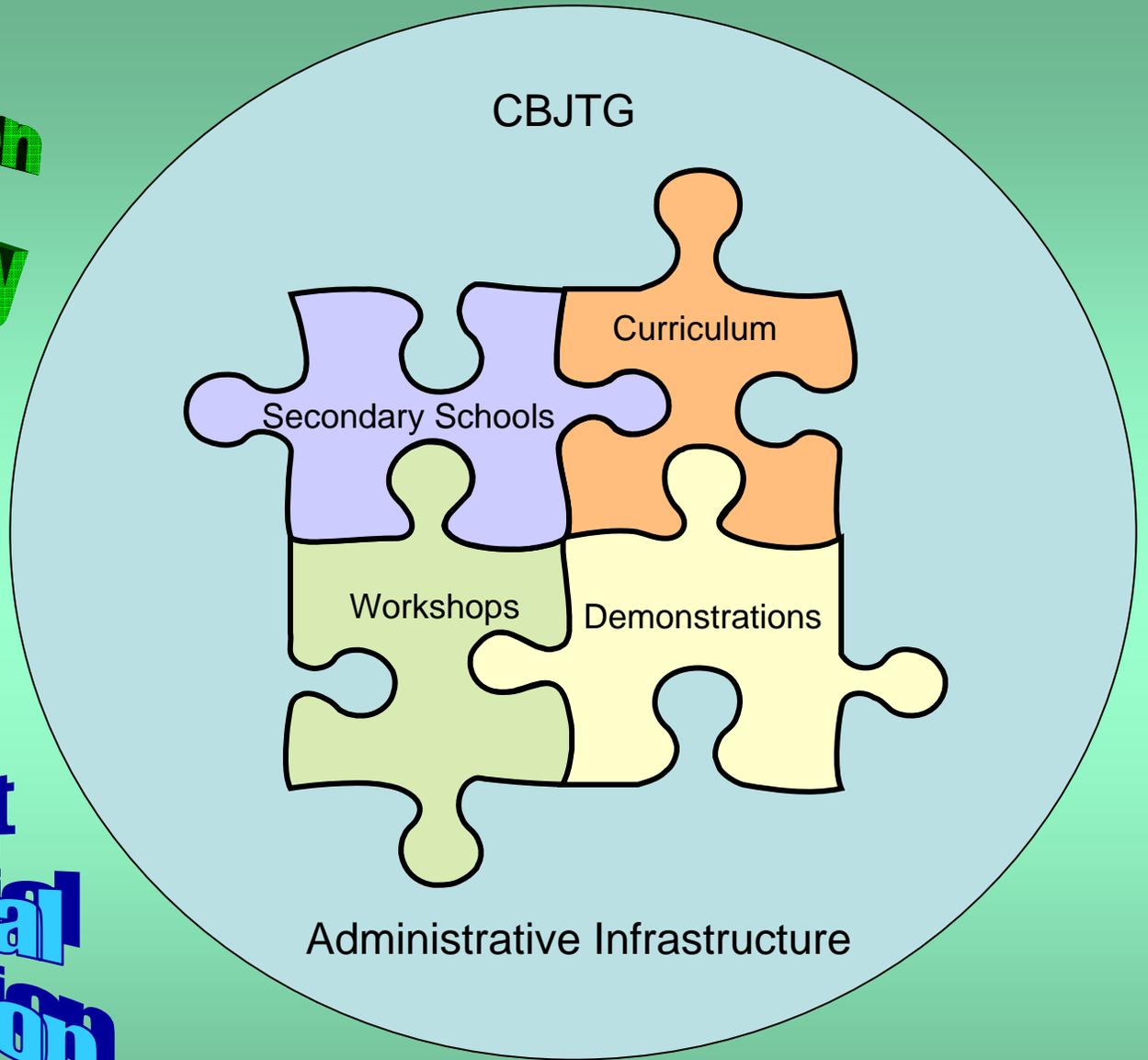


**Construction
Technology**

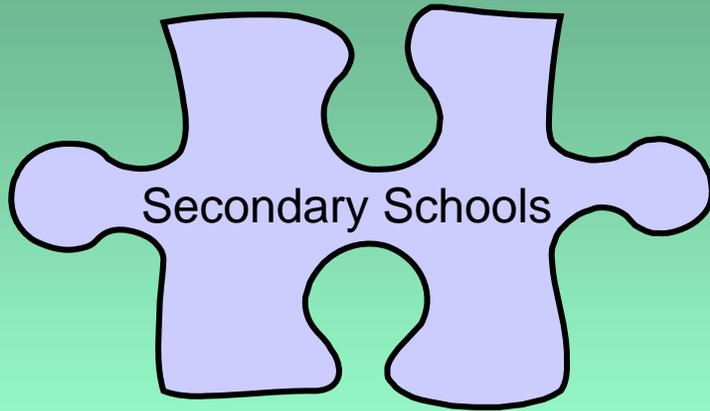
**Energy
Efficient
Residential
Construction**



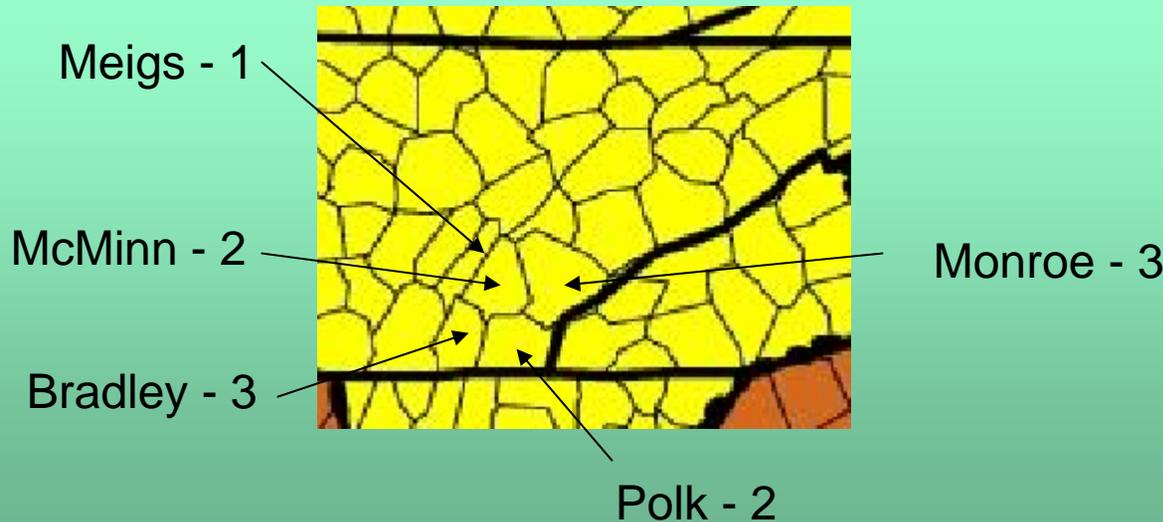
This presentation was prepared with the support of the U.S. Department of Labor (DOL) Grant No. **CB-15212-06-60**.

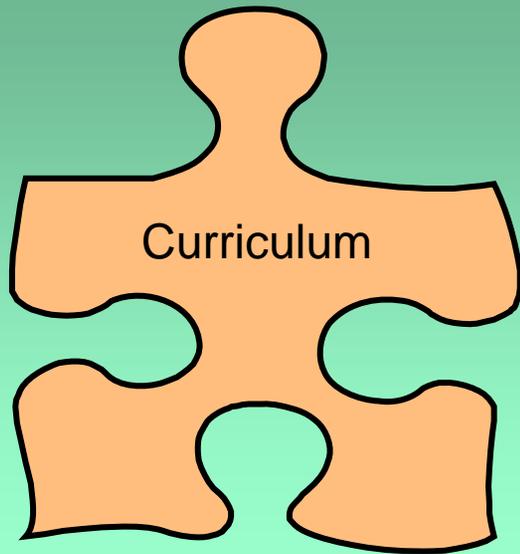
US DOL CBJTG

- Grant awarded in October 2005
- 2 ½ year duration
- \$861,840
- Matching funds - \$30,888
- Curriculum
- Secondary Schools
- Demonstration Items
- Workshops



