Ergonomic Safety Project- Gluer/Web Pallet Inverter- Shoulder Savers Lebanon Folding

Lebanon Folding Ergonomic Safety Team
Finishing & Web Departments
Reliability Group
Safety Department

WestRock

Determining the need….

Lagging Indicators:

Over the course of the last two years (6/2016-current)

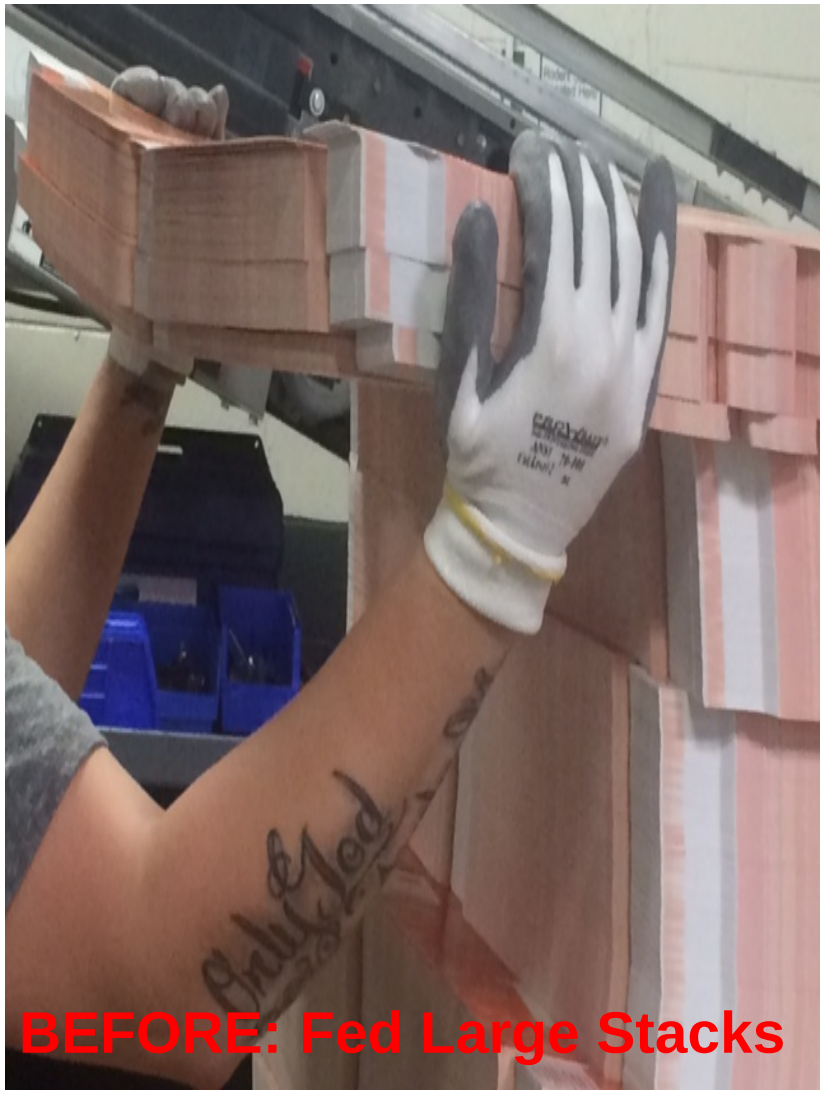
- Lebanon Folding has had 23 incidents that are classified as first aids or recordables
- Of these incidents, 52% were ergonomic injuries
- Of the 12 ergonomic injuries, 7 occurred in the Finishing department on Gluer 7

