

Energy Efficiency Helping Maine

Lyman Morse Boatbuilding

Case Study

#1



“We can actually heat the new 40,000 square foot building with less fuel than our other buildings one quarter the size.”

– Ron Defoe, General Manager,
Lyman Morse Fabrication



Natural Resources
Council of Maine

“I remember the days of 99 cent oil when few were worried about the money being lost due to poor insulation and inefficient equipment. When oil hit \$4.00, everyone frantically began exploring ways to run their businesses more economically. I firmly believe prices will rise sharply again, so we must continue finding ways to help businesses become less dependent on foreign oil.” – Ron Defoe, General Manager, Lyman Morse Fabrication

For more case studies in this series, visit www.nrcm.org/issue_cleanenergy.asp

Energy Efficiency Helping Business



At a glance

Goals

- Construct a facility large enough to handle 140 foot yachts
- Provide a safe, comfortable work environment
- Minimize energy costs

Challenges

- Cold Maine winters
- Scale of building

Solutions

- Efficient T-8 lighting
- Solar roof provides 40% of heating
- High-efficiency propane boilers
- Radiant heating
- SIP insulated panels
- Variable Frequency Drives
- Occupancy sensors

Financial Analysis

- Building is 54% more efficient than a standard building of that type
- Heating costs are lower for the 40,000 square foot green building than for one of their 10,000 square foot buildings
- Saved \$75,000 on heating costs since 2007

Lyman Morse Boatbuilding, Thomaston

With over thirty years of boatbuilding experience, Lyman Morse Boatbuilding is a leader in the custom boatbuilding industry. A full range of in-house capabilities and a crew of talented craftsmen allow Lyman Morse to deliver exceptional quality and build truly beautiful boats.

Lyman Morse Boatbuilding has long understood the importance of energy efficiency. At sea, energy is not something to be wasted. The sailboats they build and design reflect this principle. For example, electronic equipment onboard is often powered efficiently by photovoltaic panels.

When a new facility was needed to handle large yacht construction, energy efficiency was a top priority for Lyman Morse. Boatbuilding and repairs are energy-intensive, in part because very large spaces must be heated and lit. High-efficiency lighting systems were installed to cut energy demand and improve lighting quality. Since 1978, Lyman Morse craftsmen have worked four-day weeks to reduce energy consumption.



What They Did

In June 2006, Lyman Morse began researching and designing a large, energy-efficient building for large yacht construction, storage, and service. They worked with Maine Coast Construction of Camden to design their building. A solar roof would capture the sun's energy and warm the building with radiant heat systems. Propane boilers, rated at 92% efficiency, would supplement the solar heat. Energy-efficient foam core Structural Integrated Panels (SIPs) would prevent heat loss in the walls. Waterless urinals would save 200,000 gallons of water annually. T-8 lighting fixtures would save over 20,000 kWh/year. Variable flow drive ventilation systems would save nearly 15,000 kWh/year while ensuring worker safety. Occupancy sensors would further cut down wasted electricity.

Results

In January 2007, Lyman Morse moved into the bright, airy new structure. The 140 foot by 160 foot building easily fits yachts over 140 feet in length and offers nearly 40,000 square feet of working area.

The energy efficiency performance of the green building exceeds expectations. The building is 54% more efficient than a standard building of the same size, so far saving Lyman Morse over \$75,000 in heating costs. More telling: it costs Lyman Morse less to heat this 40,000 square foot building than it does to heat a 10,000 square foot fiberglass shop.

Lyman Morse understands the challenges faced by custom boat builders as they watch many in their industry sink in these rough economic times. The ability to perform a wide range of services and maintain low overhead costs are essential for sustained success. Lyman Morse's new building supports their needs by allowing the boat builder to take on large jobs from start to finish, all while keeping energy costs in check. In addition, positive media coverage on the green building has strengthened Lyman Morse's reputation as an innovative custom boat builder.

Energy Efficiency Creating Jobs



Maine Coast Construction, Camden

Maine Coast Construction has been custom-building, renovating, and restoring fine homes and commercial buildings in Mid-coast Maine since 1968. A reputation for good communication, quality, and long-term performance is central to Maine Coast Construction's continued success, especially because their clients frequently return as repeat customers. By focusing on practical green technologies that are proven to work well in Maine, the company ensures that their customers enjoy comfortable buildings and low energy bills over the long run.

High-Performance Buildings Save Energy

- Residential and Commercial Divisions see green buildings through from start to finish
- Residential Division works with local BPI-certified energy auditors to ensure their homes are built tight and energy efficient
- Handyman Division weatherizes and retrofits existing homes with energy efficient technology
- Maine Coast Construction puts value on long-term energy costs, instead of cutting corners to reduce up front construction costs
- Both proven and innovative technologies are considered

A Bright Future

- Quality construction with an eye to energy conservation is helping Maine Coast Construction weather a tough time for the building trades
- Business is strong even in a tight economy and MCC has even added several full time employees, bringing them up to 22 people in the field, to help with their busy schedule
- MCC continues to expand its reputation as a green company. They are completing the renovation of 449 Main Street in Rockland, a commercial project, which has incorporated green elements. MCC's residential division recently finished a new super-insulated, solar-heated house in Camden
- MCC has helped clients use Efficiency Maine to increase the energy efficiency of their buildings. The company believes that Efficiency Maine's new programs for commercial new construction and home weatherization retrofits could become an increasing part of their business.



"The Lyman Morse project really was a win-win situation. It helped put us on the map as being an energy-efficient contractor. It helps them each time they have to buy fuel."

