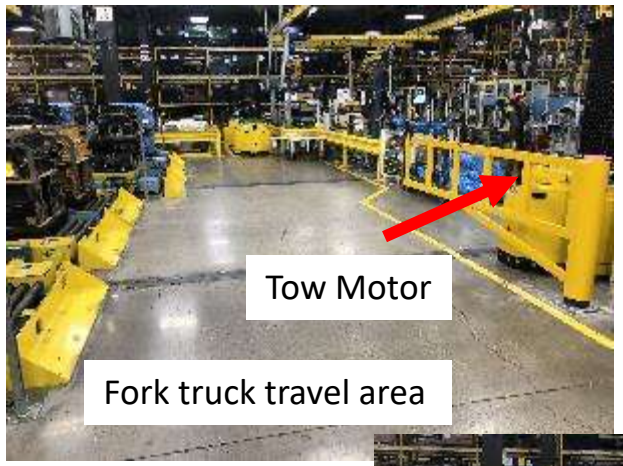
We worked with an outside vendor to replace all the lights on the production floor. We upgraded all the old fluorescent tube bulbs for energy-efficient LED lights. This not only enhanced visibility throughout the plant, but improved plant morale.

D566A Gated Area

- Tow motors have to be momentarily pulled out of work area & enter into a fork truck loading area.



- Gate was installed to allow movement within traveled area. This keeps fork trucks from entering & creating a possible vehicle/pedestrian hazard while tow motors are outside of 566 work area



D565 Oil Pans

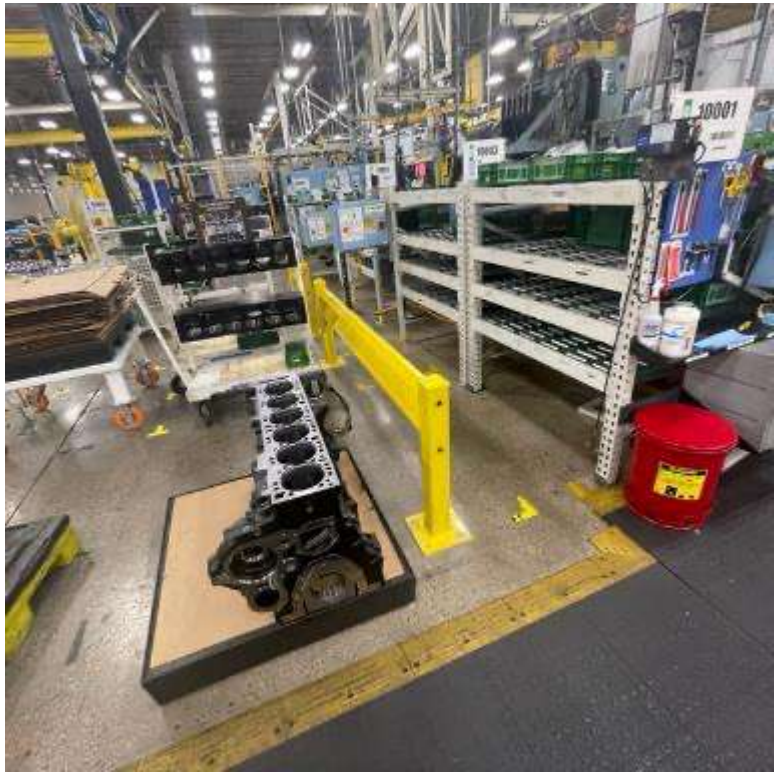
- Pans would shift during transport and fall against container gates. When gates were opened pans could fall out onto operators.

- Designed new rack system that holds pans and prevents shifting during transport.

Assembly Rack Clearances

- 53 racks were identified that did not have enough space for operators to deliver parts.

- To improve the areas, guard rails have been added and overflow parts have been relocated or eliminated. Additionally, at least 30 inches of walking space was provided.



D579 5-gallon Paint Buckets

- Operators manually lifted 5-gallon paint buckets into tank, some weighing up to 50lbs.

- Had supplier reduce paint volume to 4-gallons. Designed fixture that buckets are hoisted into and that paint pours can be safely controlled from.

Murphy Tower Service – Carlisle, IA

In one of our Safety Committee meetings, field employees brought to our attention the growing weight of Radios and Antennas. Given the job location and weight of this equipment. Our employees were being subjected to musculoskeletal injuries, specifically back injuries. Typically, we have rigging to assist in the installation and removal of these items. However, there are many times that the sector mounts are located at the top of a tower. Previously a device called a “rooster head” had been inserted into the antenna pipe where said equipment was to be mounted. Using this type of application would apply external rigging forces to the sector mounts and were found to be causing the sector mounts to fail. Now rigging regulations do not allow external rigging forces to be applied to the sectors without an engineer’s approval.

We have designed and built a prototype device that is considered a weight transfer device. It is used to take the weight of the equipment using a 2:1 pulley and a self capturing prusik knot. This device allows for a single employee to mount and or remove a radio or antenna without having to overexert themselves.

Murphy Tower Service – Carlisle, IA

Hazardous Waste: Disposal and Storage

Here at Murphy Tower Service, we recently got ISO certified. Upon being certificated they had a few items for us to improve upon. One of those was the disposal and storage of hazardous items such as oil filters, fuel filters, aerosol cans and paint waste. Since being certified we have contacted a company to help with the disposal of the material. With the assistance of this company, we have additional barrels for storage and labels to meet EPA standards. Next week we will add a spill containment under the barrels.

