

Advanced Energy Code Training Assessment

Nevada

May 2011

Prepared by the Building Codes Assistance Project for
the Nevada State Office of Energy and the University
of Nevada, Reno.



NEVADA STATE OFFICE OF ENERGY



Business Environmental Program
College of Business
University of Nevada, Reno



BCAP Dedicated to the adoption, implementation,
and advancement of building energy codes

Executive Summary

This Advanced Energy Codes Training Assessment Report provides the Nevada State Energy Office (NSOE) with recommendations and a proposed training strategy. This document also identifies additional training needs and supplemental materials in addition to those materials delivered through this project. This Training Assessment Report has been completed specifically for the project “ARRA: 2009 Energy Code Adoption,” sub-award UNR-11-54, Task 1.1.

One of the principal goals is to help inform the development of both the near term introductory training as well as to develop recommendations for long term training strategies for the construction industry stakeholders in the state of Nevada:

- Near term is defined as applicable to the training to be held through the spring of 2012, and in response to the ongoing adoption process of the 2009 IECC which will become mandatory statewide July 1, 2012,
- Long term is defined as applying to recommendations for improved energy code compliance statewide, for 2012 and beyond.

This assessment provided:

- Guidance for the initial 2011 training curriculum and recommendations for training to meet the 2009 IECC and towards improving industry compliance with the code towards 90%.
- Data for the development of additional near-to long-term training, incorporating integration of other NSOE/UNR building energy efficiency programs.
- Numerous recommendations including the top five which will provide the largest impact for the least amount of funding.

Introduction

The state of Nevada is already a leader nationwide with respect to energy code training. Over the past six months, the Renewable Energy and Energy Efficiency Authority (REEEA), NSOE, and UNR have worked tirelessly to plan energy code training geared toward the building community in response to the upcoming changes to the statewide energy code.

Recent Accomplishments

Training on the Basics of the 2009 IECC

Nevada provided energy code training, marketed to the building community, for several weeks in the spring of 2011. The training instructor, Ken Baker of K energy, is one of the premier energy codes trainers in the United States. Participation from code officials in northern and southern Nevada was exceptionally high, and all attendees received a complete education on the 2009 IECC. As a result, it appears that code officials in the state are well prepared for updates to the Nevada energy code.

Advanced Segments of the 2009 IECC

In addition to covering the basics of the 2009 IECC, K energy included advanced segments of the code as part of the training sessions. These include curricula on Code Control Requirements including Daylighting Controls, and Complex HVAC. This training was very well received by code officials in the state, as they left more comfortable with the complex segments of the 2009 IECC.

Duct Blaster Training

Nevada is one of the few states in the U.S. to provide free duct blaster to its stakeholders. These trainings were completed in both classroom and in-field segments. The classroom portion consisted of detailed HVAC requirements and included detailed visuals, and the in-field training provided attendees with a “hands on” example of rough-in HVAC testing in order to learn how to properly check for air sealing and duct compliance. ERH West, a very well respected building performance testing contractor in the Southwest U.S., was the trainer for these segments.

Energy Code Ambassadors Program

Additionally, Nevada is one of the only states in the U.S. to support an Energy Codes Ambassadors Program (ECAP). BCAP teamed with K energy to provide the program in southern and northern Nevada in May 2011. Although building departments throughout Nevada have had to make significant reductions in staff and have little to no time for outside activities, seven motivated code officials attended one of two ECAP sessions provided in the state. The new Energy Code Ambassadors of Nevada are:

Southern Nevada

- Bruce Soucy, City of Henderson
- Brenda Thompson, Clark County
- Don White, City of Las Vegas

Northern Nevada

- Patrick (Chris) Flannery, White Pine County

- Michael McCullogh, Washoe County
- Ted Schnoor, City of Elko
- Eric Simonson, City of Reno

These new energy code “Ambassadors” are experts within the realm of the 2009 IECC, and are extremely motivated to help their colleagues in the form of one-on-one assistance and larger-scale training. The Nevada code ambassadors will be a critical resource to future code official training and, as funding and time permits, will be able to share their expertise in various forms throughout the state.

