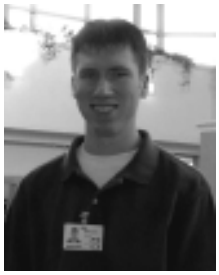
Pella Corp.

CASE SUMMARY 14



PELLA CORPORATION

Pella, Iowa
Marion County

Intern: Michael Brown
Major: Mechanical Engineering
School: Iowa State University

The Company

Pella Corporation started in 1925 as the Rolscreen Company, which was known for its disappearing window screen, the Rolscreen®. Today the company is known as Pella Corporation and produces a wide variety of windows, patio doors, storm doors and entry systems. Primary product lines include Architect Series®, Designer Series®, ProLine®, Pella® Impervia™ and ThermaStar by Pella™.

Project Background

Currently, Pella Corporation has several miles of compressed air lines and thousands of horsepower in compressed air capacity. Compressed air is a major utility used for manufacturing and is a large portion of the energy expense. Pella desires to optimize the current system to reduce demand, energy usage and input costs.

Incentives to Change

Last year, the Pella site was involved with the Pollution Prevention program. Several waste stream analyses and recycling projects were conducted. Pella wanted to continue its efforts in energy and waste reduction with another project. This year a more specific project was identified, focusing on the compressed air system.

Results

1. **Compressed air leaks**

The leak detection process was evaluated because of the uncertainty of leak costs. Pella understood that leaks caused the compressors to run more frequently to maintain pressure, but lacked data on how much it was costing to do so. Concerns about the necessity of having a leak technician dedicated to finding leaks also existed. By determining the flow rate associated with the existing leak categories, overall facility flows were realized. Over a 14-month time frame, 2,095 cfm was lost to leaks. By finding and repairing these leaks, $56,378 has been saved in energy costs.

2. **Remote air compressor intakes**

Currently, air used for compression on the rotary screw compressors is drawn from inside the compressor rooms. Air inside the compressor rooms is always more humid and higher in temperature than air outside the building. By using air from outside, the compressor airflow will be denser and drier. With denser air, a greater quantity of air can be compressed in the chamber using the same amount of energy. These factors equate to a lower energy cost to produce the same amount of compressed air. Annual savings of $8,400 is possible.

3. **Large compressed air consumers**

The facility as a whole has several operations that use significant amounts of compressed air. Operations using air motors, air pumps, blow-offs, compressed air vacuums and open blowing were identified as large air consumers. Also selected for analysis were computer cabinet coolers and rail drying, both significant users of compressed air. By diverting some of these processes to electrical power, high-demand events can be removed from the compressed air system. This helps reduce compressor operation and is less expensive than creating compressed air. These factors could provide an energy savings of $8,411 per year.

4. **Plant isolation for air shut off**

With no production scheduled during all or some portions of weekends, a minimum of two and sometimes three compressors are running to feed the main system. This situation indicates that up to 650 horsepower is feeding leaks or continuous blow-offs. If plant areas could be isolated and the air supply shut off for one day, energy savings of $20,171 per year could be seen.

5. **Compressed air training materials**

Materials used to promote general awareness and the impacts of compressed air usage were created. The materials are targeted at maintenance and line personnel who use air on the job every day. The materials will be used as postings to inform plant staff. It is intended that the same materials are used at other Pella facilities and general awareness will be increased company-wide.

Project Summary Table

P2/Waste Reduction Option	Waste Reduced	Raw Materials Saved	Annual Cost Savings	Status
Compressed air leaks	700 leaks/yr	2,000 cfm/year	$56,378	Implemented
Remote air compressor intakes		166,256 kWh/year	$8,400	In progress
Large compressed air consumers		50,401,664 cfm/ year	$8,411	Recommended
Plant isolation for air shut-off		7,606 kWh/year	$20,171	Recommended