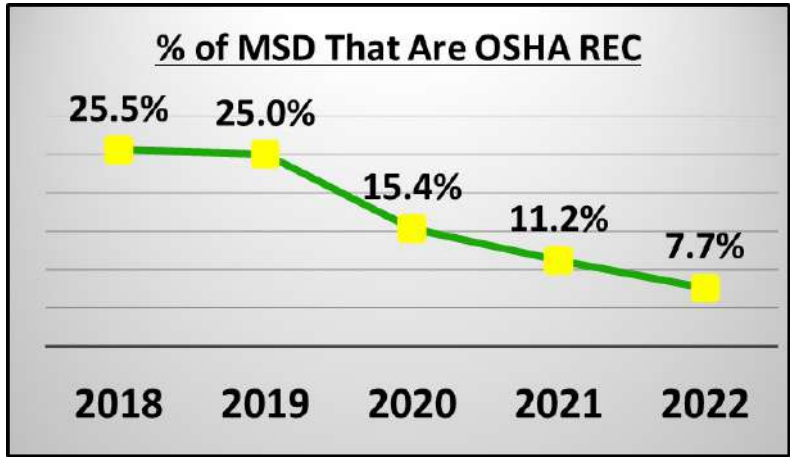
Early Intervention Program – John Deere Des Moines Works/ATI

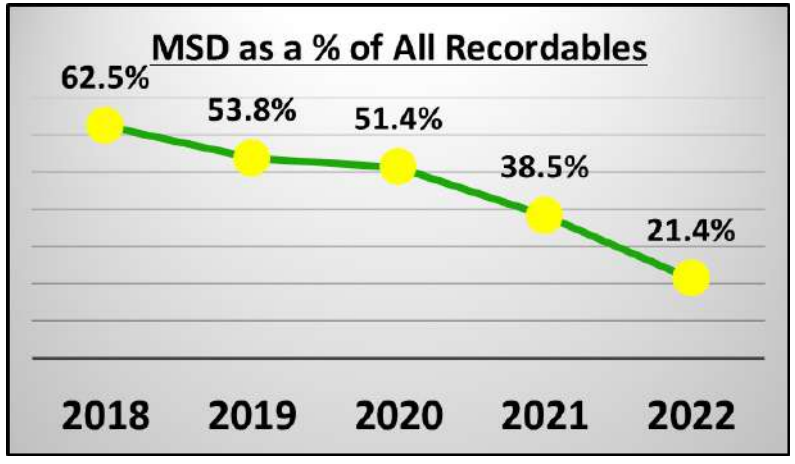
Issue:
Historically, John Deere Des Moines Works has seen a significant percentage of our injuries as musculoskeletal disorders (MSD's).

Solution:
In late 2018 we partnered with ATI Worksite Solutions to implement an Early Intervention Program which proactively addresses worker health (work related and non-work related). A Certified Early Intervention Specialist (CEIS) was embedded in our workforce to engage, educate, evaluate, and treat employees.

Key Features:
- Hands-on proactive visits with workforce daily
- Employee focused MSD injury follow-up and treatment (work related and non-work related)
- Ability to report minor-MSD's to CEIS in work center without travelling to medical

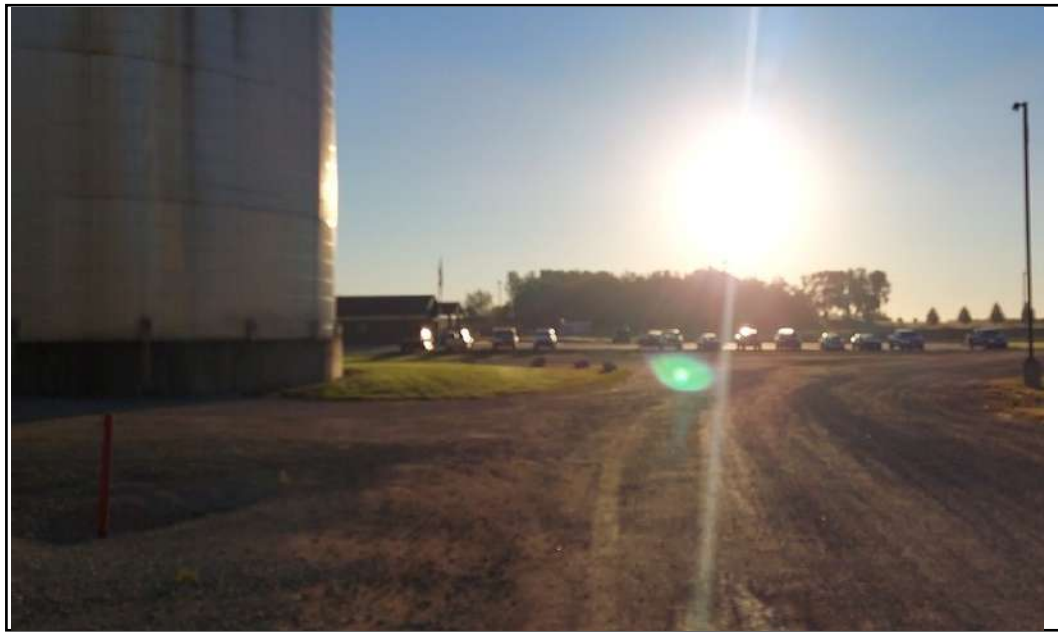
Result:
A drastic reduction in MSD injuries as well as reportable MSD injuries and a record low OSHA rate for Des Moines Works.





Poet Biorefining-Hanlontown LLC– Hanlontown, Iowa

Designated Walkway Installation



-Previously, employees would use the roadway to walk between the parking lot and the process building entrance.
-This posed a continued slip, trip, fall hazard during winter months with inclement weather.
-Additionally, intermittent truck traffic occurs on the roadway causing an added hazard of collision.

-A sidewalk was constructed to act as the designated walkway between the parking lot and process building for all employees & visitors.
-The walkway provides improved footing coupled with additional attention to snow & ice removal during the winter season.
-Also, it provides separation of paths for personnel and roadway use.

L & M Ethanol Maintenance Contracting Inc.

Safety Board

We didn’t have anything on the wall at all and with Covid and less chance to speak in close groups we found a way to pass on some info through a spot that wasn’t used.