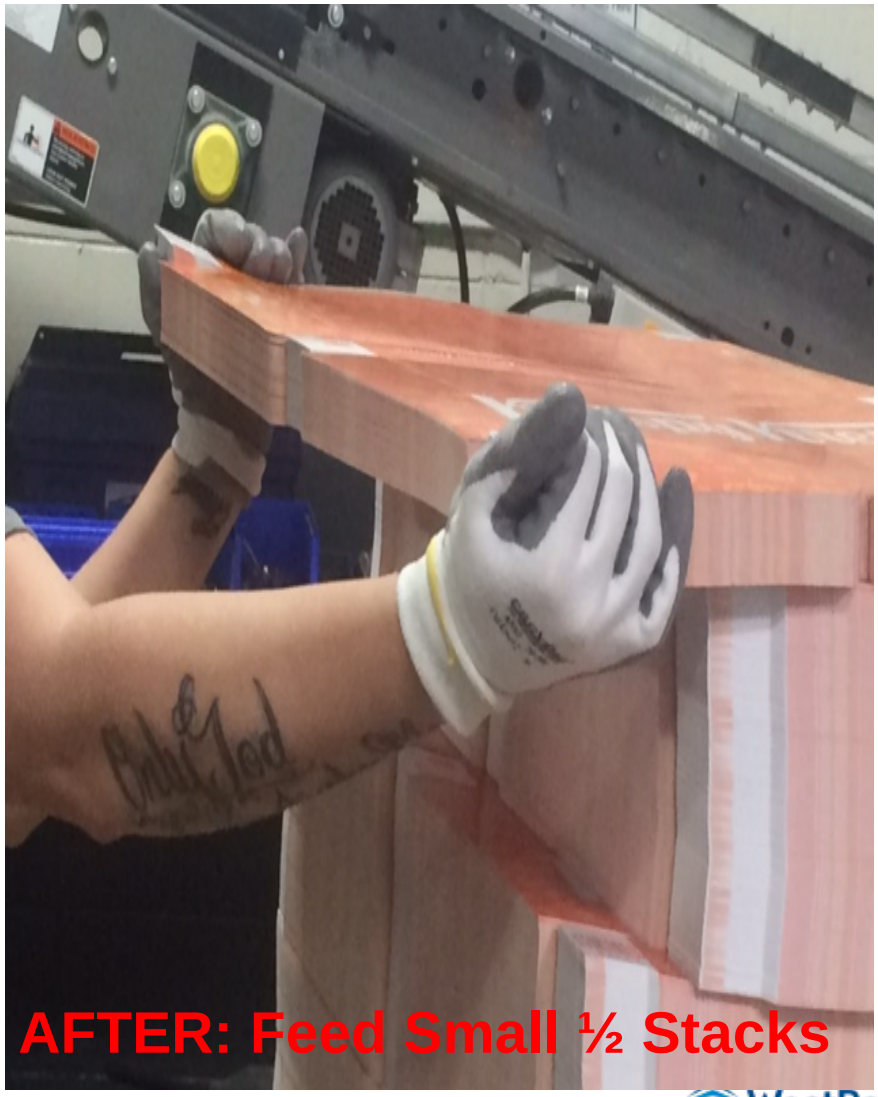
In the beginning….

Ergonomic Hazards in the Finishing Department on Gluer 7 related to standard work:

1. Glues TM12s, a large carton designed to hold one dozen donuts. It is the largest, heaviest carton Lebanon Folding produces.
    - Causes strain in wrists/elbows /shoulders when trying to feed traditional stacks
        - Establish “best practice” of lifting smaller hands of product when feeding

Hazard 1 Solution: Established Best Practice





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Ergonomic Hazards on Gluer 7 related to standard work:

2. The feed telescopes according to which product is being folded, therefore when running TM12s
    - Feeder is forced to take an extra step due to the feed being set up closer to the machine
        - Provide Move Smart refresher training annually and during new hire orientation to encourage healthy ergonomic practices

Hazard 2 Solution: Annual MoveSmart/Ergonomic Training

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LEBANON FOLDING

MoveSMART

Safer. Stronger. More in Control.

BENEFITS

MoveSMART Safer. Stronger. More in Control.

