

Pella Corporation

CASE
SUMMARY

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PELLA CORPORATION- CARROLL OPERATIONS

Carroll, Iowa
Carroll County
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Major: Chemical Engineering
School: University of Iowa



The Company

Initially the Rollscreen Company, Pella Corporation began in 1925 as a small Des Moines based manufacturer. In 1926 the Rollscreen Company moved to Pella. In 1982, after many years of successful operation, the Rollscreen Company opened its first U.S. expansion outside of Pella in Carroll. Carroll Operations, with 600 team members, produces Proline® Double Hung Windows, Proline® Sliding Doors, and Proline® Accessories.

Project Background

Pella Corporation-Carroll Operations recognizes tremendous opportunity with paint line overspray reduction. Drums of compacted solid paint and drums of liquid solvent suspensions are disposed of as hazardous waste. By decreasing the amount of paint that is sprayed, Pella's environmental impact will be greatly diminished.

Incentives for Change

Pella Corporation, known for actively pursuing continuous improvement opportunities, has set goals to reduce overspray by 30 percent, reduce cleanup time by 10 percent, and reduce HAPs and VOCs by 10 percent. Achieving these goals will drive down production costs and improve operating conditions.



Results

Paint Line Overspray

Pella can meet their goals by modifying the paint line process and increasing control of the paint line system. By installing fluid regulators for each spray gun, utilizing smaller spray gun tip sizes, replacing damaged conveyor rollers, and installing additional guides, the paint line will be more controllable. Modifying the current paint line system will cost approximately \$16,300. After these modifications are completed, further investigation must be completed to ensure proper pressures are utilized to produce the desired high-quality finish. Pella has the potential to eliminate 104- 55 gallon drums of hazardous waste, reduce VOC emissions by 4.74 tons, and save at least \$150,000 each year.



Compressed Air System Checks

By performing regular air system checks for leaks, approximately 550 cfm can be eliminated, resulting in an annual savings of \$17,000.

Recycling

Pella already recycles many items such as wood, glass, paper, cardboard, and plastic. Three additional recycling programs were implemented to eliminate 42 tons of solid waste and save Pella \$4,600 each year in disposal fees.

Fluorescent Lighting

Pella is testing energy efficient fluorescent fixtures to replace the high-pressure sodium ballasts currently being used. Pella has the potential to reduce their electric use by 1,150,000 kWh per year and save \$46,000.

Environmental Recommendations

Pella is actively investigating switching from a solvent-based paint and primer to a more environmentally friendly water-based paint and primer. A change in this direction will greatly reduce HAPs and VOCs as well as improve operating conditions and extend equipment usable life length.

Project Summary Table

Project Description	Environmental Impact	Economic Cost Savings	Status
Paint Line Overspray Reduction	104 drums/year Hazardous Waste 4.74 tons/year VOC Emissions	\$150,000	Recommended
Compressed Air System Checks	550 cfm/year	\$17,000	Implemented
Screen Cloth Recycling	15 tons/year	\$2,700	Implemented
Loading Tray Recycling	7 tons/year	\$700	Implemented
Double Hung Jamb Liner Recycling	20 tons/year	\$1,200	Implemented
Fluorescent Lighting	1,150,000 kWh/year	\$46,000	Investigating