

EMCO ENTERPRISES



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COMPANY BACKGROUND

EMCO Enterprises is a fully owned subsidiary of Andersen Corporation. The company manufactures and supports the warranties of a variety of storm doors. With a workforce of approximately 500 employees at locations in Des Moines, Iowa and Luray, Virginia, EMCO produces doors built around energy efficiency, security and durability. The company's storm doors can be purchased at home improvement stores across the United States and Canada.

PROJECT BACKGROUND

This is EMCO's third year hosting interns through the Pollution Prevention Intern Program. The company has made significant reductions in energy use and in the amount of waste sent to the landfill. This year's project was to identify opportunities to reduce process waste.

Non-engineered scrap accounts for a large portion of the waste stream at EMCO. There are several opportunities to investigate the cause of damaged material and make changes to reduce the amount of scrap. The intern focused on studying the processes and material flow and recommended process modifications to reduce recurring sources of kick panel, carton and lineal scrap.

INCENTIVES TO CHANGE

EMCO strives to make a positive impact on the environment by reusing materials, recycling and reducing waste through its ECO 3 environmental initiatives. Reducing the amount of scrap will reduce the amount of energy needed to transport, process and recycle the scrap. Reducing scrap will also lower the associated costs of handling the scrap and purchasing raw material. The economic and environmental impacts of scrap reduction are major incentives to change.

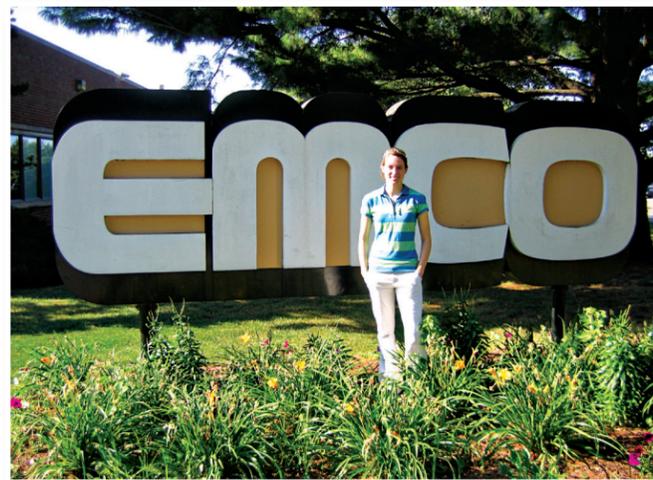
RESULTS

Kick Panel Scrap: While investigating sources of kick panel damage, the intern found that some scrap was caused by material handling at the plant and a majority of the scrap was caused by vendor processes. A storage rack was added and a layout change was made to reduce the potential for material handling damage. Also, a new process was set up to record the reason for damage and place all scrap on a designated cart. This process allows the company to receive credit from

the vendor for damaged kick panels received, helps the vendor to identify sources of damage, and saves raw material costs.

Top Carton Scrap: Bundles of corrugated carton used for packaging required excess forklift handling because of the way they were oriented in the delivery trucks. The intern worked with EMCO's carton buyer and vendor to identify an opportunity for the vendor to change its carton handling process, which will reduce forklift damage of cartons at EMCO.

Z-bar Conveyors: Z-bar lineal scratches mainly occur when a portion of the z-bars dive off of conveyors into a holding cart and scratch against each other. On one production line, a roller attachment was developed to connect to the end of the conveyor to eliminate the scratching motion. Implementing roller conveyors on all production lines will reduce the amount of touch-up paint used in the plant and improve product quality, which will lead to significant cost savings.



Handle Hole Machine: Another cause of lineal scratches is when metal shavings occasionally get stuck between clamps and pieces of lineal as they are fed through a machine that cuts handle holes. The intern studied the points of contact in the machine and recommended installing air nozzles to automatically blow metal shavings off the contact surfaces. Eliminating this source of scratches will reduce labor and raw material costs.

CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN STANDARD TONS

| Total for all sectors | | | | | |
|-----------------------|-----------------|-----------------|------------------|------|-------|
| CO ₂ | SO ₂ | CH ₄ | N ₂ O | CFC | PM-10 |
| 20.02 | 0.06 | 1.83 | 0.14 | 2.76 | 0.02 |

| PROJECT | ANNUAL COST SAVINGS | ENVIRONMENTAL RESULTS | STATUS |
|---------------------------------------|---------------------|-----------------------------|-------------|
| KICK PANEL SCRAP HANDLING | \$10,030 | 4.45 TONS RECYCLED MATERIAL | IMPLEMENTED |
| TOP CARTON ORIENTATION | \$1,095 | 0.89 TONS RECYCLED MATERIAL | IMPLEMENTED |
| Z-BAR SAW OUT FEED ROLLER CONVEYORS | \$27,165 | N/A | IN PROGRESS |
| INSTALL HANDLE HOLE MACHINE BLOW OFFS | \$3,695 | 0.78 TONS RECYCLED MATERIAL | IN PROGRESS |