STRONGER, MORE IN CONTROL – *The physical techniques you will learn can immediately improve your strength and balance.*

EASIER, WITH LESS STRAIN – *Your control will also improve as you learn to direct the forces entering your body, so you will be able to handle physically demanding jobs with less strain.*

AT WORK, HOME, AND ACTIVITIES – *These techniques are not just for using at work; you can also use them at home, in sports, and in other activities.*

PROTECT YOURSELF AND OTHERS – *Even in high-risk situations, you will be better prepared to protect yourself and others – not only co-workers, but family and friends at home.*

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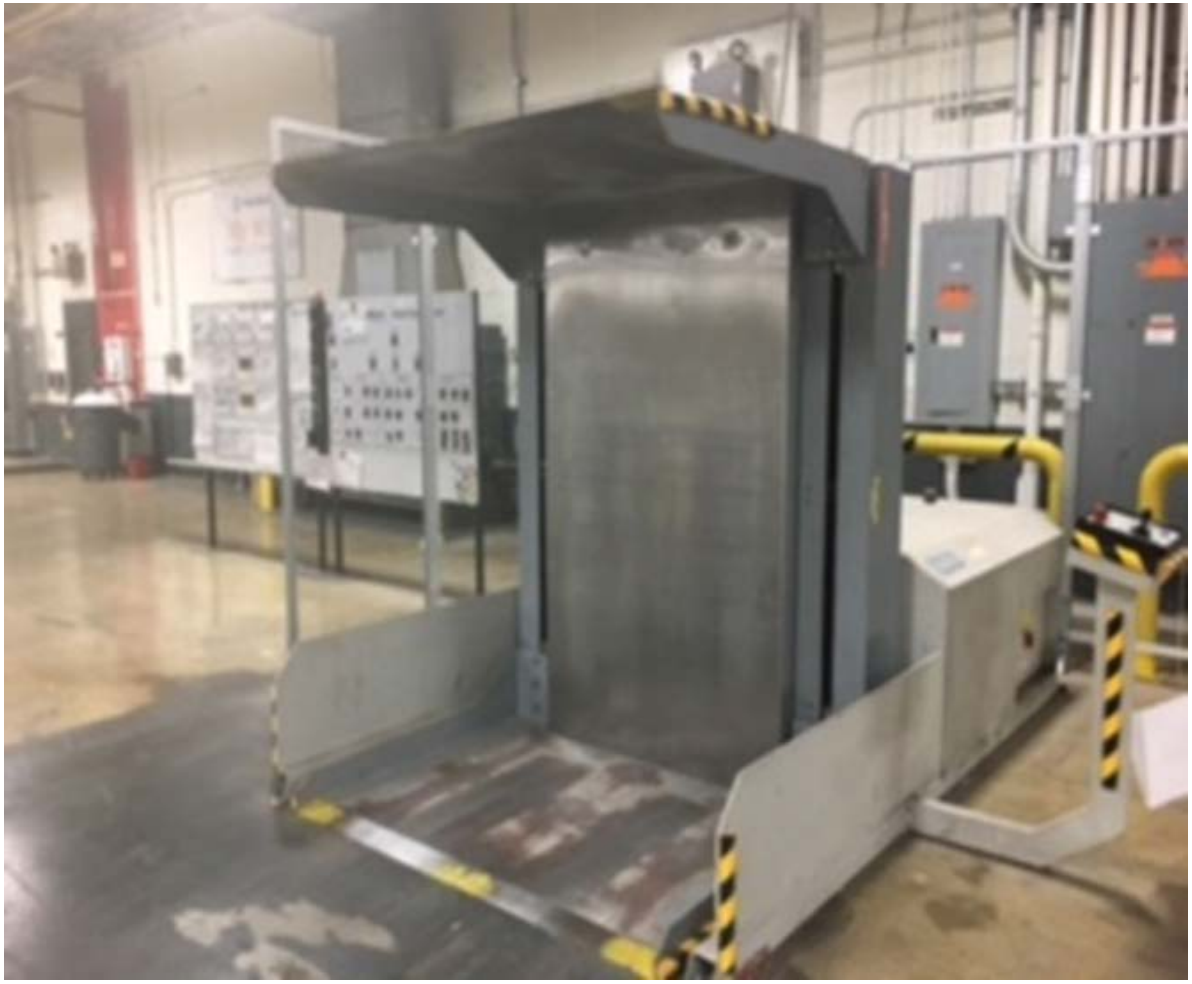
Ergonomic Hazards on Gluer 7 related to the printing process in the Web Department:

3. Stacking process in the Web Dept at the press, required feeders in the Finishing Department to rotate and flip the large TM12 cartons as they were fed into the gluer.
   - Stacking process at the press was modified so that the front edge of the carton was in position to feed directly into the gluer without being rotated.
   - Installed a pallet inverter to flip the pallets of cartons so product will arrive at gluer right side up

Hazard 3 Solution: Pallet Inverter



Then we created a new hazard….