- John Davee

Maine Coast Construction
President, CEO, and head of
Commercial Division

Location:

107 Elm Street
Camden, Maine
www.maineoastconstruction.com
(207) 236-6000
help@maineoastconstruction.com

Services:

- Custom building
- Renovation and restoration of residential and commercial structures
- Handyman services, including weatherization retrofits

Employees:

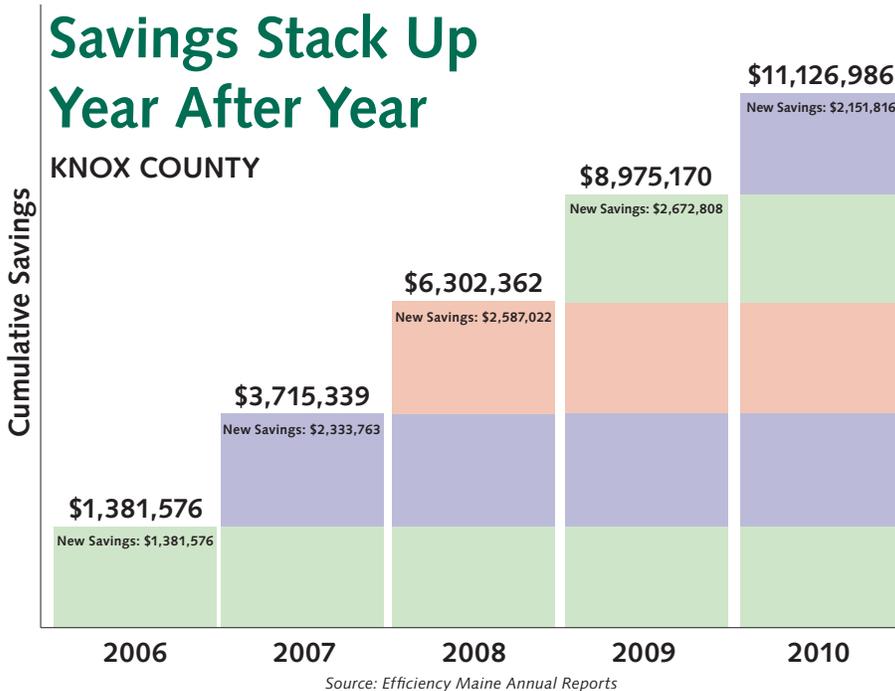
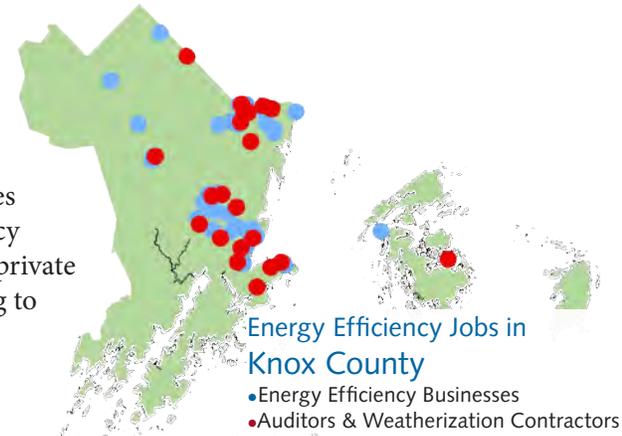
- 26



Efficiency Maine Saving Energy & Money

..in Knox County

Efficiency Maine programs are helping Knox County save energy and money while providing work to the existing energy efficiency sector. Efficiency Maine's three largest on-going programs are saving Knox County businesses and families more than \$11 million from projects completed since 2006. \$500,000 of Efficiency Maine incentives leveraged more than four times that amount (\$2.1 million) in private investment—which was redistributed throughout the Maine economy, including to other Knox County businesses.



Knox County Businesses Saving Money

Since 2006, more than 230 energy improvement projects have been completed by Knox County businesses. These businesses have received nearly \$595,000 in financial incentives and are saving more than \$4.6 million over the life of the projects. These businesses are across Knox County, and include:

Knox Machine (Warren)

Dragon Cement (Thomaston)

North End Composites (Rockland)

Hope Community Bible Church (Hope)

Penobscot YMCA (Rockport)

Birchwood Motel (Camden)

..in Maine

Efficiency Maine is the state's initiative to save energy and money through energy efficiency. Since 2004, Efficiency Maine has saved Maine people and businesses more than \$487 million on their energy bills and leveraged more than \$86 million in private sector investments. By 2009, Efficiency Maine had saved as much total electricity as all Maine households use in a year. The programs help homeowners, businesses, towns, schools, hospitals, and others make wise, cost-effective investments in energy efficiency. Efficiency Maine programs save energy at a price of about 4 cents/kWh—less than half the cost of electricity, and include technical assistance, financial incentives, training, and quality assurance. In 2010, Efficiency Maine developed a three-year plan, with greater emphasis on heating fuels, which will save Mainers \$840 million and increase the state's GDP by \$1 billion. Efficiency Maine's efforts are one of the reasons why Maine's clean energy sector now employs over 4,000 people, and is growing more than seven times faster than the state's overall job growth.

For more information:

1. To save money in your home or business with energy efficiency, contact **Efficiency Maine**, at www.energymaine.com or call toll-free 1 (866) 376-2463.
2. Learn more about energy efficiency opportunities and benefits, clean energy jobs, or additional case studies by visiting the **Natural Resources Council of Maine (NRCM) online** at www.nrcm.org/issue_cleanenergy.asp.
3. Please help support strong energy efficiency policies and programs in Maine. Stay informed by joining **NRCM's Action Network**: visit www.nrcm.org or contact Emmie Theberge at emmie@nrcm.org or (207) 430-0105.

Natural Resources Council of Maine

3 Wade Street
Augusta, Maine 04330-6317
(800) 287-2345
FAX (207) 622-4343
www.nrcm.org