



# Ecolibrium3



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## Organization Background

Ecolibrium3 in Duluth focuses their work on energy efficiency, sustainability and neighborhood revitalization. Previous projects include Giving Comfort At Home, where home audits provided energy improvement assistance for income-eligible, elderly, disabled and/or veteran homeowners that may not qualify for other loans or assistance. Some of their current projects include the Georgetown University Energy Prize competition, the Duluth Energy Efficiency Program, and a resilient power demonstration at the Hartley Nature Center, a solar and battery storage project.



*“This project provided a unique opportunity for me to work with multiple small businesses in a community setting. Not only did I learn a lot from each of the small businesses but I also gained knowledge from the connections I made with other community members. I have no doubt I will use this experience and what I have learned from this project in the future.” ~ HG*

## Incentives To Change

Lincoln Park, a large industrial and residential community in Duluth, is part of the EPA’s, “Making a Visible Difference in Communities” project that identified environmentally overburdened, underserved, and economically distressed communities in the United States. This community has a variety of light manufacturing, automotive, retail and distributors located in some of the oldest building stock in Duluth. Small businesses may or may not be aware of programs that are available to them, and are often at different stages of implementing sustainable solutions. The internship provided and opportunity to help several smaller neighborhood businesses.

## Project Approach

This project had two parts: general benchmarking and deeper assessments of local small businesses. Businesses received assistance in setting up ENERGY STAR® Portfolio Manager accounts that would allow energy, water, and waste tracking to look for changes when new projects are completed. The deeper assessments took this one step



further to find energy, water, and waste savings by looking at the production process. Since energy analysis is the first step toward identifying opportunity, Minnesota Power’s commercial auditors, Energy Insight, provided energy audits to two of the companies in this project. These audits delivered specific recommendations, including available rebates, to determine return on investments.

Two of the local businesses that participated in this project are soft good manufacturers. Aerostich was founded in 1983 and is an authorized Gore-Tex manufacturer that makes lightweight armored motorcycle suits that offer a high level of protection in weather and crashes. Frost River handcrafts heritage waxed canvas packs, bags, luggage and accessories that are generation-proof, reliable, and purpose-built for function. These companies focused on compressed air, scrap recycling, and lean manufacturing.

The third company that was part of this project is a local beverage producer that focused on ways to reduce water. All of these companies are already interested in continuous improvement and being good stewards to the neighborhood and the environment.

## SOLUTIONS

### Compressed Air

Compressed air studies were performed at both of the soft good manufacturers. The studies helped them understand how the air is used and identified leaks in the system. Another reduction opportunity identified was shutting down a machine when it is not in use. By fixing leaks and reducing the runtime of a machine that requires compressed air, the companies can save \$1,600 and 14,000 kWh per year.

### Water Use Reduction

The tanks used in beverage manufacturing are cleaned in succession and have four cleaning steps. Currently, all cleaning water and rinse water is discarded. By reusing the final rinse water, the company could save 41,000 gallons of water annually. Investing in a hose water meter and optimizing temperature and wash chemistry could save an additional 62,000 gallons, if further testing assures complete sanitization. Installing low flow cleaning nozzles would save 27,000 gallons of water annually.

### Waste Reduction

Like all businesses, these Lincoln Park companies have a waste stream associated with their processes. For example, soft good manufacturers create a lot of scrap fabrics from production. Finding uses for scraps involves creative ideas and researching multiple connections. There are many crafters and non-profits in Lincoln Park, and a few were contacted to find possible reuse options. There is discussion of creating an event in Lincoln Park using the scrap materials to start conversations about waste reduction and reuse and also to bring the neighborhood together. These materials could also be listed on the

Minnesota Materials Exchange. If all of the scrap materials could be reused, more than 3,400 lbs of waste could be eliminated from the landfill.

### Lean Assessments

Lean manufacturing is usually associated with larger manufacturing companies, but is applicable to smaller manufacturing businesses as well. As an introduction to lean manufacturing, a time study was conducted with the two soft good manufacturers, and a value stream map was created for both of their processes. This allows them to look for process inefficiencies and bottlenecks and gives them an opportunity to implement improvements. 5S, another lean manufacturing methodology, is recommended for both companies as a way to reduce non-value added time and increase throughput.

### Energy Assessments

Energy Insight conducted energy assessments at two of the businesses. Business-specific recommendations included taking an old chiller off-line to save \$1,400 and 17,000 kWh per year, and adding shades over mini-split AC units to keep the air intakes and units cool, saving \$1,100 and 13,500 kWh per year. A recommendation common for many businesses is to replace older fluorescent lights with LEDs. If implemented, these businesses could save \$5,400 and 57,000 kWh per year.



Recommendation	Annual Reduction	Annual Savings	Status
Compressed air optimization	14,000 kWh	\$1,600	Recommended
Water use reduction	130,000 gallons	\$1,800	Recommended
Waste reduction	3,400 lbs	Savings from dumpster size reduction	Recommended
Value stream mapping	Improved productivity	Time savings	Recommended
Energy assessments	87,500 kWh	\$7,900	Recommended