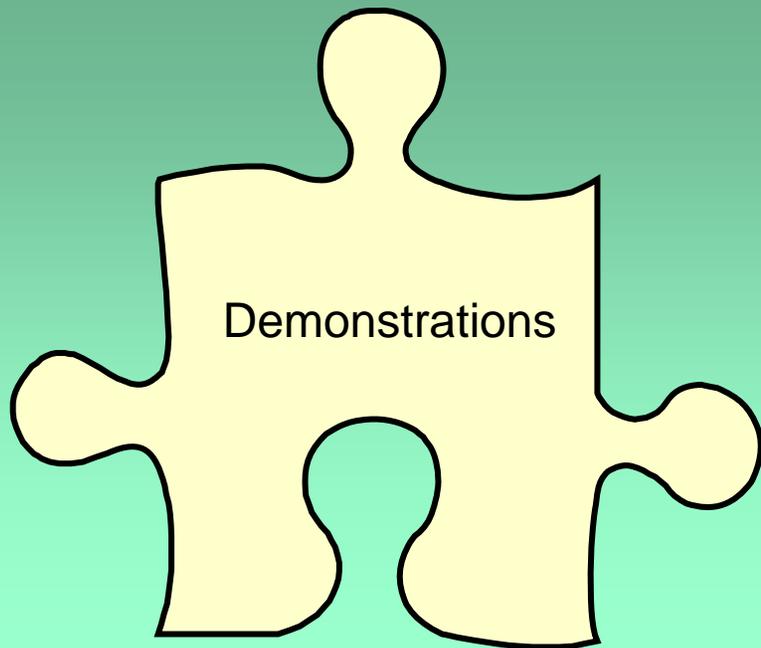
- 11 High Schools
- 1 TN Technology Ctr.
- 5 county service area
- Programs and Demonstrations
- Recruiting
- Scholarships





- Existing Construction Technology
 - 17 hr. ZEH
 - 31 hr. CT Certificate
 - 60 hr. CT AAS Degree
- Updated to include
 - Renewable Energy
 - Energy Efficient Construction
 - PV Panel Installation
 - Geothermal heat pump
 - HERS Rater Training
 - Service Learning – HFH
- Revising other courses to align
 - Construction Techniques
 - Standard Building Codes
 - Architectural Drawing
- Collaboration with UTC
 - 2+2 program – BS Const Mgmt





