Louisiana Association of Community Action Partnerships
“Weatherization is not just about caulk guns, it’s about the whole house approach to energy efficiency.”

-Jon Phelps, Energy Director

MISSION
Louisiana Association of Community Action Partnerships strives to elevate the social and economic standards of Louisiana’s economically disadvantaged residents through 42 Community Action Agencies statewide.

Exemplary practices described in this case study:

• Building a state-of-the art training facility for weatherization techniques.
• Holding high quality train the trainer events that raise the quality of the weatherization field.
• Partnerships that increase effectiveness and deepen impact

KEY SERVICES AND PROGRAMS*

• Statewide Weatherization Assistance Program (WAP): Providing services to low-income homeowners to reduce their energy bills.
  o LACAP is targeted to weatherize 5,100 homes by March 2012 (starting October 1, 2009)
  o At the highest volume of weatherization work there were 215 people with full time jobs (in September of 2011 there were 185).
• Weatherization Training: Excellent training through their 11,000 square foot Oak Tree training facility.
  o As of February 2011 LACAP had held over 110 classes for more than 350 community action agency staff.

WHAT MAKES THE PROJECT GREEN?

• Weatherizing a home makes it more energy efficient, and therefore uses less energy, which means less pollution.
• LACAP’s training facility helps weatherization professionals increase their impact through improved methods and theory.

* Note that LACAP is a state association that serves the Community Action Agencies of Louisiana. The focus of this case study is on the weatherization services and state of the art training facilities that LACAP has built, and will therefore not cover its other areas of focus.
CHALLENGES

- How can the positive employment and environmental impacts be sustained after the likely significant reduction in WAP funding?
- How can weatherization contractors be better equipped to adapt to the changes in DOE requirements?

HISTORY AND BACKGROUND

Jon Phelps had said that he would be the tallest person in the room, and at 6’9” that was true. It turns out that his physical height doesn’t only allow him to see over people’s heads: he also has a knack for seeing opportunities in the future.

All the way back in 2005 Phelps knew that more could be done to weatherize homes through the Weatherization Assistance Program (WAP) in Louisiana. While the state had helped many people make their homes modestly more efficient, Phelps knew that much greater impact could be made. In 2007 Phelps joined the Louisiana Association of Community Action Partnerships and began to seek ways to deepen the impact of Louisiana’s weatherization efforts. One clear issue was the lack of state-of-the-art tools and training available to WAP contractors in Louisiana. It was difficult to improve performance when the technology and knowledge were decades behind the times.

Without a high-quality training facility within 100 miles of the state, Phelps knew there was a need to build one locally. With the support of Executive Director Jane Killen and the LACAP board of directors, the organization began looking for a new training space when a great opportunity arose in 2009: Louisiana received $50M to serve an additional 5,000 homes through the American Recovery and Reinvestment Act (ARRA). “We needed some way to quickly improve the capacity of our region’s contractors in order to meet the targets set out by ARRA,” said Phelps.

It wasn’t long after that Phelps found a facility in an industrial park in south Baton Rouge that happened to have both office space and a large industrial space for training facilities. LACAP purchased the building and began putting together a state-of-the-art training center without rival within hundreds of miles. The training space, called the Oak Tree Building Science Institute, includes four distinct training areas (more detail below):

1. Attic Demonstration Unit
2. Insulation House and Training Unit
3. Pressure House
4. Combustion Safety Lab

STATE-OF-THE-ART WEATHERIZATION TRAINING FACILITIES

The Oak Tree Building Science Institute is everything one could ask for: real-world examples to work on, excellent classroom space, and design that allows for participants to move around easily to learn different aspects of the work. This variety is critical to help contractors and weatherization professionals to stay current with the cutting edge of energy efficiency building science. Phelps has seen the industry change over the last several years. “Back in the day it was really just about caulk guns and air sealing. However, today there is such great knowledge about how to make a home more efficient by understanding it as a system. This facility really makes that happen.”

To raise the bar in this manner, LACAP contracted with EMC, specialists in weatherization training center design. EMC structured the facility to include three key components of good training:

- **Classroom: Tell me about it** - What is it? What are the foundational concepts? Why do I need to know this?
- **Demonstration: Show me how to do it** - Show me the steps and the tools. Let me ask lots of questions
- **Hands-on: Let me do it** - Let me get my hands dirty. Let me learn by doing. Guide me through it then let me do it on my own

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EMC lists the specific sizes of the training center 2:

- Hands-on setups and open classroom - 5,119 square feet
- Two classrooms - 668 and 501 square feet
- Combustion Safety Lab - 576 square feet
- Warehouse and training room - 1,710 square feet
- Secure area in rear for full-size mobile home
- Computer lab with 20 stations - 500 square feet
- Office space in front
- Two trainer cubicles
- Total training space - 8,574 square feet

Below is a list of the significant components of the center 3:

- The Attic Demonstration Units show the students real-world situations and challenges in an controlled environment. The Attic Hands-on Units provide students the ability to take what they just learned and practice proper venting, ductwork and how to check insulation levels.

- The Insulation House and Training Unit showcase proper and improper insulation installation within a home. The training unit simulates actual dense pack wall insulation and offers different interior wall materials for students to review.