Use of the pallet inverter required that a black pallet be placed on top of the TM12s prior to flipping the stack of cartons

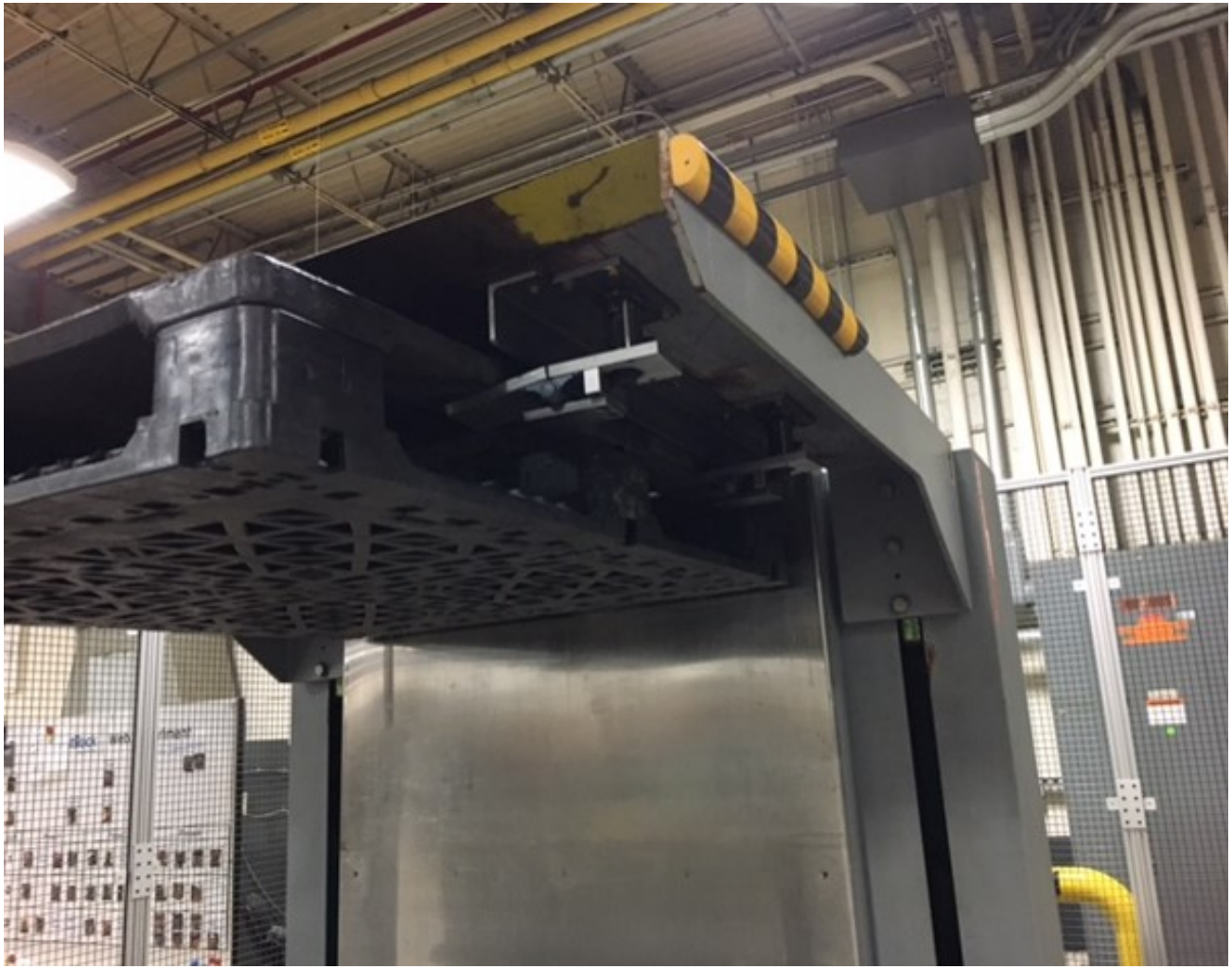
- Lifting of the black pallets caused unnecessary strain on the shoulders of the Web Department employees
  - These pallets weigh 45-46 lbs each
  - The height of the stack of cartons on a pallet is approximately 5 ft tall
  - The average person is 5’ 6.5” in height- which means the average shoulder height is below 5 ft.
  - The Web Dept produces an average of 24 pallets of TM12s during an normal shift
  - Therefore, Web Dept members were required to lift 22.5 lbs outside of his/her green zone at least two dozen times each shift.

