

# KILOWATT

The newsletter  
for members of  
Clay Electric  
Cooperative, Inc.

SEPTEMBER 2011

*Energy Star home saves  
power & money*



Clay Electric members Dave and Kathy Kudlo built an Energy Star-certified home on the St. Johns River in Satsuma. *See story on pages 4-6.*

**Annual vehicle &  
equipment auction  
coming soon**



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**Clay Electric Cooperative, Inc.**

A Touchstone Energy® Cooperative 

# Energy Star home built in Satsuma

By Kathy Richardson, Kilowatt editor

**T**he home itself is fairly simple in design. It is a modern-looking contemporary home with combination stucco and lap siding exterior. The overall look of the home could be found in any subdivision in Florida. Perhaps the only telltale sign of its true extreme energy-efficient nature is the white metal roof.

The Satsuma home was recently certified as the first site-built Energy Star home in Putnam County.

Jason I. Sheffield, a state-certified building contractor and owner of The Ivey Group, built the home for Clay Electric Cooperative members Dave and Kathy Kudlo.

While this house is the first official Energy Star home Sheffield has built, he is no stranger to extreme energy efficiency. In fact, Kilowatt readers might recall the home that was featured in the May 2009 issue.

That home, which Jason helped construct, belongs to his parents. While not officially Energy Star, it is also extremely energy efficient and features a photovoltaic system and a geothermal heat pump.



Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that began in 1992. It began as a labeling program for computers and branched out to include appliances and much more. It



Kathy and Dave Kudlo are pictured with their builder, Jason Sheffield of the Ivey Group. Kathy is holding the official Energy Star certificate.

was further expanded to include residential and commercial construction. For new home construction, there are levels of Energy Star certification and requirements that vary from state to state.

The Energy Star label has become the national symbol for energy efficiency.

Energy Star homes use less energy, reduce emissions, increase home durability and cost less for consumers to maintain.

To earn the Energy Star certification, a home must meet guidelines for energy efficiency set by the US Environmental Protection Agency. These homes are at least 15 percent more energy efficient than homes built to the 2004 International Residential Code, and include features that typically make them 20-30 percent more efficient than standard homes. According to the Energy Star website, "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."

Earlier this year, when the Kudlos moved into their Energy Star home, it was the culmination of a dream several years in the making. They had been living in Hilton Head, South Carolina for many years.

"We are originally from Jacksonville and we came back to Florida to retire on the St. Johns River," Dave Kudlo said.

Dave said the idea to seek the Energy Star certification came to him at the beginning of the building process. He said energy conservation was a primary motivation.

The five criteria that make up an Energy Star home are effective insulation, high performance windows, tight construction and ducts, efficient heating and cooling equipment, and efficient fixtures and appliances. The first three Energy Star criteria represent the house envelope, which, according to Clay



Electric Energy Services Manager Sherman Phillips, is critical for an energy efficient home.

"The envelope of the house determines the operating cost of the heating, ventilation and air conditioning (HVAC) system, based upon your comfort level," Sherman said. "The more energy efficient the thermal envelope, the lower the operating cost will be."

Here's a breakdown of the Kudlo home with those five areas in mind:

1) The home was built using Insulated Concrete Forms (ICF) which provide an R-38 Thermal Mass Optimization insulation value with a nominal 6" concrete cavity. The ICF profile consists of 2.25" of foam on the inside, 5.75" concrete in the core, and 6.25" of foam on the outside, for 14.25" of exterior wall. The drywall is added on top of that. For the attic insulation, a 5/8" solar ply radiant barrier plywood sheathing system with a white standing seam metal roof system was installed. According to Sheffield, these two products have offered great results within the attic area.

"Based on constant monitoring within the attic area, the attic temperatures, throughout the spring and summer seasons, have directly correlated with the outside ambient temperatures," he said. In addition to the radiant barrier, a closed-cell polyurethane spray foam insulation was installed at the ceiling level. Sheffield said after extensive research, they decided to use Demilec's Heatloc Soy 200.

"We were able to achieve a high density value and great results from this product," he said. "The reason for spraying the insulation at the ceiling level was based on the house design encapsulating a drop-down soffit area that completely and fully housed the entire HVAC

ducting system."

This method kept all the ducts within the conditioned area of the home and eliminated the challenges of them being located in the attic, where they traditionally fight against the attic temperatures in an open and ventilated attic area.

2) The Kudlos went above and beyond Energy Star standards for their windows. The windows are Lo-E, triple paned and filled with argon gas. The solar heat gain coefficient of the windows is in the .22 to .26 range. Standard windows are around .30. It was important to Dave to have a lower solar heat gain coefficient on his windows. He noted that the windows were pricey, but he said the payback is immediate.

3) The overall construction of the home is essentially airtight. A blower door-test was done on the duct work during the rough-in phase of construction, yielding only two leaks. Because the home is relatively airtight, the home has fresh air added through the HVAC system.

4) The heating and cooling system is completely DC powered. It is a variable output unit and runs almost continuously, but often at a much lower speed than a standard system. Dave credits this system with keeping the home's air fresh and filtered.