We have been looking for a way to drastically reduce the use of two-wheel carts in our delivery operation. In 2021 we began switching to the Rehrig DSD Geobox system. This allows us to build onto our pallet in our distribution center. Instead of down stacking one to two times at the customer, we can now wheel in pallets directly from our trailer to a cooler in a store, saving wear and tear on employee's bodies.

Before

After

Before

After

ESCO Group employees have started using impact resistant gloves. Before we required at a minimum A3 rated gloves at all times, now some of our employees are wearing A3 with impact resistance for that extra protection.

Before

After

The ESCO Group has started to implementing harnesses with built in suspension trauma straps. Before we would have to manually install them and now we have been buying them built in for the safety of our employees.

Bullnose Press Guard

Before:

The bottom of the pulley was exposed.

After:

We added a removeable guard that will cover the pulley during operation and open when maintenance needs to access.

Heat Treat Pulley Guard

Before:

There was a large pulley that was exposed on our new tempering furnace.

After:

We added a removeable guard that will cover the pulley during operation and open when maintenance needs to access.

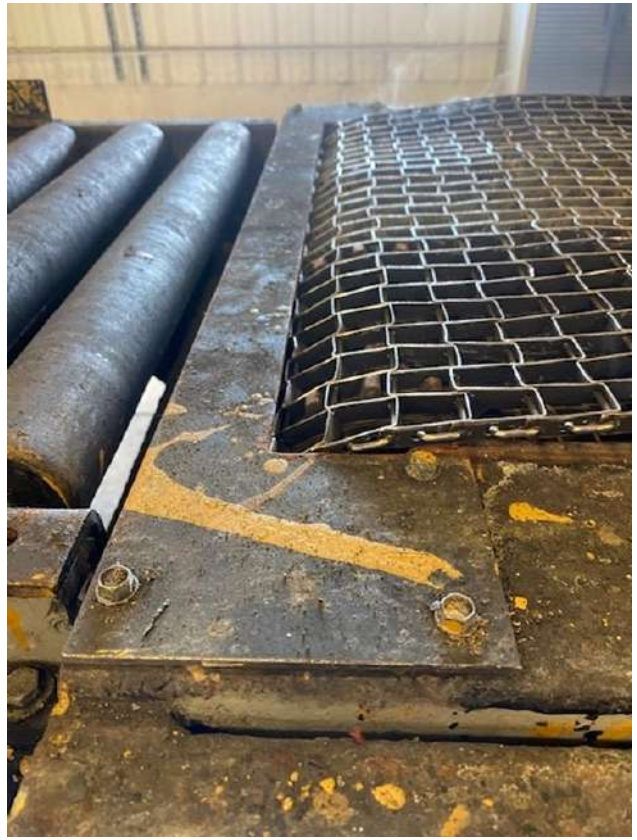
Wash Tank Guard

Before:

There was a pinch point on the opening of our wash tank.

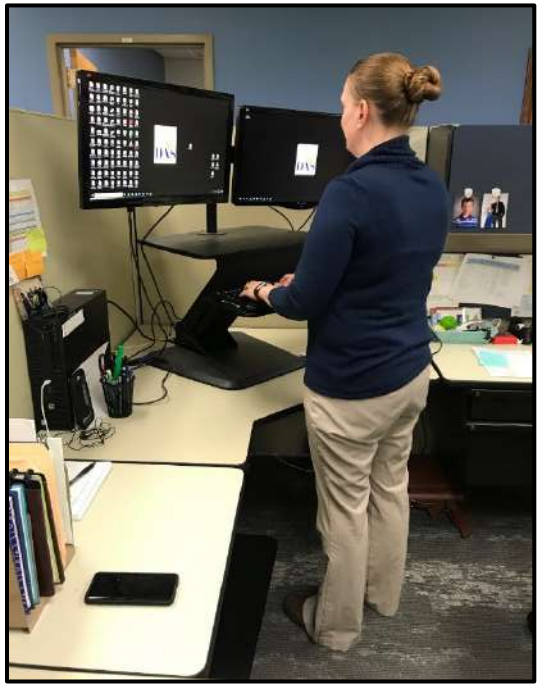
After:

We added a guard that could be removed for maintenance purposes that would protect the operator when the wash tank is in operation.



DATE: March 8, 2022
LOCATION: Hoover Building - Level A, Human Resources Enterprise, State of Iowa Capitol Complex
HAZARD: Ergonomic Concerns working Remotely

Before



DAS has provided variable standing/sitting desks as an ergonomic option for their employees for several years. When the variable desks became available, a web based self-assessment tool was developed: https://das.iowa.gov/sites/default/files/hr/PDS/elearning%20courses/Ergonomics/story_html5.html If the employee needed further assistance, formal ergonomic evaluations were provided.

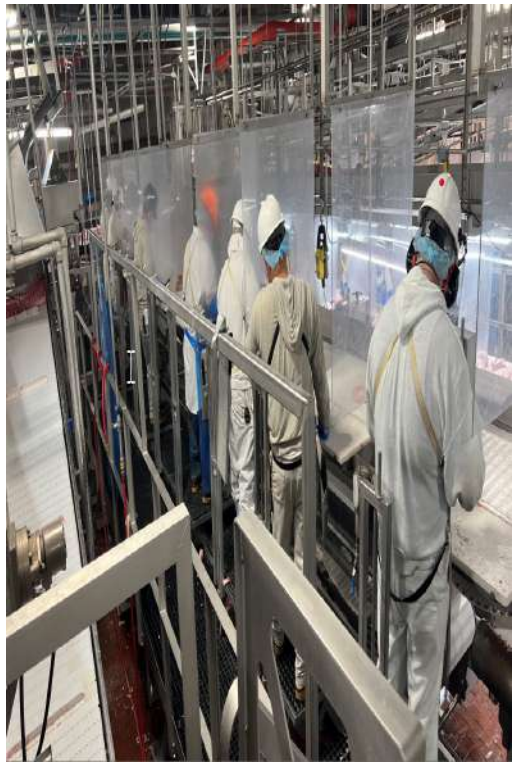
After

When the majority of staff began working remotely; the employee's office equipment, including variable desks and adjustable chairs, were made available to transfer to their remote office. This avoided many ergonomic related concerns. Our monthly newsletter, HRExpress, ran articles on the importance of correctly setting up remote office equipment in order to maintain the ergonomic neutral positions.

