Project Overview

Airlite Plastics Co.
Omaha, NE

Industrial Placement Intern: Blair Debban
Major: Mechanical Engineering
School: University of Nebraska - Lincoln

The Company

Airlite Plastics in Omaha Nebraska, employing over 750 workers, is an industry leader in plastic injection molding and label printing manufacturing items such as drink cups, polystyrene coolers, insulating concrete forms, building blocks and other food-grade customized plastic products.

Project Description

The 2008 summer project was to find ways to increase the efficiency of the facility's compressed air system and reducing the electric utility costs. Increasing compressor efficiency focused on two areas: 1) compressor operation and 2) unnecessary air use.

Adjustments to the inlet modulation valves significantly improved the performance of system. A computerized control system would further increase the efficiency. To reduce air use,

- System leaks were detected, tagged and repaired.,
- Open blowing nozzles were replaced.
- Elimination of inappropriate uses for compressed air such as for personal cooling was suggested.
- System improvements including installing solenoid valves to shut the air off to machines when they are not in use and move compressed air lines downstream of the shutoff valves, and closing system drains were recommended.

An additional project focused on reducing plastic scrap via source-reduction.

Pollution Prevention

Since producing compressed air for manufacturing purposes requires large amounts of electricity, increasing the efficiency of the system will indirectly decrease the amount of energy needed to be produced, reducing fossil fuels and pollutants such as carbon dioxide, sulfur oxides, and nitrogen oxides.

Results

The results of the summer of 2008 are shown below in Table 1.

Table 1. Potential Cost Savings of Suggested Projects

Project Description	Annual Cost Savings
Replace open blowing nozzles	$65,589
Add compressor controls	$43,873
Adjusted inlet modulation valve	$18,926
Identified and tagged leaks & open drains	$35,000
Add solenoid valves	$8,977
Change electric billing rate	$63,019
Reduce plastic scrap	$23,910
Total Annual Cost Savings	**$259,295**