ADVANCED MANUFACTURING OFFICE: INDUSTRIAL ASSESSMENT CENTERS

The Importance of Investing in Energy Efficient Equipment

An assessment team from the Oklahoma State University (OSU) Industrial Assessment Center (IAC) spent one day at a Henry Company plant, examining its operations and collecting data on current practices. The IAC team was able to identify, and facilitate the implementation, of both small and large savings opportunities.

Henry Company produces one of the most popular lines of protective building envelope products in the nation. *Photo from Henry.*

Summary

Under the supervision of Dr. William Kolarik, the OSU team visited the Garland site and identified eleven energy savings opportunities that were crafted into the recommendations listed in Table 1. Henry's management staff responded positively to the assessment and implemented many ARs soon after receiving the report.

Company Background

With headquarters in El Segundo, California, Henry Company manufactures products that control water, air, heat, and vapor in and around buildings. Employing more than 560 people at twelve plants across the US and Canada, Henry serves the repair, remodel, new housing, and commercial markets.

Asphalt Plant Upgrade

So far, this sounds like the account of a typical industrial assessment, with an outcome that benefits both the client and our nation's industrial energy efficiency. But there is more to the story here, because Henry Company has decided to make major changes at this plant, to better serve its customers and to increase market share.

The most extensive modification will be the conversion of the asphalt plant from a bucket product line to the production of rolled sheets of roofing, which will require all new equipment and a new layout. The preliminary design and specifications have already been completed, and the current bucket-product process line will be dismantled in April, 2016.

Selecting a New Boiler

Both Henry and OSU staff agreed that this preparation for major remodeling would be a great time to look for energy-saving opportunities in conjunction with this conversion. In this context, the existing old fire-tube dry-back boiler was conspicuous because it had failed before the OSU team visited the site, forcing the client to rent a trailer-mounted boiler to make up for the lost heating capacity.

In addition, a natural gas-fired oil heater provides booster heating, because the old boiler did not have the ability to maintain all of the asphalt at the required viscosities by itself. The client recently refurbished this heater and will retain it to heat the asphalt tanks after the remodeling is completed.

One of the OSU team members, Pushkar Vartak, has exceptional experience with boiler operation and maintenance. After examining the failed 150 HP steam boiler, Vartak offered to perform a product research and lifecycle cost analysis to assist Henry in its decision-making process, prior to purchasing a new boiler.

Plant Description

Henry Company's Garland plant includes 107,000 square feet under roof, divided into two production areas: asphalt-based products and latex-based products. The plant normally operates one shift, Monday through Friday, and it has been in operation for more than twenty years.

Henry had already planned to acquire a two-pass 150 HP standard-bid unit, but after receiving Vartak's study of efficiencies and cost savings, Henry staff opted for a higher-efficiency three-pass 150 HP unit, which should save approximately $2,500 per year, according to Vartak. Note that this is

the incremental savings of the three-pass over a two-pass new unit, whereas the annual savings estimate, compares a new high efficiency three-pass boiler with the rental (trailer-mounted) boiler that the client used during most of 2015 due to the failure of the old unit. During the assessment, the team also performed a combustion efficiency test on the rented boiler.

Implemented Recommendations

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Install Compressor Air Intakes in Coolest Locations	5,780 kWh/yr	$760	$1,690	2.2 years
Install Occupancy Sensors	6,220 kWh/yr	$815	$3,390	4.2 years
Tune the Boiler	1,410 MMBtu/yr	$4,500	$3,000	0.7 years
Eliminate Steam Leaks	140 MMBtu/yr	$440	$600	1.4 years
Tune the Oil Heater	850 MMBtu/yr	$2,730	$2,000	0.7 years
Insulate the Oil Heater	980 MMBtu/yr	$3,120	$5,210	1.6 years
Use Night Setback in Office and Production Area	12,090 kWh/yr 128 MMBtu/yr	$1,990	$100	0.1 years
Total	24,090 kWh/yr 3,508 MMBtu/yr	$14,360	$15,990	1.1 years