New Butt Line

We have completely rebuilt are Butt line from the ground up here in Marshalltown. This project replaced the main pace conveyor adding adjustable ergo stands for every job also replacing the old neck bone line with a new one making the job more ergonomic, reducing stress on the employee.

Before



AFTER

Hog Pushers

We purchased new Electric hog pushers for loading and unloading coolers reducing physical strain/exertion to the employee. This pusher can push up to 8 hogs at a time with minimal effort of the employee. Reduces stress on arms, shoulders, back and legs by decreasing force used to push Hogs along the rails.

Before

AFTER

Catwalks for Five Cooler Bays for Refrigeration Units

Reduces stress by providing a secure/safe working platform. Less awkward.
Reduces stress to neck/back/shoulders/hips.

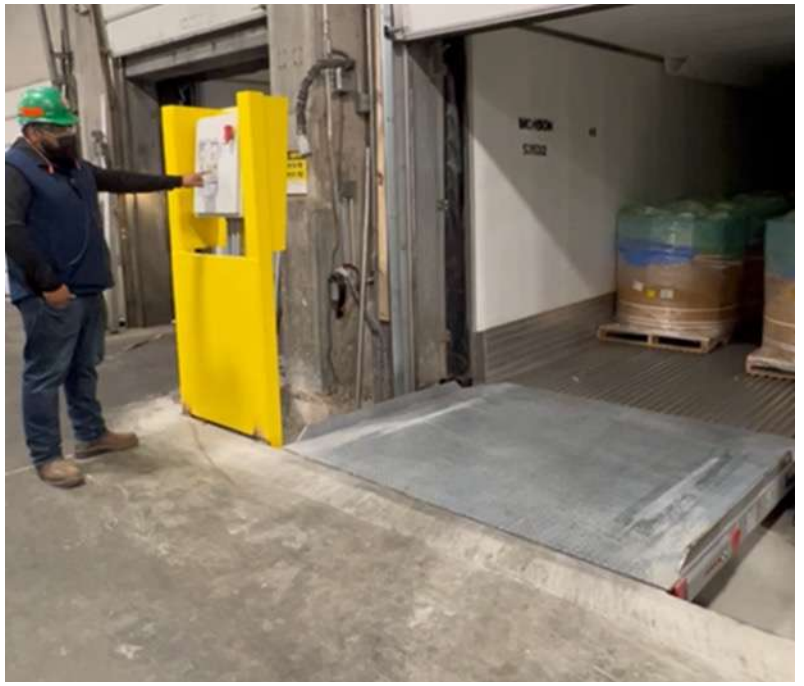
Before

AFTER

Automatic Dock Levelers

Replaced Two Dock Plates with Automatic Dock Levelers for CVA. Eliminates using a pry bar to manually lift/lower dock plate. Reduces stress to neck/shoulder/arms and back.

Before



AFTER

APC – Denison/Iowa

Nozzle Project

Before Photo

Employee carried nozzles on should up 2 flights of stairs

After Photo

Nozzle lift was made to hoist nozzles to the top of the dryer. Eliminating the need to carry them

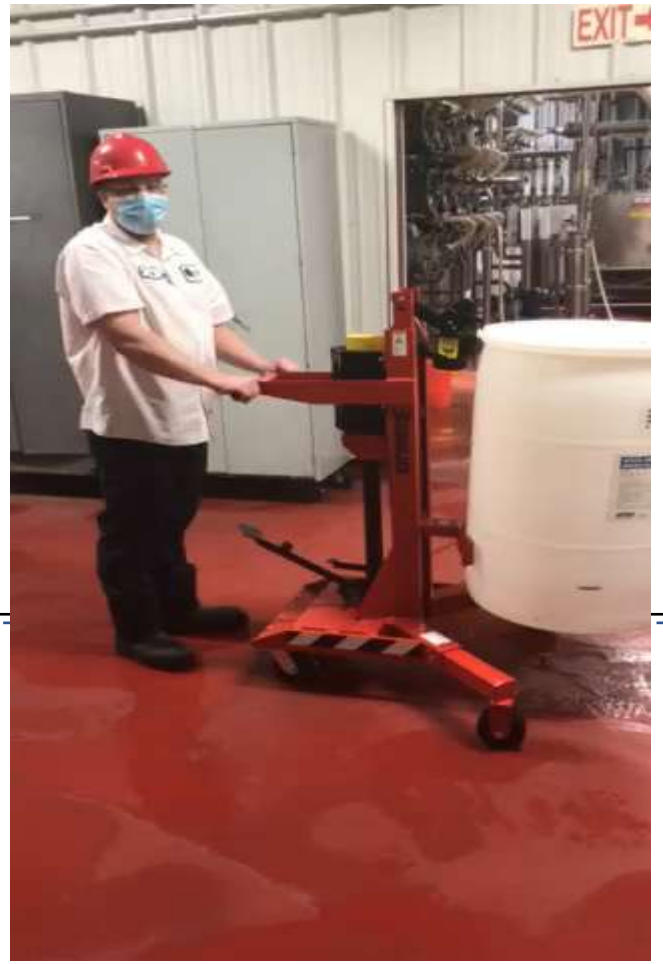
APC Inc. – Arion/Iowa

Movement of drums

Before Video

Employees used a two-wheel cart to move drums. They had to push drum up ramp to containment stand