The HIERARCHY OF CONTROLS….

What if the pallet did not have to be lifted?

- Modified the pallet inverter to hold suspended pallet
- This allowed a pallet to be inserted at the bottom and then flipped
- After inserting the pallet in the bottom section and inverting the empty pallet inverter, there is a pallet in the top section of the pallet inverter
- In order to flip a pallet of cartons, a pallet of product is inserted, the pallet is inverted, and the flipped pallet is removed -leaving the extra pallet in the pallet invertor on the top section

Engineered Solution: 1st Solution



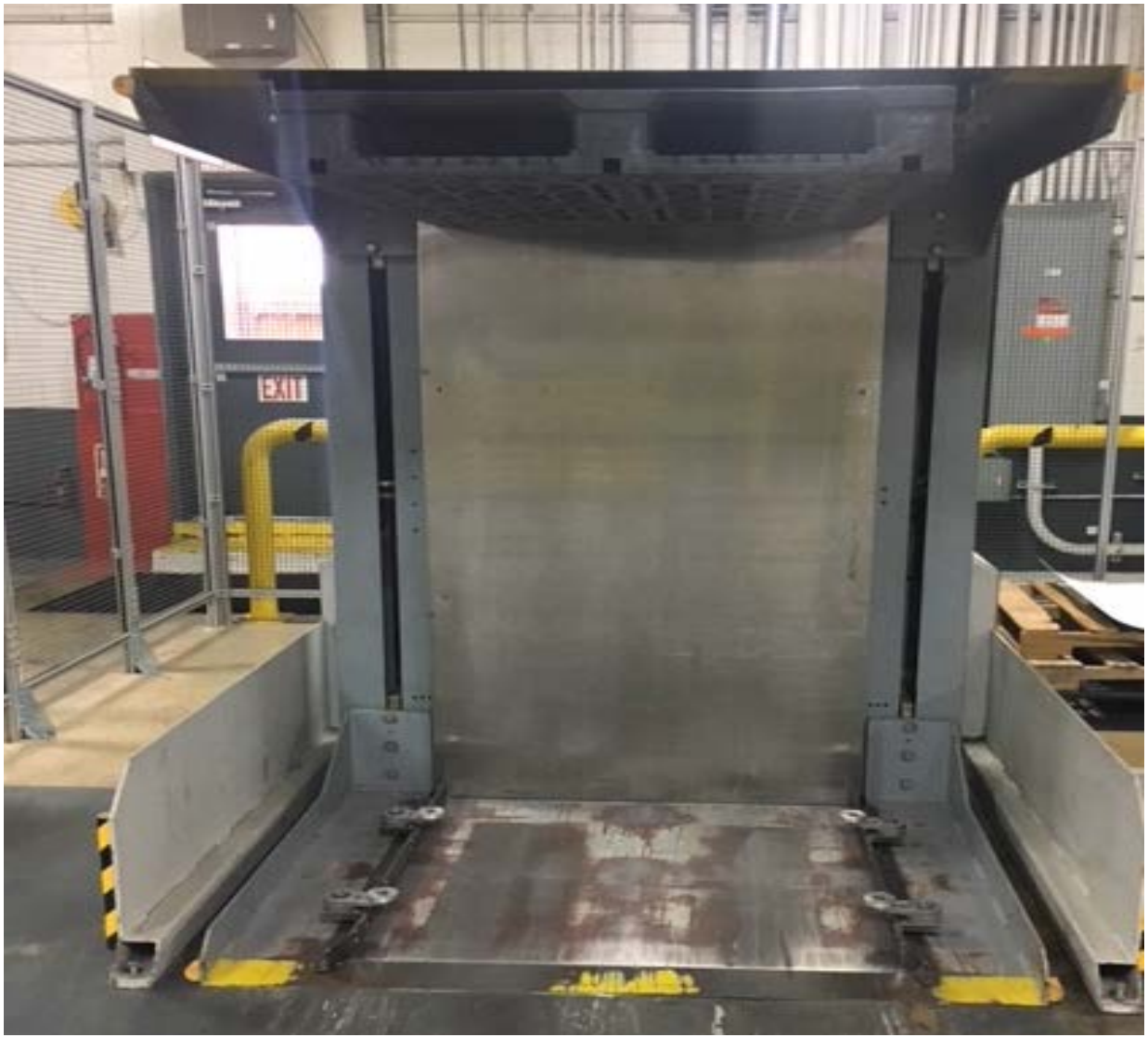
Engineered Solution- 1st Solution

Re-engineering the Engineered Solution….

The first engineered solution worked…but not well.

- Designed and produced by the Lebanon Folding machinist
- Offered minimal tolerance to variance in pallet placement
- Did not tolerate use of a wooden pallet rather than a black plastic pallet
- Was replicated easily

