

Trends in Utility HVAC Programs

By

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Introduction

The question of how to structure an effective independent quality installation verification component to a residential cooling program is an issue faced by most if not all residential energy efficiency programs in the nation.

With the change in U.S. federal efficiency standards, LIPA's Cool Homes Program had to find a new approach to continue to gain efficiencies in residential cooling. This paper will describe how LIPA approached this challenge and discuss insights into issues specific to residential central cooling efficiency in its service territory.

Overview

Since the Cool Homes Program inception in 1999, LIPA's educational efforts, financial incentives, program management and market support have been effective in demonstrating to the industry that consumers want energy-efficient features and expect quality installation as well. LIPA's consumer rebates and HVAC contractor incentives helped contribute to the sales of higher energy-efficient units.

Financial incentives were geared to both the customer and the contractor. Rebates to customers were determined based on SEER/EER levels of equipment. Contractors were encouraged to sell and install right sized energy efficient equipment through cash incentives. The program required submittal of a Manual J calculation report that confirmed right sizing of the unit to the home, as well as proper system charging and airflow documentation.

To support the HVAC community, the Cool Homes Program conducted training classes on Manual J sizing, Airflow and Charging. Over 400 technicians trained in these techniques.

LIPA advertised its program to consumers through a variety of methods. These included ads in newspaper, magazine and the yellow pages as well as a seasonal bill insert that reached out to over 940,000 residential customers. The ads emphasized the savings in cash and energy when purchasing energy efficient equipment that was right sized.

Market Changes

LIPA's Cool Homes Program for 2006 incorporated a number of revisions in response to changes to the federal minimum efficiency standards. Energy savings that had been previously realized by promoting high-SEER equipment would decrease. In order to

continue a cost effective program capable of demonstrating energy savings, a new approach would have to be taken. Quality Installation would continue to recognize the importance of purchasing and installing energy efficient units, but it would now place an emphasis on those important additional components that add up to a unit's performance efficiency. The program would place additional emphasis on right-sizing, proper airflow and proper refrigerant charge.

Changes to Program Design

Right Sizing

LIPA's Cool Homes program had required participating contractors to submit a cooling load estimate, calculated according to "Manual J" from the Air Conditioning Contractors Association (ACCA). During 2006, the program tightened requirements where contractors could only use ACCA approved cooling load calculation software ((Elite Software RHVAC, Wrightsoft Right-J8, and Nitek HVAC Wizard).

Cool Homes program management worked with vendors to provide demonstrations of their software as part of Cool Homes Manual J training. Software was also made available at discounted prices to participating Cool Homes contractors.

Independent Verification of Proper Charge and Airflow

LIPA's Cool Homes program ran a pilot to review the use of a 3rd party independent quality installation verification system that would assure proper charge and airflow. Because improper refrigerant charge and system airflow can significantly reduce both the performance and energy efficiency of central cooling equipment, quality control of these important installation components would allow the program to garner energy savings.

Planning for implementation of the pilot program began with in early 2005 with a review of the CheckMe!TM, a software program developed by Proctor Engineering Group in San Rafael, CA. CheckMe! allows home owners and technicians to access expert engineering analysis on their home's central air-conditioning system. A participating air-conditioning technician visits the home to test the system and takes a series of measurements. The technician then dials a toll free phone number and relays the series of measurements to the CheckMe! operator. The operator runs those numbers through the software and within minutes the homeowner knows how their system is performing.

A Contractor Participation Information Packet was developed and sent out to contractors who were invited to learn about the pilot program. The contractors invited had been selected based on business size, geographic presence, and previous rebate activity.

Five contractors were selected to participate in the pilot that ran through the summer of 2005. Data was gathered from field visits and program management met to assess impacts, trouble shoot field issues and define successes and issues with the program.

In October 2005, contractors were invited to a post pilot session where program issues were discussed.

Based on the pilot, CheckMe! was considered a viable program fit for the Cool Homes Program in 2006.

Self Selection for Contractors to Participate in the Program

After establishing criteria for Right Sizing, System Charging and Airflow, the Cool Homes Program added an additional component to its 2006 program. Contractors would be asked to participate in the program by signing an agreement agreeing to adhere to stricter program guidelines.

LIPA published and communicated these guidelines to the HVAC contractor community, inviting them to self select as participants for 2006.