After Video



New cart purchased eliminating the need for a ramp

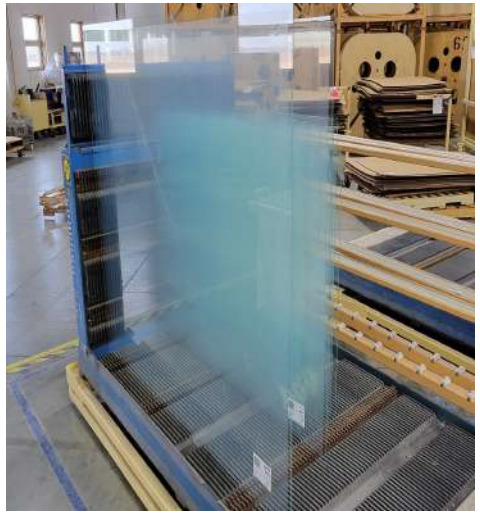
Before: Rigid conduit and EMT is cut to length and bent using a bender tool to 90 degrees. Once the conduit is bent, it must be measured to verify the 90 degree bend is accurate with respect to specified lengths of each end. When removed from the bender, the conduit was placed on the ground where levels and tape measures were utilized to verify. This process required the conduit the be lowered to the floor and then lifted back up when finished, which can be heavy and awkward at times to maneuver.

After: A custom bending table was designed and fabricated for this process. The conduit is transferred straight over from the bender to the table. From there it is transferred to a cart after verification. This reduces much of the material handling and eliminates the bending and lifting/lowering to the floor.

Pella Corporation – Sioux Center Iowa

Glass handling safety/ergonomic improvement

Before Photo



After Photo

The large sheet of glass up to 55”x68” needed to be moved to the tilt table by bending down to floor level to grab it and carry it to the tilt table. At the tilt table the Team Member reaches as high as the mark above to install the stiles and rails onto the glass.

A roller system was installed that allows the glass to be rolled directly off the squeezer rack without bending down to grab it. The tilt table was modified to raise and lower to accept the glass directly from the roller system. Also, by lowering the table it allows the Team Members to keep the unit in process in a better ergonomic position while installing the stiles and rails.

Pac-Man Fixture John Deere Ottumwa Works

Original Process

Employee welding would need to physically flip and roll the square tube along the two stands to position tube to access all areas requiring welds. The employee would also need to bend down and reach into end of tube to weld a gusset inside tube creating ergonomic concerns of awkward positions, bending and resting on knee.

Revised Process and Fixture

Employee no longer needs to manually roll the tube over the table to complete all welds on outside and inside tube. The Pac Man fixture allows the square tube to be spun inside the fixture, which eliminates safety concerns with smashing fingers, strained muscled and ergonomic positions when welding gusset inside the channel.

