

Project Overview

Nebraska Industrial Assessment Center Intern: Maclean Slavik

Major: Mechanical Engineering

School: University of Nebraska-Lincoln



Summer Activities

Over the summer I was part of four assessments and lead on one. I was responsible for a special project where I tried to create a template for a new AR based on backflow prevention valves, and several other assignments related to the class.

Recommendations and Project Description

Of the four assessments I went on throughout the summer, the first was a practice assessment in Lincoln, Nebraska. This AR was the best way to ease into the job and get familiar with the work that would be expected during the summer. At that visit, I was responsible for three ARs; Exit signs, office lighting, and RTUs. On the second assessment my ARs were to reduce the compressed air leaks and create a compressed air management plan. On the third assessment I was responsible for an HVLS fan and cogged v-belt AR. The final assessment for the summer was the assessment where I was lead student. Here, on top of being the lead student, I was responsible for upgrading the facilities outside lighting to LEDs. I was also responsible for spearheading a new AR for the NIAC, in the form of recommending an on-site nitrogen generator.

My special project focused on check/backflow prevention valves. It was my intention to develop a new AR based on my findings. However, after talking with some plumbing technicians, I discovered that this cannot become an AR based on the fact the check valves are solely used as a contamination prevention device, and not as a cost saving device.

Pollution Prevention Benefits

All in all, I learned much this summer on reducing energy usage from an industrial standpoint. The one thing that I believe I will use throughout my engineering career was taking the combined bills from a year and determining the usage and demand of each utility. Utilities are a part of all production, and being able to apply the things I learned here in the future will surely be useful going forward.

Results

The pollution prevention benefits and results done by the intern are summarized in Table 1:

Table 1: Pollution Prevention Benefits and Results

Project	Electricity Usage Savings (kWh)	Electricity Demand Saved (kW)	Therms Saved	Cost Savings	GHG Reduced (MTCO ₂ e)
Upgrade Exit Signs	488	0.67	-	\$182	0.47
Upgrade Lighting	19,302	77	-	\$835	18.41
Fix Economizers	16,924	-	-	\$423	16.15
Fix Comp Air Leaks	509,110	-	-	\$17,636	486.71
Comp Air Management	81,039	-	-	\$2,917	77.47
Install HVLS Fans	41,435	56.8	-	\$83,384	39.61
Install Cogged V-Belts	223,189	-	-	\$10,936	213.37
Install Nitro. Gen.	-	-	-	\$51,601	-
Upgrade Lighting	5,651	-	-	\$463	5.40
Change Meter Rate	-	-	-	\$807	-
Total	673,949	134.47	-	\$169,184	857.59