Solar PV Installation / Utility Inter-tie

Web based data collection and display

VAWT Installation

Habitat Energy Star House
EERC Techniques
Solar HW
Solar PV Powered pump

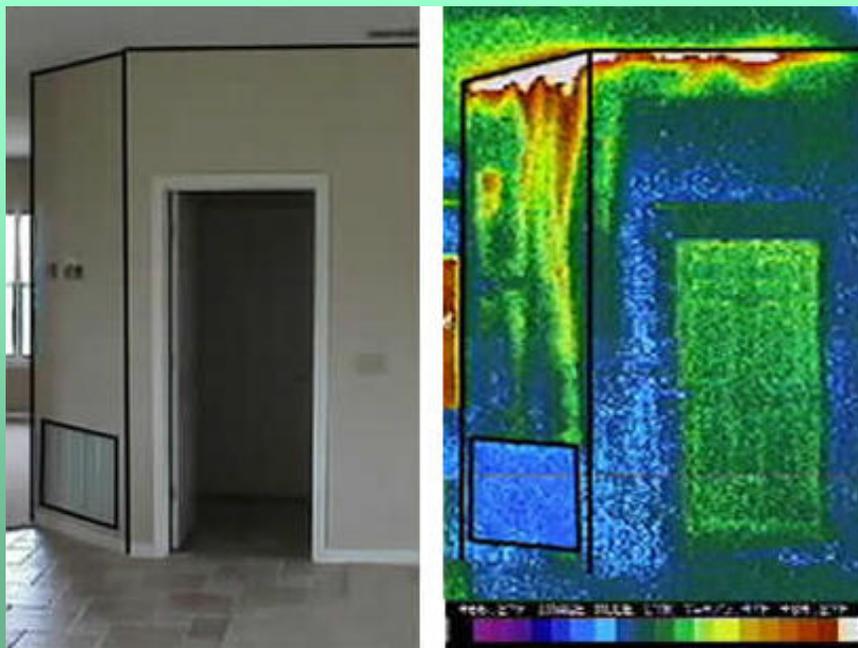
Dedicated Classroom/Lab

Ground Source HVAC

SIP / ICF samples

Thermography

Mobile Road Show





Habitat home earns star rating

CHATTANOOGA TIMES FREE PRESS 11/23/06

Energy efficiency sets
Bradley house apart

By RON CLAYTON

CHATTANOOGA

CLEVELAND, Tenn. — When Tami Croft and her family moved into their new Habitat for Humanity home in mid-October, they got more than four walls and a roof of their own.

Their house is the first Energy Star home in Bradley County, and Ms. Croft said she can expect to save more than \$300 a year in energy costs.

"I'm excited about getting my first utility bill," Ms. Croft said.

Two monitors in the home show her the daily costs of operating the water heater and heat pump and also give information on saving energy.

The home was built through a partnership among the Ocoee Regional Builders Association, Habitat for Humanity of Cleveland and Cleveland State Community College.

Bob Lantz, an associate professor in the construction technology program at Cleveland State, knew the home was being built and told the builders association that it could make the home more energy-efficient for about \$1,000.

"Training and capacity-building in residential energy efficiency are our two missions," Mr. Lantz said. "And the building associations bought into the idea that building in energy efficiency on the front end means the house will be less expensive to operate."

The compact, wood-frame home is in a Habitat neighborhood being built east of downtown Cleveland. The only



PHOTO BY BOB CLAYTON

Energy expert Brett Dillon posts an Energy Star certification sticker at the home of Tami Croft in Bradley County, Tenn.

unusual exterior feature is the solar collector on the roof.

Energy-efficient features include a sealed and moisture-protected crawl space with foam walls, blown-in insulation in walls and the attic, air sealing to prevent leakage through gaps and cracks, windows that block heat and ultraviolet rays and fiberglass doors. The home has an energy-efficient refrigerator, fluorescent lighting, a high-efficiency heat pump and a solar hot water system.

Energy expert Brett Dillon taught a class for builders before they began work on the home. He recently certified the house as an Energy Star home and said it actually exceeded requirements set by the federal government.

WHAT IS ENERGY STAR?

The Energy Star certification is given by the U.S. Environmental Protection Agency and the U.S. Department of Energy for homes, appliances and equipment that meet energy-saving criteria.

"Builders are all looking at what they learned here," Mr. Dillon said. He said most of the improvements cost little but need to be incorporated during construction rather than added afterward.

Ocoee Builders Association Executive Officer Sherri Blakely said the group's members have

reacted positively to the home.

"Once they see how these things work, many of our members are going to be incorporating things like (air) conditioned crawl spaces into the homes as standard features," she said.

