

## 2009 Case Study

# Robbie Flexibles

Intern: Ryan Marshall  
Major: Industrial Engineering  
School: Kansas State University

Lenexa, Kansas



### *Company background*

Robbie is a film-packaging company with 116,463 square feet split between two buildings. This company is run 24/5, three shifts, with approximately 150 employees. It is a family-owned company, started in 1971 by the father of the current president, Irv Robinson.

### *Project background*

The following systems were researched and analyzed: lighting, 31 HVAC RTUs (roof-top units), air compressors, an RTO (regenerative thermal oxidizer), and water savings.

### *Incentives to change*

Robbie has goals to become Sustainable Green Printing (SGP)-certified by September 1, 2009, and to reduce overall energy consumption by 15%. In order to help Robbie achieve these goals, Marshall started by finding MAMTC, the best company to complete an energy audit, which is also required for SGP certification.

### *Projects reviewed for E2/P2 potential*

#### 1. Lighting Project

Quality Electric has already supplied a lighting bid with a net investment of \$29,762.47, and a payback of 1.89 years for Robbie. The lighting upgrade will save 169,331.80 kwh/yr. Mike Hutton is the VP of business at QE. Robbie needs to decide if this project meets its criteria for a good investment. If so, project completion will be about six to eight weeks once contracts are signed and confirmation on KCPL rebate money, approximately \$9670.07, is confirmed and credited to Robbie's bill upon completion of installation.

#### 2. HVAC Project

Thirty-one RTUs can be a hassle to maintain. Environmental Mechanical is contracted to do the maintenance. However, a unit was found low on refrigerant, and many coils were damaged and dirty,

and air filters needed to be changed. Also, MAMTC recommended a demand-control system to turn off a few RTUs when current power consumption is about to breach peak power consumption. It is estimated this automated system will cost \$100,000 with a 2.5-year payback. Also, Robbie has an excellent white albedo roof. It is highly feasible to powerwash the roof for a small investment and see major savings on building cooling.

#### 3. Air Audit

On Tuesday, July 28, Marshall found 31 leaks after doing a leak-detection audit with a UE System 9000. There is a potential savings of 38,029.59 kwh/yr, equating to \$3041.60 savings per year, if all leaks are repaired. Since air compressors use so much electricity and about 84% of that energy is given off as heat, this is a very important project. It would also be beneficial to pressure test the system; see page 19 of Marshall's summer report for details.

#### 4. RTO Project

RTO and water savings are negligible. However, it was noticed in the last week of Marshall's internship that the RTO might need to be insulated because average utility bills in the winter months are almost four times higher than those in the summer months.

Summary of 2009 E2/P2 intern recommendations for Robbie Flexibles

<b>Project description</b>	<b>Annual estimated environmental impact</b>	<b>Annual estimated cost savings</b>	<b>Status</b>
Lighting	169,331.8 kWh	\$13,546.54	In progress
HVAC	Unknown	Unknown	In progress
Air Compressors	38,020.6 kWh	\$3,041.60	In progress
Natural Gas: RTO	248,464.9 kWh	\$8,988.80	Implemented
<b>Total savings *</b>	<b>455,817.3 kWh</b>	<b>\$25,576.94</b>	
<b>GHG reductions *</b>	<b>210.5 metric tons CO2e</b>		

\* Does not include projects that are "not recommended" or "further research is needed."