

## Lexington Home Brands Saves Energy *IAC and State's Division of Air Quality Collaborate to help furniture manufacturer*

### Summary

Lexington Home Brands, an internationally known furniture manufacturer located in Hildebran, NC, benefits from the state's Industrial Assessment Center as well as the North Carolina Division of Environmental and Natural Resources' Division of Air Quality (DAQ). This collaboration provided the furniture maker with targeted energy analysis and recommendations.

The energy survey yielded fifteen recommendations, of which eleven have already been implemented. The implemented savings are estimated to be \$21,920/yr., about 10% of the total energy use. The total cost of the recommendations was \$85,868 resulting in a simple payback period of less than four years. In addition to the energy savings, modifications to the lighting system have improved light quality and safety in the spray booths. This is expected to improve quality and reduce defects.



Lexington Home Brands, an upscale furniture manufacturer is one of North Carolina's premier legacy industries. Photo courtesy of Lexington.com.

### Company Background

Lexington Home Brands is a global manufacturer and marketer of residential and contract furnishings, and an industry leader in innovative design and lifestyle marketing. With a history dating back to 1903, the company's expansive product line includes wood and upholstered furniture across a wide range of styles. The company's portfolio of recognized brands includes *Lexington*<sup>®</sup>, *Tommy Bahama Home*<sup>®</sup>, *Tommy Bahama Outdoor Living*<sup>®</sup>, *Sligh*<sup>®</sup>, *Henry Link Trading Co.*<sup>®</sup> and *Aquarius*<sup>®</sup>. Products are distributed through home furnishings retailers, independent design professionals, design showrooms and select Internet retailers. Headquartered in High Point, North Carolina, the company has showrooms in High Point, New York, Denver, and Las Vegas.

### Site Background

The Lexington Home Brands plant, a one-story 305,000 square foot facility, located in Hildebran, just outside of Hickory, produces approximately 21,000 custom upholstered furniture pieces per year.

Major energy uses include air compressors, motors for dust collection and hogging, shrink wrap ovens, lighting and a boiler for space heating. Manufacturing areas are heated using steam radiant heaters.

### Assessment Approach

The energy assessment was conducted in October of 2011, and was led by NC State IAC Director, Dr. Herbert Eckerlin.

The IAC team, in addition to the state's Division of Air Quality, met with plant personnel and toured the facility. Detailed measurements were made by multiple technical providers to help quantify savings from the identified opportunities. The potential measures were then presented to plant management.

#### Additional Information:

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## Results

Eleven of the 15 recommendations made were implemented, with a total estimated savings of almost \$22,000/yr – about 10% of the plant's total energy costs.

Several recommendations around the lighting system were implemented, including one to replace old fluorescent lighting in the paint spray booths with new, high efficiency lighting. The picture below demonstrates the new lighting. In addition to the energy savings computed, plant personnel were very happy with how the new lights look and commented on the increased light and reduction in shadows. The new lights are also explosion proof, improving safety in the area.

Four steam system recommendations were made, including improving combustion in the boiler, increasing condensate tank temperature and measuring make-up water flow. The NCSU IAC also made the company aware of a state program to get an 80% rebate on the cost of a steam trap survey – a real help when capital is tight.

Two compressed air system recommendations, including one to install a VFD air compressor to reduce power used at part load and a recommendation to reduce compressed air pressure.

Finally, the IAC recommended that motors on-site be replaced with premium efficiency motors rather than being rewound, upon motor failure.

Recommendation	Conservation (-/yr)	Savings (\$/yr)	First Cost (\$)	Simple Payback (years)
1. Replace 100 hp Compressor with Smaller 75 hp VFD Compressor	127,417 kWh	\$8,551	\$44,599	5.2
2. Reduce Compressor Pressure	12,963 kWh	\$875	\$0	0
3. Repair Leaks in Compressed Air Lines	7,745 kWh	\$161	\$100	0.6
4. Conduct Boiler Burner Tune-up	32 MMBTU	\$349	\$800	2.3
5. Install Flowmeter in Makeup Water Line	42 MMBTU	\$462	\$600	1.3
6. Increase Water Temperature in Condensate Return Tank	46 MMBTU	\$1,800	\$1,000	0.6
7. Institute a Steam Trap Maintenance Program	172 MMBTU	\$1,119	\$1,000	0.9
8. Install High Efficiency Lamps and Electronic Ballasts	79,804 kWh	\$6,058	\$16,659	2.7
9. Convert Metal Halide Fixtures to Fluorescent	5,734 kWh	\$551	\$7,310	13.3
10. Replace Spray Booth Lights with Efficient Fluorescent Lighting	8,586 kWh	\$659	\$5,880	8.9
11. Install Premium Efficiency Motors	17,584 kWh	\$1,335	\$7,920	5.9
<b>Total</b>	259,833 kWh 292 MMBTU	\$21,920	\$85,868	3.9



Old fluorescent lighting was replaced with high efficiency lighting in the spray booths, which also increased the quality of the light for workers performing that function.