Revised Fixture

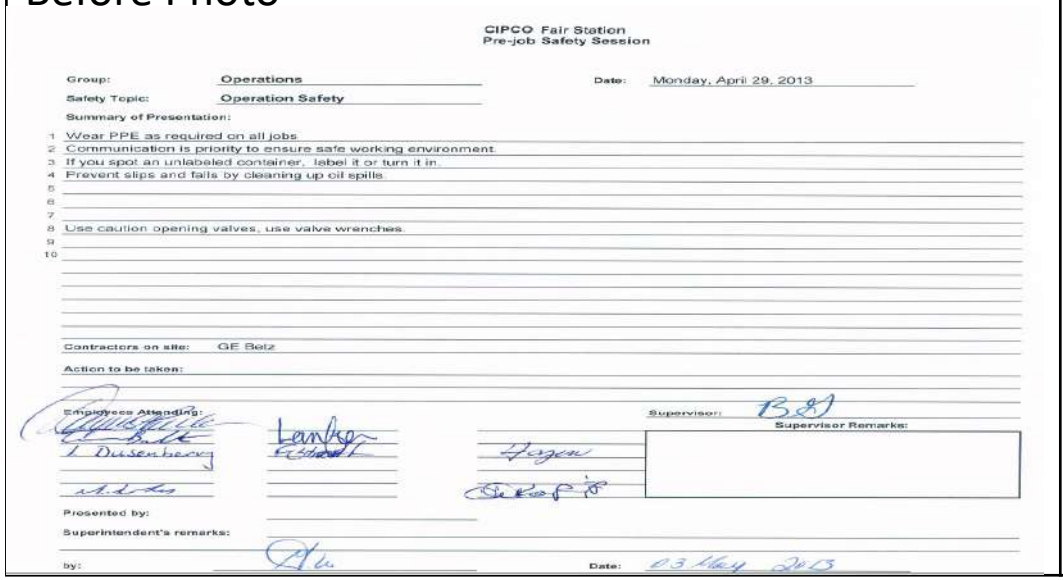
Previous Method Stand

Revised Fixture Loaded

Central Iowa Power Cooperative (CIPCO) – Cedar Raids, IA

Job Briefing (Tailgate) Form Improvement

Before Photo



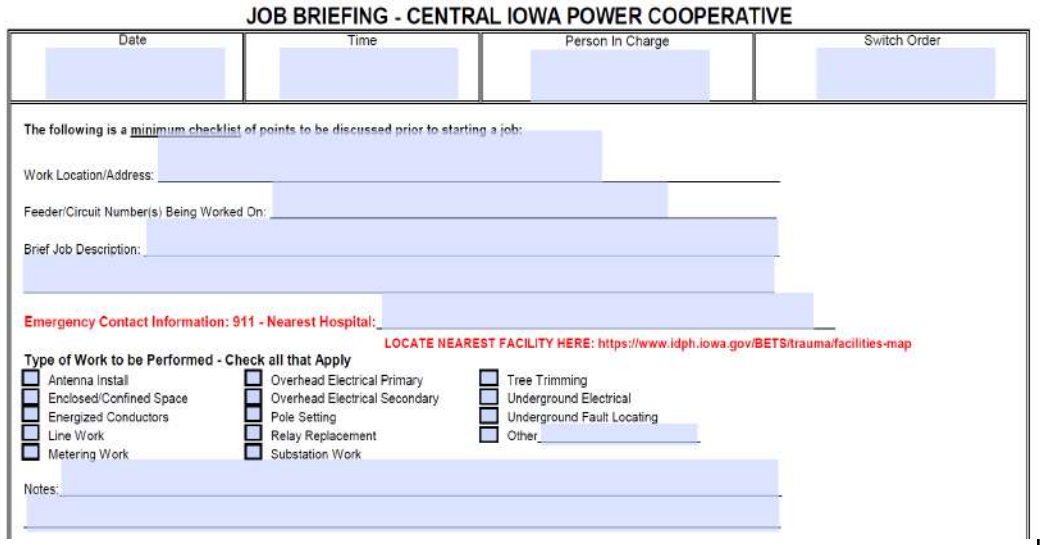
CIPCO Fair Station
Pre-job Safety Session

Group: Operations Date: Monday, April 29, 2013
Safety Topic: Operation Safety
Summary of Presentation:

1 Wear PPE as required on all jobs
2 Communication is priority to ensure safe working environment
3 If you spot an unlabeled container, label it or turn it in
4 Prevent slips and falls by cleaning up oil spills
5
6
7
8 Use caution opening valves, use valve wrenches
9
10

Contractors on site: GE Betz
Action to be taken:
Employees Attending:
Supervisor:
Supervisor Remarks:
Presented by:
Superintendent's remarks:
by:
Date: 03 May 2013

After Photo



JOB BRIEFING - CENTRAL IOWA POWER COOPERATIVE

Date	Time	Person In Charge	Switch Order

The following is a minimum checklist of points to be discussed prior to starting a job:

Work Location/Address:
Feeder/Circuit Number(s) Being Worked On:
Brief Job Description:

Emergency Contact Information: 911 - Nearest Hospital:
LOCATE NEAREST FACILITY HERE: https://www.idph.iowa.gov/BETS/trauma/facilities-map

Type of Work to be Performed - Check all that Apply

- ☐ Antenna Install
- ☐ Enclosed/Confined Space
- ☐ Energized Conductors
- ☐ Line Work
- ☐ Metering Work
- ☐ Overhead Electrical Primary
- ☐ Overhead Electrical Secondary
- ☐ Pole Setting
- ☐ Relay Replacement
- ☐ Substation Work
- ☐ Tree Trimming
- ☐ Underground Electrical
- ☐ Underground Fault Locating
- ☐ Other

Notes:

CIPCO's job briefing form needed to be improved upon in order to provide the best information for employees and to encourage participation in the job briefing itself.

The form was made form-fillable, available on the company Intranet, and now incorporates a checklist style to help employees think about potential hazards inherent in any project. A link to the Iowa Department of Public Health's trauma facilities map is also part of the form so that anyone doing field work will know exactly where the nearest emergency care facility is located no matter where employee project work is taking place.

Hagie Manufacturing Company– Clarion, IA

Tire Install/Cart

Before Photo

After Photo

Description of Before

Operators would mount sprayer tires onto machine with overhead hoist, walk tire to hub, handle tire to orient and push onto hub, winch wheels together for alignment and tighten lug nuts. Hazards: Pinch/crush points. Upper body Ergo concerns. Strain on body.

Description of After

Operators use hoist to place tire onto tire cart. Secure tire, pushcart with tire over to hub. Tire stays on cart until tire is secure on machine. This process eliminates an unstable load, strain of pushing wheel onto hub and reduces pinch and crush points. Less physical handling of tire.

