



# Case Study in Building Science: Madison La Follette High School

## What is Building Science?

Building Science is the branch of science dealing with construction, maintenance, safety, and energy efficiency of buildings. By incorporating building science topics or lessons into the curriculum, you bring real life situations into the classroom. It is important to inform students (future home buyers) how to recognize a healthy home.

## Students Building Wisconsin ENERGY STAR® Homes

In classrooms and construction sites across the state, technology education students are gaining the skills they will need to become effective members of tomorrow's building workforce. Led by innovative educators and community partners, these students are learning what it takes to be outstanding employees by building Wisconsin ENERGY STAR Homes.

The Wisconsin ENERGY STAR Homes Program uses the Environmental Protection Agency's (EPA) strict guidelines for energy efficiency as a basis of the "certification process" for each home. In addition, homes must comply with specific building requirements for final certification from the Wisconsin ENERGY STAR Homes Program. Four basic areas of building science and performance are addressed through the certification process: air flow, heat flow, moisture flow, and indoor air quality. When implemented, the standards and guidelines can enhance a home's comfort, safety, durability, and energy efficiency. The goal of students building Wisconsin ENERGY STAR Homes is to introduce them first-hand to energy efficient building techniques. Other benefits include promoting awareness about the environment, energy efficiency, and health, while teaching students and the community how to save energy. These students will be building tomorrow's residential inventory. By supporting their

education today, we can be sure that tomorrow's homes will be high quality and energy efficient.

There are many examples of students building Wisconsin ENERGY STAR Homes in Wisconsin. One example is in Madison at La Follette High School. Instructor Steve Munson and the students at La Follette work closely with energy consultant Hans Hofmann from Hofmann Energy Consultants in Madison to build a Wisconsin ENERGY STAR Home every year.

## La Follette Students Gain from Constructing Wisconsin ENERGY STAR Homes

Steve Munson explains, "Students quickly realize the benefits of constructing under the ENERGY STAR guidelines. From the initial thought of the design process incorporating energy efficiency to 'smart wall' framing techniques, exposure to and use of a variety of insulations, caulking/insulating all possible air infiltration points, and understanding how a house works as a system, helps to reinforce the importance of quality, energy efficient building processes, and tending to detail." Several students exclaimed, "One would be silly not to build with energy efficiency in mind!"

## Schools that have built Wisconsin ENERGY STAR Homes: (as of Summer 2007)

- Appleton School District
- Hartford Union High School
- La Follette High School - Madison
- Lakeland Union High School - Minocqua
- Northland Pines High School - Eagle River
- Parker/Craig High Schools - Janesville
- P.J. Jacobs Junior High School - Stevens Point
- Rhineland High School
- Sheboygan North & South High Schools
- Sun Prairie High School
- Stevens Point Area Senior High

## Schools that have remodeled or built additions to Home Performance with ENERGY STAR standards: (as of Summer 2007)

- Kiel High School



### Benefits of Working with Area Professionals

"The local consultant [Hans Hofmann] has been a great individual to develop a working friendship with. From his sharing of knowledge, genuine interest working with kids, and setting up a scholarship program for the students, he is doing a super job for our program!" states Munson. He continues, "But, that is true for all steering committee members. They each bring with them a passion of their professional career field, an interest of working with the program and kids, and continued involvement in evolving the program to be one of the best around."

### How to Get Started

If you're interested in building a Wisconsin ENERGY STAR Home with your students, the first step is to contact a consultant that will guide you through the certification process. A list of consultants can be found on the Focus on Energy Web site at [focusonenergy.com](http://focusonenergy.com). The consultants can do their testing while

students are at the job site to show them the tests they perform to ensure energy efficiency and tightness in the house. This interaction between consultant and student is also an opportunity for students to learn about careers in the energy field.

Rich Urban, a consultant working with Rhinelander, Minocqua, and Eagle River students expresses his enthusiasm about working with student-built home projects stating, "I hope to show the students that home performance is important in today's world. They can build a high performance home from site selection to the final piece of trim, using building science as a tool."

The Wisconsin K-12 Energy Education Program (KEEP) was created to help promote energy education in Wisconsin. KEEP receives its primary funding through Focus on Energy. KEEP offers professional development opportunities, fun student involvement projects, educational energy resources, networking opportunities and more for Wisconsin's public and private K-12 schools. For information about KEEP, call 715.346.4770 or visit [www.uwsp.edu/keep](http://www.uwsp.edu/keep).

Focus on Energy works with eligible Wisconsin residents and businesses to install cost effective energy efficiency and renewable energy projects. Focus information, resources and financial incentives help to implement projects that otherwise would not get completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment and control the state's growing demand for electricity and natural gas. For more information call 800.762.7077 or visit [focusonenergy.com](http://focusonenergy.com).

Wisconsin ENERGY STAR Homes is one of the Focus on Energy Residential Programs. New homes are constructed to meet program standards and are estimated to be more than 25 percent more energy efficient than homes built to Wisconsin's Uniform Dwelling Code. To date, the more than 350 builders who have partnered with the Wisconsin ENERGY STAR Homes Program have constructed more than 7,500 new homes. For information about the program, call (800) 762-7077 or visit [focusonenergy.com](http://focusonenergy.com).

Home Performance with ENERGY STAR is one of the Focus on Energy Residential Programs. It is designed to provide owners of existing Wisconsin homes a cost effective way to reduce their energy bills and enhance the safety and comfort of their homes. To participate, a homeowner must have a comprehensive home evaluation and work completed by consultants and contractors partnering with the program. To date more than 3,500 whole house projects have been completed under the Home Performance with ENERGY STAR Program. For information, call 800.762.7077 or visit [focusonenergy.com](http://focusonenergy.com).



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