2009

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Abstract

The aim of our project is to create a model for a sustainable home in New England that is more efficient and environmentally friendly than previous housing models for the main purpose of lowering the homeowners’ carbon footprint. In order to achieve this goal we have researched the main aspects in house design. These aspects include areas such as: structural materials and exterior aesthetics, interior need-based technologies, green energy options, and ideal housing and room placement. By compiling our research, we have created a model home that appeals to the general New England population. This model offers suggestions of small changes in a house that ultimately lowers its energy consumption. Also, we recommend larger remodeling projects, such as the installation of green energy sources, as homeowners’ investments.

Design Challenges in New England:
1. Varying air temperatures make heat retention in the house more difficult than other locations
2. Unpredictable and sometimes extreme weather patterns present several design challenges
3. Ideas of tradition stand in the way of progress

Generating Clean Energy

There are a variety of ways to generate clean energy for a home. Small wind turbines can be used in some locations but solar panels can be fitted flat with the roof for a more subtle and less invasive set up. In many New England states, homes that produce green energy may sell excess power at retail price if they remain connected to the grid.

Sample Floor Plan:

Measures of Success:
1. Financial savings on energy over a five year period
2. Significantly less energy is consumed in our housing model over a five year period than the average home
3. Energy consumed is clean and generated by house

References and Acknowledgements

Many thanks to Marc Papazian, New England Sales Manager at WattStopper, for sharing his knowledge and sending us a motion sensor controlled powerstrip, Rosa Reynoza, an Advertising Assistant, and Bob Crane, President, of C. Crane Company, for sending us a prototype LED bulb, and our advisor, Grétar Tryggvason from the Mechanical Engineering department for guiding us through the process of creating this project. A special thanks to Michael O’Brien, our PLA, for helping us at every step of the project.