Company Name – City/State

Before Photo

After Photo

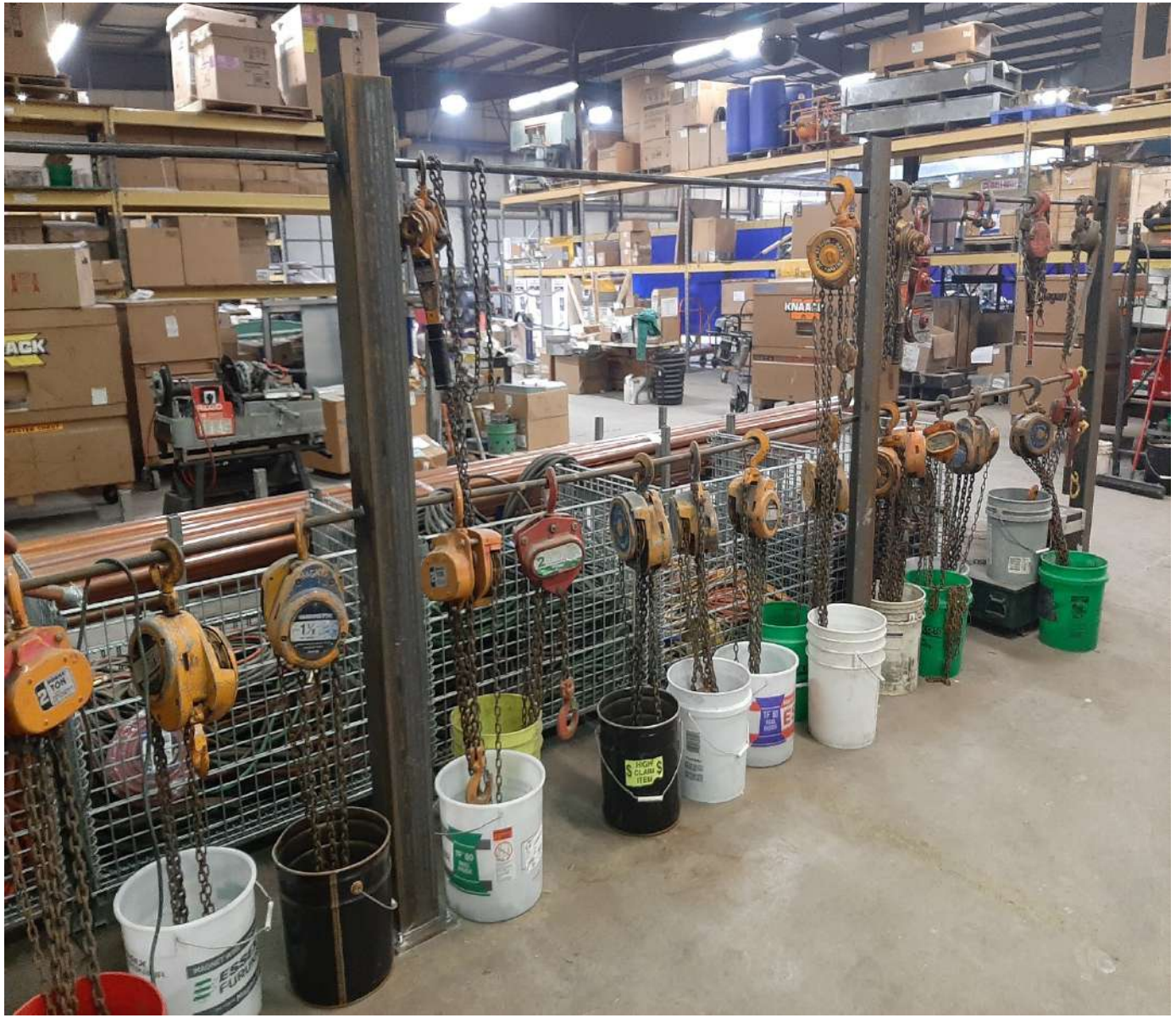
Description of Before

Operators had to carry turn plates, over 100#, for every machine to adjust toe-in on the front suspension along with ramp. Either had to be a two person lift or time-consuming use of cart.

Description of After

We have since recessed them into the ground so the need to move them back and forth for every machine is eliminated, reducing the need to bend over, pick up, carry and put in place on every machine.

Ragan Mechanical’s safety improvement was to build a
rack to hold are chain falls. Before we built the rack
chain falls were stored in buckets which presented
potential hand injuries for pinch points and scraping
employee hands reaching in buckets to pull out
heavy chain falls.



Engineering Control– The team designed and installed a way to move empty cardboard from production to a cardboard baler.

Before

After

BASF Ames Hazard Control Award Project: Powder Auger Cleanout Process Changes

Exposure to Moving Parts Hazard Reduction:

The BASF Ames manufacturing facility uses a dry powder auger system for a process at the site. This process required operators to cleanout residual powder between batches to avoid cross contamination of raw material lots. Site quality required employees to disassemble the auger housing and run auger in reverse to remove residual raw material before beginning next run. There were safety incidents associated with the task where the auger would come out of the housing causing hazards to employees. During normal cleanout, the process would generate fugitive dusts and the residual material was hard to capture. The employees responsible for this area worked with quality and maintenance to improve the process. The first improvement was to conduct a risk assessment of the cross-contamination concern between raw material lots. Working with quality, it was determined to be an acceptable risk to eliminate the between batch auger cleanout requirement. The auger still needed to be cleaned out at the end of each production week. Working with maintenance, the employees requested that a local ventilation hood be installed to capture fugitive dusts. Lastly, the maintenance team provided an elbow adaptor for the team to use to direct the flow of residual powder during clean out to a catch pan on floor. This elbow also eliminated the potential for the auger to reverse out of its housing during cleanout.

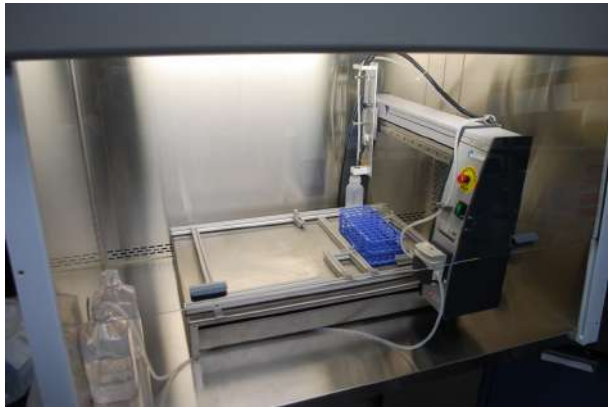
BASF Ames Hazard Control Award Project: Automated Sterile Tube Filler

Ergonomic Hazard Reduction through Automated Lab Equipment:

The BASF Ames manufacturing facility identified an ergonomic risk present in their quality assurance laboratory and in 2021 a team of lab employees sought out an automated tube filler and put together a proposal to management for purchasing the equipment. Prior to the new equipment employees would manually fill up to 500 individual 9 mL tubes in one day using a dispensette. This repetitive motion required hand operation of the tool and ergonomic risk was reduced by frequent breaks, stretching, and job rotation. The new tube filler is capable of filling up to 1,400 individual 9 mL tubes in a day. Employees setup the equipment and program how many tubes they need filled and to what volume and the equipment completes the filling task. The lab employees are proud of this hazard control project and reported positive impacts on efficiency and safety in the lab.