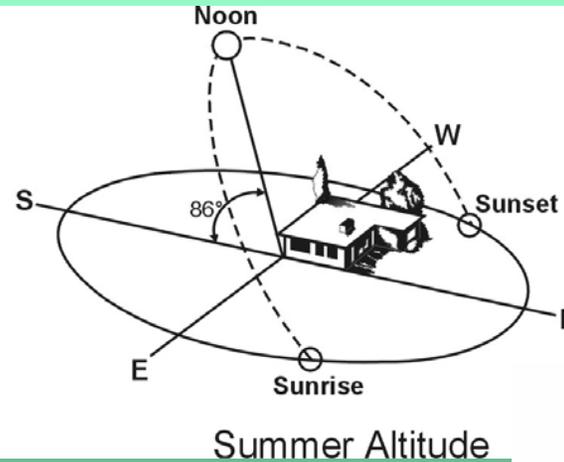
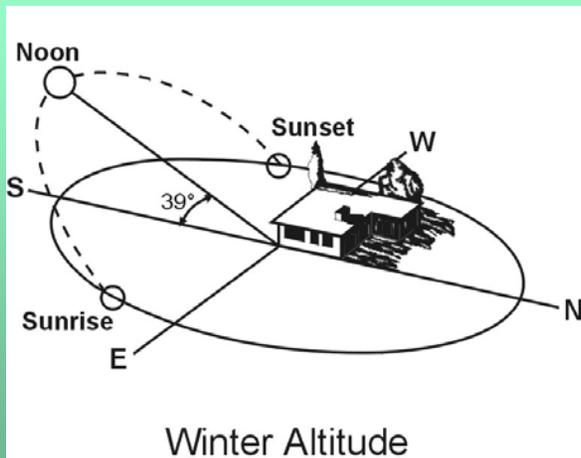
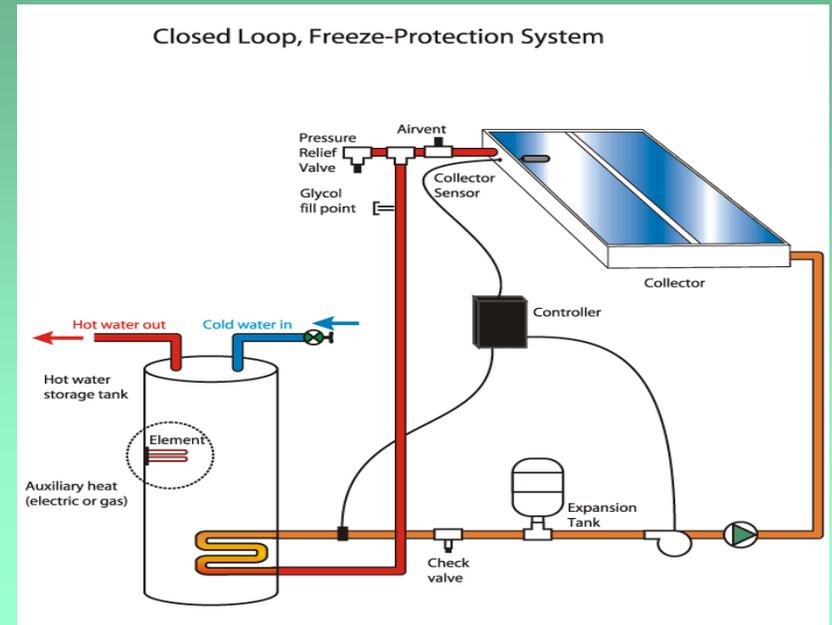
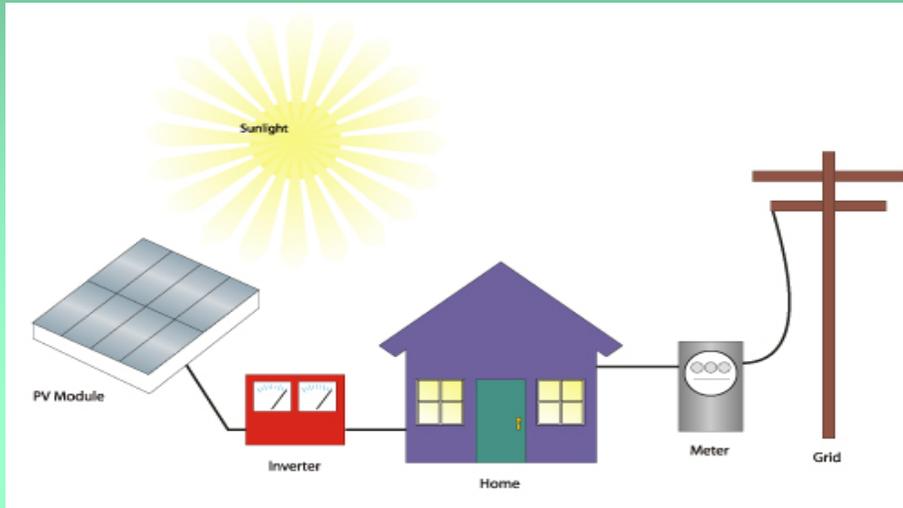
Mr. Lantz said many of the items, including the heat pump, were donated by local businesses. That allowed builders to complete the home within the Habitat budget.

