JELD-WEN WINDOWS

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COMPANY BACKGROUND

JELD-WEN, formerly known as WENCO, was started in 1969 and is located in Grinnell, Iowa. The 240,000 square feet facility is located on 18 acres of land. In 2004, corporate leadership branded the name JELD-WEN for all subsidiaries. JELD-WEN Windows moved to the current facility in 2005 and manufactures vinyl windows and sliding patio doors for new construction and remodels in the residential sector. The company supplies products to Menards, Home Depot, and other lumber companies and builders. JELD-WEN Windows presently employs 550 people.

PROJECT BACKGROUND

A waste stream analysis was conducted for each of the manufacturing steps within the facility. The current waste streams sent to the landfill were mapped and measured. The intern worked with personnel and managers to recommend placement of waste collection containers to best facilitate the workflow in each area. Recommendations were provided for process changes that could result in waste reduction. Reuse and possible revenue generation opportunities were researched for the production scrap. Recycling sources were researched and provided for the remaining waste streams.

INCENTIVES TO CHANGE

The solid waste reduction project at JELD-WEN Windows will help the facility meet environmental goals. Reducing the amount of scrap generated in the production processes and increasing recycling efforts will help lower the volume of waste currently being sent to the landfill. Locating markets for recyclable waste streams would provide a source of revenue in addition to the cost savings from reduced disposal costs.

RESULTS

A waste stream analysis showed which waste streams were coming from each manufacturing process. Waste reduction and recycling opportunities were identified and collection procedures were put into place. A presentation was created to help educate employees on the recycling policies at JELD-WEN. Color coded slides were created with pictures of each item and labels in both English and Spanish. These color coded slides could be used as signs on the factory floor to properly identify the bins and assist employees with the recycling process.

Wood Waste Diversion: Wood waste, including production scrap and pallets, accounts for approximately 281 tons of the waste going to the landfill each year. Installation of a wood shredder would allow wood waste to be shredded and hauled away for use as animal bedding. A local agricultural company would provide hauling making this option more appealing. A second option evaluated was to haul the wood to a nearby wood recycler. Both the hauler and recycler would charge a fee, so the annual savings associated with this option is much less.

Cardboard Recycling: Cardboard is used underneath the glazing tables to catch dripping glaze. This creates a constant stream of contaminated cardboard that cannot be recycled. Black ultra-high-molecular-weight (UHMW) polyethylene drip trays would provide a more permanent solution and reduce the amount of cardboard going to the landfill.

Plastic Recycling: Raw materials are bundled in a plastic shipping material that is currently baled and recycled. Finished product is wrapped in plastic wrap for shipping. The excess plastic wrap, plastic bottles and caulk tubes can also be recycled.

CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN METRIC TONS

TOTAL FOR ALL SECTORS							
CO_2	SO_2	CH_4	N_2O	CFC	NO_X	VOC	PM_{10}
1,013							

Bottle and Can Recycling: Beverage containers used by employees are currently tossed in large blue dumpsters with other recyclables, but contaminate the collected materials due to liquid residue. Collection bins specifically for these beverage containers were purchased to ensure all materials are successfully separated and recycled.

Paper Waste Recycling: Paper waste is generated from the offices and the manufacturing floor. A recycling program is in place but a substantial amount of paper is still going to the landfill. Additional collection bins conveniently placed throughout the plant would help capture the remaining paper waste for recycling.

Vinyl Recycling: Vinyl waste is generated through various stages of production. Dust vacuums attached to the saws to collect vinyl saw dust as well as collection bins attached under the punches would help to collect this material for recycling. Weekly weld plate tests to ensure the plates are calibrated correctly would minimize bad welds, reduce production scrap and improve quality control, contributing to both cost savings and additional revenue for the company.

Metal Recycling: Metal barrels are used to collect purged material from the glazing pumps and butyl guns used in production, but trash and other debris are also frequently thrown in, causing the recyclable waste to become contaminated. Covers were created for the barrels that allow the purged material to go in but help keep them free of debris.

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
WOOD WASTE DIVERSION - SHREDDER	$28,489	281 TONS	RECOMMENDED
WOOD WASTE DIVERSION - RECYCLER	$4,489	281 TONS	RECOMMENDED
CARDBOARD RECYCLING	$8,429	83 TONS	RECOMMENDED
PLASTIC RECYCLING	$4,636	46 TONS	RECOMMENDED
PAPER RECYCLING	$4,609	46 TONS	RECOMMENDED
VINYL RECYCLING	$3,424	34 TONS	RECOMMENDED
METAL RECYCLING	$790	8 TONS	RECOMMENDED