Before:

After:

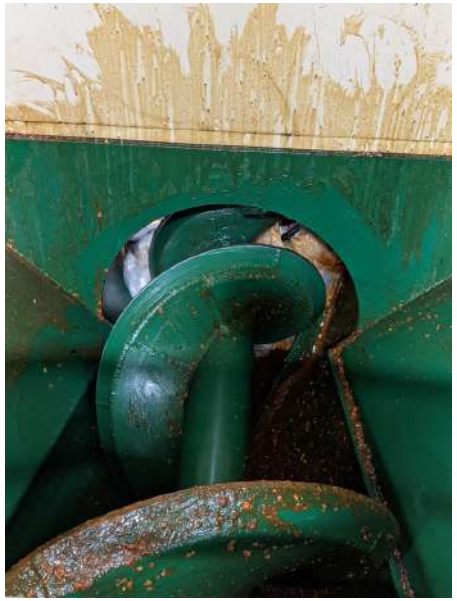


Mom's Meals – Grinnell, IA

Trash & Cardboard Compactors

Before Photo

After Photo



Description of Before:

Above: A dumpster was placed outside of our loading dock, leading to several injuries from slip trip & falls and lifting above shoulder height injuries.

Description of After

Above left: The new compactors are connected to the building, eliminated the need to go outside.

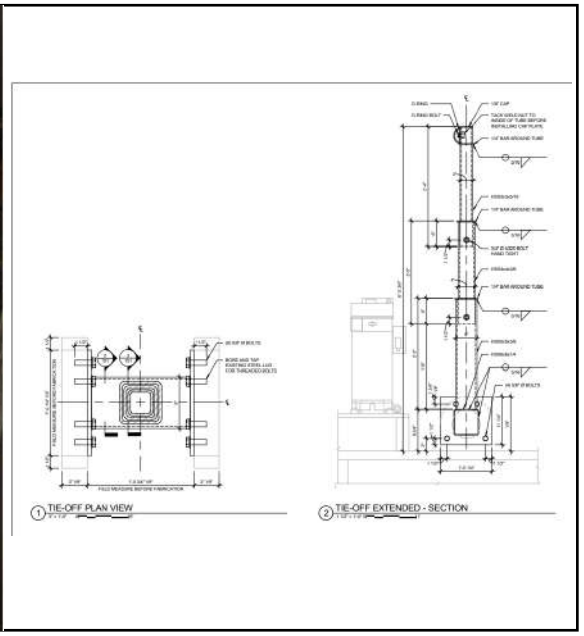
Above center: This gate opens, allowing a more ergonomic friendly trash/ cardboard removal.

Above right: Inside trash & cardboard compactor.

Trash & Cardboard Disposal– We completed an engineering control to connect our trash compactors to our facility. We reduced the risk of slips, trips, and falls walking outside the facility. The new working height at the dock lowered the height of the lift into the compactor and reduced lifting above shoulder height.

John Deere Davenport Works– Davenport, Iowa

Innovative Large Component Machining



This project specifically targeted reducing fall hazard risk when working on top of our large component machining centers. We have ten of these machines across our operation and between the height of the machine above ground and the underground pit that surrounds this equipment, employees are working nearly 30 feet above ground and needed tie off points.

As a short-term process improvement, the maintenance team worked with our engineering team to develop fall restraint tie-off locations (left). To build on this success, the maintenance team contracted an engineering firm to accommodate the low overhead room available when using bridge cranes during normal operations. The solution provided was a custom telescoping fall arrest anchor point that built upon the original solution by raising the point of retention to improve employee safety and accommodate the working space available.

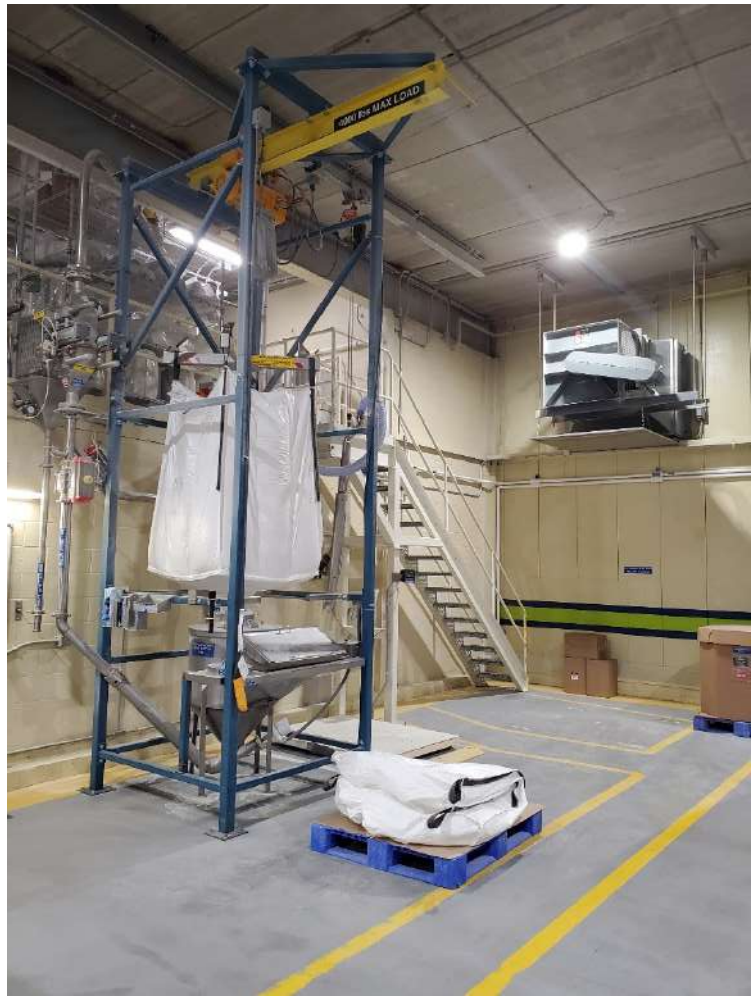
Before

Employees used to have to access the roof of the office to clean combustible dust on a regular basis with a scissor lift.

After

An employee suggested installing a bridge from the current platform to the office roof to access the area safely and more efficiently.

Before



While opening the bottom of totes, employee could be located under the 1000 kg load.

After

A safety structure was designed and installed to protect employees if they had to be under the load while opening the throat to drain the product.