Ms. Croft said she has two favorite features.

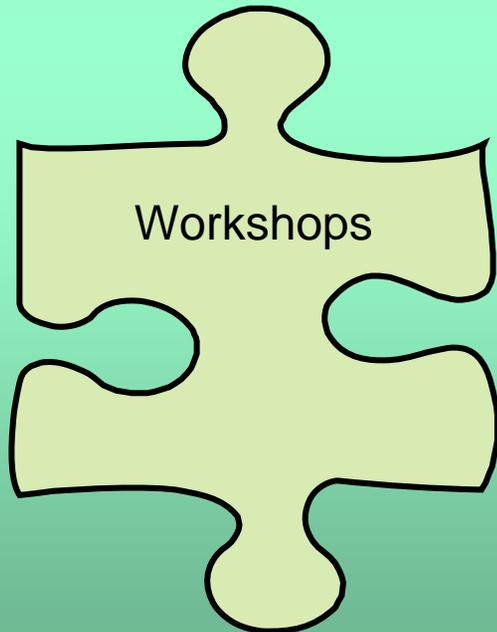
"Electrical outlets (are) everywhere," she said. And the extra insulation means the temperature stays more consistent when she sets the thermostat, she said.

E-mail Ron Clayton at rjwalton@timesfreepress.com





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Moving Towards Zero Energy Homes in the Tennessee Valley

High School Program

- Introduce Zero Energy Objectives
- Construction Materials
- PV Panel Installation
- Solar Water Heating Installations
- Prepare Students for CSCC Program

Construction Technology Program

- 1 Year Certificate Program
- 2 Year Degree Program
- Scholarships for One Year Program
- Groundwork for PV Installation Certification

Architectural

- Drawing
- Commercial Planning
- Engineering
- Computer Aided Design

Construction

- Techniques and Methods
- Cost Estimating
- Standard Building Codes
- Renewable Energy
- PV Panel Installation
- Energy Efficient Construction
- Contracting

Cleveland State is offering a community based job training program through a grant from the U.S. Department of Labor to promote energy efficient residential construction technologies and practices.

Cleveland State is partnering with Habitat for Humanity to provide opportunities for hands-on experience with more construction materials and methods. [Visit Us at Habitat for Humanity](#)

Industrial Technology

- Measurements & Calculations
- Introduction to Technology

Other

- English Composition
- Math
- Physics
- Public Speaking
- Humanities & Social Science
- Electives

