MAINE CEDAR LOG HOMES
L. C. ANDREW
Since 1926

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# Case Study –Green Effect, Maine Cedar Log Homes

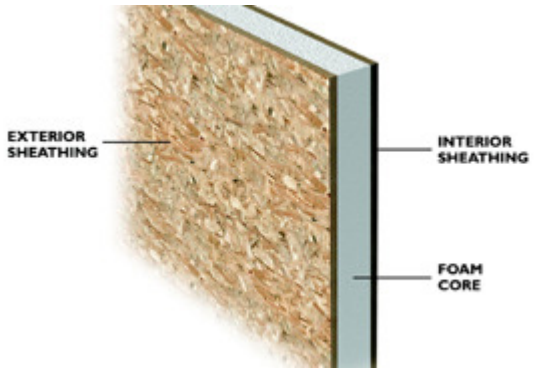
***Overview—***

- ***Ice storm story- Maine Cedar Log Homes customer reports their highly energy efficient log home from Maine Cedar Log Homes LLC weathered the big ice storm without any heat for 5 days !***

- Because the couple lived in Massachusetts and couldn't get up to the home at the lake they were concerned their pipes would freeze because the thermostat was only set at 50 degrees while they were not there. However, because of the construction and energy efficiency of their Maine Cedar Log Home it was able to maintain an interior temperature of about 45 degrees during the 5 day aftermath of the ice storm, knocking out power throughout the region. Unfortunately, most of their neighbors did end up with frozen pipes.

- ***Economy*** –In today's economy everyone is looking for ways to conserve both money and energy. Maine Cedar Log Homes accomplishes both goals with their log home design. An initial investment in this high quality, energy efficient log home product will provide a measurable return in the short run as well as pay off over years of use. Not to mention the reward of years of enjoyment and comfort.

1. ***Green Log Home Building features*** – Here are some of the reasons why the MCLH log home stacks up with the best of the best in log home energy efficiency:




**A SIP Wall**: Structural Insulated Panels (SIPs) provide both insulation and an air barrier in one assembly.

- ***Insulated headers***- Most homes, whether log homes or 'stick built', often have significant heat loss is through the header area over its doors and windows. These headers are typically constructed solely with wood, 2 or 3 pieces affixed to each other. The more doors and windows a home has the more potential for heat loss and higher energy bills. MCLH employs a

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different form of construction using an insulating foam core sandwiched between two LVL sections of wood. This provides a significant increase in the R-value of its homes since most homes have little protection in this area.

- ***Log values***—MCLH exclusively uses Northern White Cedar, the best natural wood insulator growing in the Western Hemisphere. Each inch of Northern White Cedar has a resistance, or R-value of 1.4. and the logs are 4 inches deep so with the balance of the panelized wall construction this brings the insulation value to R-26. With a foam or dense packed cellulose insulation the value could rise as high as R-28 to R-30.

- ***Panels/insulation***—The MCLH home is a panelized product (see Article Sept. '09—Panelized homes) which means a traditional stud wall frame is constructed to which hand hewn logs are applied to the exterior. These panels are all constructed in the factory then shipped to the homeowner's site. Due to this state of the art construction the walls can by wired, plumbed and insulated conventionally. Coupled with the Northern White Cedar logs these panels provide a powerful combination of energy efficiency, flexibility of design and aesthetics.

- ***Windows/doors***— Another area most homes suffer significant heat loss is in the window and door units themselves. We have already discussed how MCLH uniquely approaches the framing of these units but when it comes to the units themselves they use products with excellent reputations for quality and energy saving, Andersen windows and Therma-Tru doors.

- ***Energy Star qualities*** – As described in the opening anecdotal story, MCLH homes are above average in their energy performance and rating. The company's homes can qualify for an Energy Star rating and designs to fit those requirements can be provided should it be a goal of the homeowner.

2. **Energy Star Rating and Energy Credits – *The following information was excerpted from the Energy Star website***

# Features of ENERGY STAR Qualified New Homes

To earn the ENERGY STAR, a home must meet guidelines for energy efficiency set by the U.S. Environmental Protection Agency. These homes are at least 15% more energy efficient than homes built to the 2004 International Residential Code (IRC), and include additional energy-saving features that typically make them 20–30% more efficient than standard homes.

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This label identifies a home as having earned the ENERGY STAR

And with homebuyers increasingly interested in green building, energy efficiency is the place to start. That's because the energy used in homes often comes from the burning of fossil fuels at power plants, which contributes to smog, acid rain, and risks of global warming. So, the less energy used, the less air pollution generated. And the easy way to make sure a new home is energy efficient is to look for the blue ENERGY STAR mark, the government-backed symbol for energy efficiency

Any home three stories or less can earn the ENERGY STAR label if it has been verified to meet EPA's guidelines, including: single family, attached, and low-rise multi-family homes; manufactured homes; systems-built homes (e.g., SIP, ICF, or modular construction); log homes, concrete homes; and even existing retrofitted homes.

ENERGY STAR qualified homes can include a variety of 'tried-and-true' energy-efficient features that contribute to improved home quality and homeowner comfort, and to lower energy demand and reduced air pollution:

## 1. Effective Insulation

Properly installed and inspected insulation in floors, walls, and attics ensures even temperatures throughout the house, reduced energy use, and increased comfort.