Final Engineered Solution



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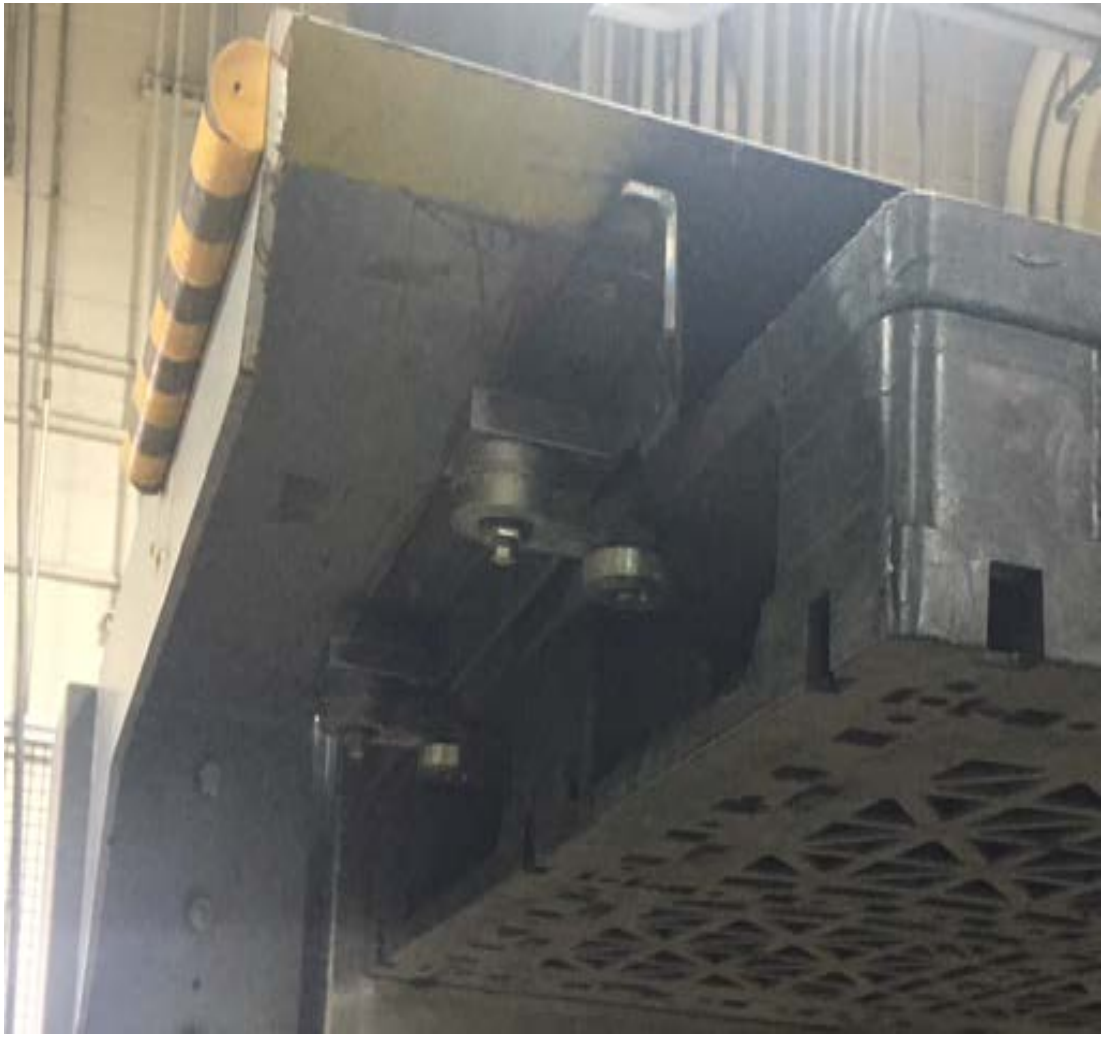
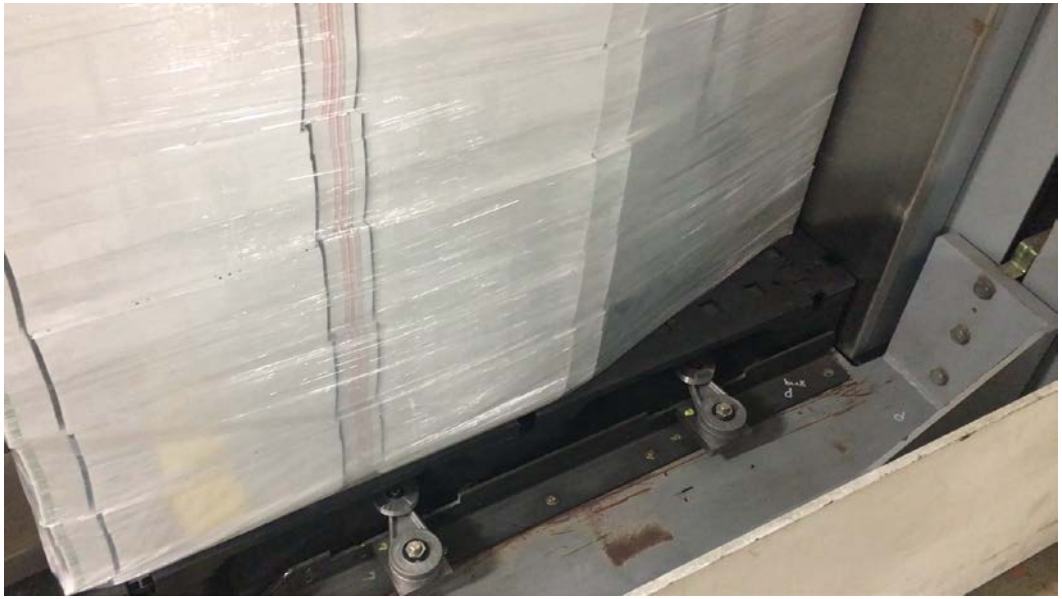
Final Engineered Solution



So…with a little determination and a lot of pulp and paper resourcefulness….

The final engineered solution is resilient, replaced easily, and cost effective

- Solution is cost effective, $23 per clip
- Easily obtainable, can be purchased at any auto parts store
- Easy to replace, just unbolt one and bolt the new one in.



Current State….

1. Reduced Finishing Department Ergonomic injuries 100%
2. Reduced Web Department Ergonomic injuries 100%
3. Utilized resources in 5 departments (Ergonomics Safety Team Leader is a member of the Forming Department) to implement final solution
4. Changed standard work in two departments to implement solutions and established best work practices.
5. Solution was implemented by evaluating the process beginning in the Web department, establishing the “pacemaker” (the way cartons are delivered from the press), and then implementing changes incrementally until the hazard was mitigated by re-purposing standard items in a new way.
6. Solution also reduced number of employees needed to flip a pallet of printed cartons from one to two, due to the pallet being suspended and not needing to be lifted by two people.

Questions
&
Discussion