A Cleveland State Technology Preparation Program

40th Anniversary

Cleveland State COMMUNITY COLLEGE

MAR 6 2007

Columbia COMMUNITY COLLEGE

Veterinary Technology
 Success Starts Here

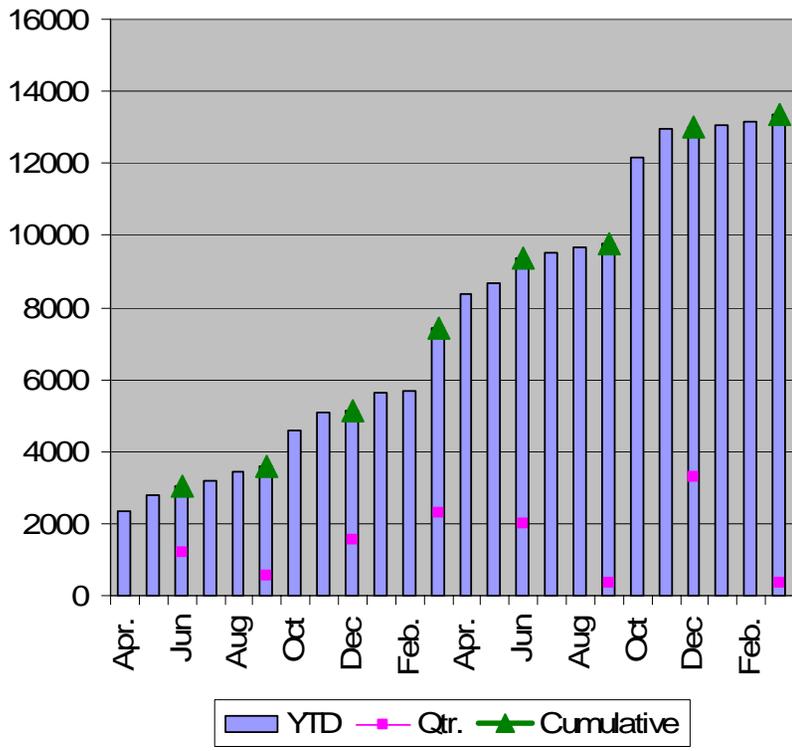


To Do List

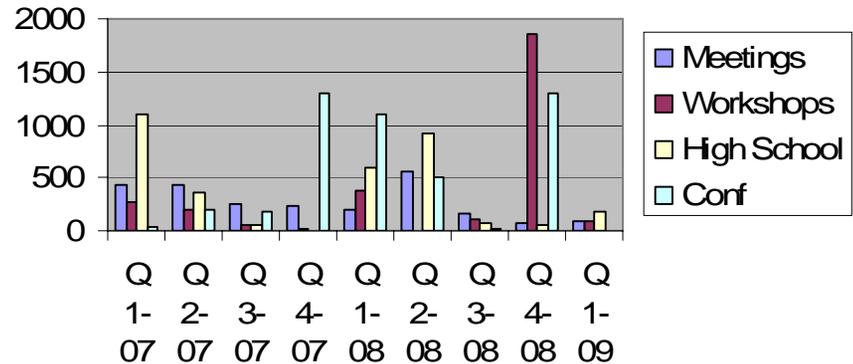
- Analyze
- Manage the thermostat
- Reduce water consumption
- Insulate
- Seal
- Change bulbs
- Update windows
- Update HVAC
- Update appliances

Results

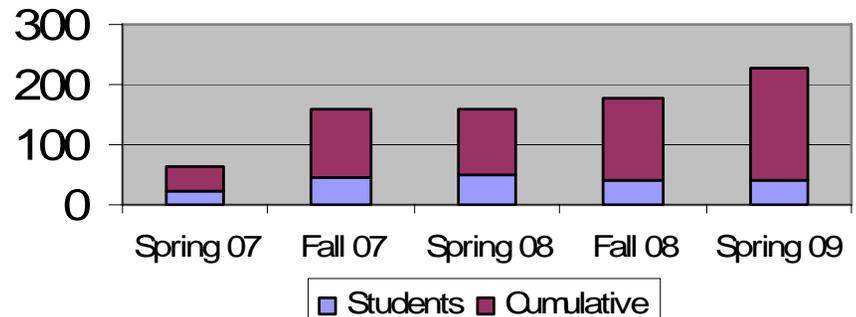
Grant Contacts



CBJTG by Categories



Enrollment



Results



Questions

agency@clelandstatecc.edu