## 2. High-Performance Windows

Energy-efficient windows employ advanced technologies, such as protective coatings and improved frames, to help keep heat in during winter and out during summer. These windows also block damaging ultraviolet sunlight that can discolor carpets and furnishings.

## 3. Tight Construction and Ducts

Sealing holes and cracks in the home's "envelope" and in heating and cooling duct systems helps reduce drafts, moisture, dust, pollen, and noise. A tightly sealed home improves comfort and indoor air quality while reducing utility and maintenance.

## 4. Efficient Heating and Cooling Equipment

In addition to using less energy to operate, energy-efficient heating and cooling systems can be quieter, reduce indoor humidity, and improve the overall comfort of the home. When properly installed into a tightly sealed home, this equipment won't have to work so hard to heat and cool the home.

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### 5. Efficient Products
ENERGY STAR qualified homes may also be equipped with ENERGY STAR qualified products — lighting fixtures, compact fluorescent bulbs, ventilation fans, and appliances, such as refrigerators, dishwashers, and washing machines.

### 6. Third-Party Verification
With the help of independent Home Energy Raters, ENERGY STAR builder partners choose the most appropriate energy-saving features for their homes. Additionally, raters conduct onsite testing and inspections to verify the energy efficiency measures, as well as insulation, air tightness, and duct sealing details

## Rebates and Tax Credits for Windows, Doors, and Skylights

### Local Rebates
Many local utilities provide financial incentives for purchasing ENERGY STAR qualified windows, doors, and skylights.

### Federal Tax Credits

On February 17, President Obama signed into law the American Recovery and Reinvestment Tax Act of 2009. This bill extends and modifies the tax credits for windows, doors, and skylights established in the Energy Policy Act of 2005. The following guidance is not intended as legal advice, and you should consult a tax professional with specific questions.

Qualifying products purchased between January 1, 2009 and December 31, 2010 are eligible for a tax credit equal to 30 percent of the product cost. Installation is not included; be sure to obtain an itemized invoice from your retailer or installer. The maximum amount of homeowner credit for all improvements combined (including roofing, insulation, HVAC, and water heaters) is $1,500 during 2009 and 2010.

### Products Purchased before June 1, 2009
**Criteria:** Windows, doors, and skylights purchased before June 1, 2009 must meet or exceed the prescriptive criteria established by the 2001 Supplement of the 2000 International Energy Conservation Code (IECC) or the 2004 Supplement of the 2003 IECC for the climate zone in which the product is installed.

**Documentation:** For windows and skylights, homeowners may use either ENERGY STAR labels or manufacturer certification statements to document eligibility for the tax credit. Doors are required to have a manufacturer certification statement.

### Products Purchased on or after June 1, 2009
**Criteria:** Windows, doors, and skylights purchased on or after June 1, 2009 must have U-factor and Solar Heat Gain Coefficient (SHGC) ratings of 0.30 or less. These ratings must be certified by the National Fenestration Rating Council (NFRC). Look for the NFRC label. NFRC is the only federally recognized organization for determining the energy performance of windows, doors and skylights. Please see the NFRC website EXIT for information concerning product performance.

**Documentation:** Homeowners must obtain a manufacturer certification statement to document window, door, or skylight eligibility for the tax credit. If the retailer or installer cannot provide this document, it may be available on the manufacturer's Web site.

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3. **Utilization of by-products**—Today's 'Green' initiative is more than just energy efficient construction techniques of homes, it also includes how manufacturing companies utilize the by-products of their process. MCLH is a manufacturer of log homes which takes pride in maximizing the use of the various by-products from its process, such as the following:

   - ***Shavings*** —The company mills their own Northern White Cedar logs from 4x6 rough sawn beams, or cants as they are known in the industry, so they generate a large amount of cedar shavings and saw dust. Management designed a collection system to capture all the shavings and dust to protect the health of the equipment operator and feels strongly this by-product should be recycled. Currently, bags of shavings are sold to local farmers and landscapers for use in their animal barns and mulch applications. If the volume of shavings continues to increase there are local companies turning sawdust into 'eco-bricks' for burning in wood furnaces; or even one which developed a method of turning sawdust into a burnable liquid fuel at $2.00 gallon

   - ***Butt end pieces***—Another by-product is the end of the logs cut to fit in the wall panels. Many people come by to pick up these end pieces to burn in their wood furnaces of fireplaces.

   - ***Cull logs***—Cull logs are the logs the company rejects for use on their homes for various reasons ranging from warping, cracking or severe areas of rot. While these logs do not meet the rigid quality standards of the company for their new homes they can be used in several different ways. These logs often can be cut to fit and be used in the construction of their smaller cabins. Additionally, these logs make great landscape timbers for edging walkways and building retaining walls. One local conservation group recently used these cull logs to line the walkways of the nature preserve they manage.

4. **Conclusions –** Based on the information presented in this article it is clear Maine Cedar Log Homes LLC is focused on its multiple 'Green' and energy efficient qualities. In addition to their existing Green and energy efficient designs, the company has excellent in-house design capabilities so they can readily incorporate a homeowners green design into their dream home package design. In an era when Green building techniques and energy efficiency are trendy buzz words it is interesting to note that Maine Cedar Log Homes LLC, with over 80 years of experience, had been a pioneer in these concepts long before they became fashionable.