5) All the appliances in the home are Energy Star, of course. In addition, all the home's lights are LED. Although fairly expensive and not required for certification, Dave likes the longevity



Sherman Phillips and Derek Hembree of Clay Electric are shown with Jason Sheffield, right, in the attic of the Kudlo home. This photo was taken on Sept. 1 in the middle of the day. They spent more than 10 minutes in the attic looking at the insulation and radiant barrier and the temperature was comfortable.

of the lights and the fact they put off virtually no heat.

The result of all the energy efficiency measures is an average monthly use of 641 kilowatt hours and an average bill of \$79.61. An average bill for a similar size home on Clay Electric's lines would be \$175. The Kudlos' home uses less power than that of an average apartment.

The Kudlo home has a Home Energy Rating System Index (HERS) of 46. That makes it 54 percent more energy efficient than the HERS Reference Home.

While the home is an energy miser's dream, Dave Kudlo says they have sacrificed nothing in terms of comfort. He noted they have "every imaginable electric device known to man," specifically mentioning a couple of refrigerators, a chest freezer, an electric boat lift and an electric golf cart, and that they pump and treat their own water.

Because of the home's extremely airtight design and state-of-the-art heating and cooling system, the temperature and humidity in the home remain consistent without any extra energy usage.

"You can walk from one end of the home to the other without

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# Co-op vehicle & equipment online auction begins Oct. 14

Clay Electric will offer its annual vehicle and equipment auction as an online event from Oct. 14 through Nov. 7. The auction event was online the past two years and has been well received.

Members can obtain information about the co-op's auction items (vehicles, tools, office equipment and miscellaneous products) by visiting George Gideon Auctioneers' web site ([www.ggauctions.com](http://www.ggauctions.com)). The auctioneer is located in Zellwood, Fla. Their phone number is (407) 889-2211 and their email is [george@ggauctions.com](mailto:george@ggauctions.com).

Photos and information on each vehicle and other auction items will be posted on the

George Gideon website on Oct. 14. The inspection day for the vehicles is Nov. 3 in Keystone Heights at the Fleet Service building from noon to 4 p.m.

Successful bidders must pick up their vehicles and equipment items within one week of the auction closing. After Nov. 15, all items that have not been picked up will be disposed of by Clay Electric.

#### Vehicles include:

1999 Wells Cargo Trailer  
1999 GM 1 ton diesel utility body  
2001 GM 1 ton cargo van  
2002 GM 1 ton gas utility body  
2002 GM 1 ton gas utility body  
2003 Chevy S-10  
2003 Chevy S-10  
2003 GM 1 ton 4x4 diesel utility body  
2003 GM 1 ton 4x4 diesel utility body



Bryan Stanley and Ricky Heath of Fleet Services look over one of the 2003 GM 4x4 trucks with a utility body that will be available during this year's auction.

2003 Ford F-550 4x2 diesel C&C  
2005 Chevy Impala  
2005 Ford ½ ton cargo van  
2006 Chevy Colorado  
2008 Chevy ½ ton cargo van  
2007 Ford F-550 4x2 diesel C&C

#### Equipment includes:

**Miller welder:** Millermatic 250X Mig  
**Robinair A/C machine:** Cooltech 700 for R-134  
**Ingersoll Rand contractors air compressor:** 2340S 9GH-AS with Honda engine  
**Mita digital copy machine:** UV37 069747

## Energy Star

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any temperature variation," he said.

The 2,000 square foot home has three bedrooms, two and a half bathrooms, and a large living room. The custom kitchen opens out to the living room, which showcases the view of the river. The couple wanted to be able to enjoy this unique feature from the comfort of their home.

Although not a builder himself, Dave made the subjects of energy efficiency and conservation his business. His wife says he's a researcher. She said he spent a tremendous amount of time looking into the many choices available for building a new home. She said she attended many home shows and builder's conferences with her husband as they worked their way through the mountains of information.

Kathy Kudlo said the couple built a home with a very similar floor plan in north Florida in 1978. She said the home was energy efficient for the time. The windows were high efficiency, and the home even featured one of the first solar water heaters. She said the reason for building with conservation and efficiency in mind at that time was primarily economic.

More than 30 years later, the decision to seek the Energy Star certification on the house being

constructed in 2010 came before any ground was disturbed.

"To me, being green is 90 percent energy efficiency and 10 percent everything else," Dave said.

Dave said unlike the home they built in the 1970s, the cost was not a major factor in the decision to build an Energy Star home this time, nor was the return on investment.

"Financially, the energy-saving components in this house are equivalent to an energy price index annuity. It's forever and it's tax free and it only gets better with time," Dave said.

Sheffield said achieving an efficient house is not difficult if you take the time to understand the critical components of construction. He said homeowners and builders should consider the building shell, the roof materials (reflective metal covering and radiant barrier), roof overhangs (a minimum of 36"), window specifications (insulated double/triple pane), spray foam insulation, HVAC ratings (SEER 15+) and appliance selection (Energy Star).

The Kudlos said many people think conservation and efficiency mean being uncomfortable or doing without. "That is just not the case. This house is more comfortable than any house we've ever lived in," Dave said.