Participating contractors had to demonstrate the capability to conduct business successfully providing Cool Homes with:

- A copy of valid EPA refrigerant handling certificate
- Documentation of valid Nassau and/or Suffolk County home improvement contractor license,
- Documentation showing a current, general liability insurance policy with coverage of at least \$1 million;
- Specific evidence of business capacity including at least two of the following:
 - a) a satisfactory banking reference;
 - b) a minimum of three satisfactory professional/trade references, such as suppliers of materials, tools, credit, etc.;
 - c) a minimum of three satisfactory customer references;

Participating contractors were asked to follow guidelines as part of program parameters:

- Submitting as part of each application for Cool Homes incentives a cooling load calculation performed using ACCA approved, Manual J v. 8 compliant software, and follow relevant LIPA guidelines for equipment selection (see application for details);
- Following the Cool Homes refrigerant charge and system airflow test procedures defined below;
- Using CheckMe![®] during each Cool Homes participating installation to ensure correct refrigerant charge and system airflow;
- Responding to the results of random field inspections of Cool Homes participating installations

- Upon request, make reasonable repairs or corrections so that work will meet Cool Homes standards.

Participating contractors were also asked to observe the following in order to maintain their relationship with the Cool Homes Program:

- Submit a minimum of twenty-four (24) completed program applications throughout the program
- Accurately represent themselves as independent contractor, and a participant in LIPA's Cool Homes Program
- Maintain all relevant licenses required by federal, state, county or municipal governments
- Provide all program customers with customer information materials as required by Cool Homes

Those contractors who signed up to the Cool Homes program received the following incentives:

- Discounted Manual J Version 8 Training
- Payback on diagnostic equipment purchased in support of the program
- Free ACCA Software Training
- Access to discounted ACCA Software
- Cost of CheckMe System use covered by Cool Homes during 2006
- Access to authorized LIPA Cool Homes marketing materials;
- Co-op marketing incentives to assist in Participating Contractor marketing efforts

Over a period of two months in early 2006, 55 contractors representing 50% of the active contractors during the previous program year, chose to sign onto Cool Homes, attend ACCA software and CheckMe classes and follow the program requirements for 2006.

Emphasis on Quality Installation in Marketing Materials

Participating contractors benefited from a comprehensive marketing campaign geared towards educating the customer on the benefits of quality installation of central air.

The Cool Homes customer brochure promotes energy efficiency, informs customers how to participate in Cool Homes, and gives program information such as program requirements and rebate amounts.

The Cool Homes website promotes the program while including downloadable versions of the brochure, applications forms, and links to its participating contractor list.

The media campaign included television, newspaper and magazine ads, yellow page ads, bill inserts and press releases.

Training

To help the contractors learn the skills needed to make the Cool Homes Program work for them, LIPA sponsored a series of classes throughout the Winter/Spring of 2006.

Because all calculations for rightsizing of central a/c systems must be based on the Air Conditioning Contractors of America (ACCA) Manual J version 8.0, and should be performed using ACCA-approved software, Cool Homes program management worked with vendors to provide demonstrations and training of their software. Software was also made available at discounted prices to participating Cool Homes contractors.

To incentivize participation in the program, LIPA chose to sponsor training on the CheckMe system for all participating contractors/technicians for 2006. LIPA also covered the cost of the service call in to CheckMe (a \$40 value). Over 120 technicians representing 55 contractors participated in the training sessions which were very well received.

LIPA Cool Homes 2006 Incentives

For Cool Homes participant installations between January 1 and December 31, 2006

Customer Efficient Equipment Incentives			
Tier	Eligible Equipment	Efficiency Requirements	Customer Incentive
1	Split Central Air Conditioners	SEER greater than or equal to 14 but less than 15 EER greater than or equal to 12 but less than 12.5	\$300/unit
	Air Source Heat Pumps	SEER greater than or equal to 14 but less than 15 HSPF greater than or equal to 8.5	
2	Split Central Air Conditioners	SEER greater than or equal to 15 EER greater than or equal to 12.5	\$400/unit
	Air Source Heat Pumps	SEER greater than or equal to 15 HSPF greater than or equal to 8.5	

Notes: ***Some ENERGY STAR qualified air conditioners and heat pumps may not be eligible for LIPA Cool Homes incentives.*** If the SEER rating is 15 or above and the EER rating is below 12.5, then the Tier 1 incentive will be paid.