- The Pressure House was designed with a control panel that enables the trainer to show the students a number of energy inefficiency scenarios based on the typical Louisiana home. Once the students have completed the Pressure House, they can move to one of the three Diagnostic Cabins for “house as a system” hands-on training. The cabins allow the students to perform blower door tests and solve insulation leaks and problems.
  - The diagnostic cabin also provides for “zonal pressure testing” to determine the airflow in specific areas.

- Within the Combustion Safety Lab, students review and perform testing on three types of furnaces, water heaters, and space heaters. In addition, the center provides Lead Safe Weatherization (LSW) training as well as the required classroom time to become an EPA certified renovator.

In addition to these components that are located inside the facility, LACAP also owns a Mobile Training Rig (MTR), which makes the possibility for training to be available to more people. The MTR contains the majority of the same training and demonstration tools as in the main facility. The facility also has an extensive resource library.

The kinds of training that take place are wide ranging in topic and in intended skill levels. Recent trainings 4 have included:

**Combustion Appliance Zone Training**

- This course covers the testing and documentation of combustion appliance zone (CAZ) depressurization tests. The training consists of classroom instruction and field demonstrations, with the focus on both new and retrofit systems. Field training will demonstrate the testing protocols and allow participants to engage in proper use of the equipment while focusing on pre and post safety inspection and gas leak detection relevant to all combustion appliances. Participants will receive an advanced understanding of air leakage and air pressure dynamics, CAZ depressurization tests, calculation minimum ventilation levels, and proper reporting requirements.

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3 “Department of Energy Weatherization Assistance Program Profile” http://www.lacapinc.org/training/ (October 23, 2011)
4 “LACAP Weatherization Training Schedule” http://www.lacapinc.org/calendars/training/ (October 23, 2011)
Building Performance Institute (BPI): Building Analyst Training

• BPI Building Analyst Training goes beyond a traditional energy audit to perform comprehensive, whole-home assessments, identify problems at the root cause and prescribe and prioritize solutions based on building science.

Auditor Training

• This two-day training will cover how to evaluate the energy performance, comfort, safety and structural integrity of the homes being audited for potential retrofit. The course will emphasize how the interaction of the different components of a home creates a larger system that may or may not work as designed. The trainer will cover everything from baseload measures, heat load calculations and diagnostic testing to managing the expectations of customers. This course will give participants the foundation and background information they need to better understand, evaluate and write a scope of work that is appropriate for a given home and the weatherization program in Louisiana.

HVAC Training

• In this course, participants will cover the wide range of appliances, diagnostic techniques, and weatherization measures involved in home heating, venting, and cooling. Participants will learn how to identify mechanical problems and safety issues, maintain and clean appliances, replace appliances when necessary, and improve efficiency. Participants will carry out hands-on practice on real appliances and systems, including air conditioners, ovens and ranges, heaters, and water heaters. Special attention will be paid to DOE Weatherization Program Notices (WPN) and Louisiana-specific HVAC considerations, such as cooling and sun control.

PARTNERSHIPS

LACAP decided early in the administration of the ARRA funding that they could achieve more with help to enhance quality and manage the complex requirements of the grant. This led to the creation of two important partnerships for LACAP: the Shaw Group and Louisiana State University. These two groups have helped LACAP build a three-pronged weatherization strategy: Administration, Technical Expertise and Reaching Clients.

• Helping LACAP have the capacity to stay focused was the Shaw Group, a consulting firm based in Louisiana. While Shaw began by focusing on mainly reporting and administrative requirements of ARRA, they have become a close advisor to LACAP, providing helpful insight into the management of the program.
• The LSU Ag Center houses two faculty members, Paul LaGrange and Claudette Reichel, who are leaders in the building science field. They have been significant influences on the development of the training program so that it reflects the highest quality.
• The last prong of the strategy, reaching clients, is central to LACAP’s mission as the state association in Louisiana. By keeping LACAP’s staff time dedicated to serving local people in need, and serving local CAA’s, better outcomes were achieved.

Lastly, by virtue of the entrepreneurial spirit of LACAP, other shorter-term beneficial relationships have developed in the past two years. For example, as Phelps realized the size of the work LACAP would be doing he saw an opportunity to use the scale to get better pricing on a number of items. As LACAP’s research on the best insulation materials became clearer, Phelps decided to buy in bulk from a local cellulose dealer, which has a very high rate of recycling. Due to the large order, the company was able avoid a few upcoming layoffs due to the workload developed because of LACAP’s high demand. LACAP’s good work has been noticed and rewarded by the private sector: Black Elk Energy has been impressed by the positive impact of LACAP and has been a significant financial supporter over the past three years.
WHO IS RECEIVING SERVICES?
“Without the Weatherization Assistance Program, I would still be unemployed,” said Jeremy Robinson. Jeremy’s story is a real success of the green economy. He had been laid off due to the recession in 2009. He then began working with Tangi Energy Conservation and now is the owner! The market for energy efficiency contracting has grown and the WAP has helped him develop the skills, knowledge and network he needs to be competitive. LACAP’s efforts will continue to enrich the lives of both workers and homeowners as the high quality weatherization work continues!

GREEN JARGON

**Baseload:** the energy demand of a unit. This is an important measure in determining ways to make a home more efficient.

**Blower Door Test:** A test that determines how “tight”, or how well-sealed it is. Typically weatherization and energy efficiency efforts seek to make a home less permeable, so that energy is not being lost (so long as enough air flow is maintained for healthy levels of oxygen).

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