Stakeholder Feedback

The BCAP project team worked with the Renewable Energy and Energy Efficiency Authority (REEEA), NSOE, and UNR to solicit stakeholder input. To that end, marketing efforts were concentrated on builders and their organizations, code officials and their organizations, design professionals (architects and engineers) HVAC, lighting and building contractors, and municipal officials. In order to gather specific training needs from the state, BCAP staff attended stakeholder meetings hosted by NSOE/REEEA as part of the development process for a new statewide energy code based on the 2009 IECC. In order to optimize the project budget, BCAP’s technical assistance funding was used to make travel to these meetings possible. These meetings were held at the NV Energy Office in Las Vegas on December 2, 2010, and in Reno on December 3, 2010. During and after these meetings, we solicited stakeholder feedback and learned several key concerns that could help shape the plans for a training assessment, including:

- **Training Format.** In addition to traditional classroom learning, most stakeholders indicated that in-the-field training is also extremely helpful. Clark County had done on-site training in the past, and multiple sessions each in order to enable many code officials to attend. In addition, stakeholders in Northern Nevada expressed interest in 1-2 hour webinars, in order to reach rural jurisdictions.
- **Addition of Advocacy Elements.** Because the NV energy code is still in the adoption stages, training is another opportunity to support the reasons why adopting an up-to-date energy code is good for Nevada. BCAP and K energy worked together to incorporate advocacy “messages” into the training presentations to take advantage of this opportunity.
- **Rural Outreach.** Informing stakeholders in Nevada’s rural counties of training as well as making the training accessible will require significantly more effort than in the Las Vegas and Reno/Carson City areas. It was expressed that if any of these rural jurisdictions had a building department to begin with, these departments were understaffed and unable to take the time to travel and attend training. Some stakeholders suggested video streaming training and outreach through the Nevada Association of Counties (NACO), or through ICC chapters. And, in fact, of the 25 training sessions offered in 2011 to date, eight were teleconferenced to rural locations such as Elko, Fallon, and Lyon County.
- **Compliance Software.** Many stakeholders, especially in Southern Nevada, expressed concerns over the development of compliance software that would be accurate enough to accommodate

specific amendments to the energy code, and training for the software once it is released. The Builders Association of Northern Nevada is looking into the development of Nevada-specific software based off of *RESCheck* and *COMCheck*.

- **Advanced Building Performance Testing.** In Southern Nevada, stakeholders expressed particular concern and opposition regarding the requirement for 3rd Party testing and compliance as part of the code, as the jurisdictions had already gone to great strides to train its staff on the HERS portions of the Southern Nevada energy code. In Northern Nevada, stakeholders expressed support for the use of 3rd party inspectors, as the building departments do not have the time to check for advanced duct and envelope compliance.
- **Continuing Education Units (CEUs).** Many stakeholders expressed that the ability to earn CEUs by attending training courses would be an added motivation and would boost participation.
- **Code Books.** Southern Nevada amendments to the IECC are available online. Distribution of complete code books during training in Northern and Southern Nevada would be a good investment.

In addition to these initial stakeholder meetings, BCAP was also in attendance at NSOE-organized working groups in Las Vegas on May 9, 2011, and Reno on May 12, 2011. Some of the longer-term concerns that were voiced by stakeholders, or in subsequent conversations, include the following:

- **Code Official Time.** Many code officials are interested in receiving training, but building departments throughout the state are short staffed and need their staff's "boots on the ground." In many cases, there simply is no time for training.
- **Future Funding.** The American Recovery and Reinvestment Act (ARRA) funding has provided a plethora of initial resources to be used for energy code training and education, but those monies must be spent by April 2012. How will the state fund these efforts after Recovery Act funding is gone?
- **Builder and Consumer Support.** Especially in rural jurisdictions, many stakeholders expect builder pushback to the codes, claiming that they will make homes too expensive. Stakeholders in these areas must be equipped with the tools and resources to "sell" the code to stakeholders in their communities.
- **It should be noted that the City of Elko has adopted the 2009 IECC.** Area architects and engineers were instrumental in that adoption decision. According to the building official, design professionals attended the adoption hearing and testified in favor of the updated codes citing the necessity for codes to keep up with new technologies.
- **Timing of the Code Adoption.** The 2009 IECC is set to become effective July 5, 2011 in Southern Nevada. The statewide adoption is expected to occur on January 1, 2012, and with an effective date of July 1, 2012.
- **Lack of Industry Participation in Training.** Ken Baker of K energy reports that while code official participation in trainings and stakeholder meetings was exceptionally high, there were very few industry professionals in attendance throughout the Spring 2011 trainings. A good number of architects were in attendance at the May 22-23, 2011 training in Southern Nevada, as the new code will be effective on July 5. However there were very few engineers, builders, and

contractors at these trainings, and few industry professionals at the past trainings in Northern Nevada. This poses as perhaps the biggest long-term concern for implementation of the new code, as these industry professionals must have a basic knowledge of the 2009 IECC in order to successfully comply with the code. Baker believes that industry will begin actively seeking training after formal implementation and enforcement begins in the south. The Nevada building officials have indicated they would like to host future trainings in the north and predict that the industry will show up for these code jurisdiction hosted sessions.

Recommendations

BCAP offers the following recommendations for providing ongoing training and support to meet the long-term needs of the energy code stakeholder groups we were pleased to work with in Nevada. BCAP considers the first five recommendations listed (denoted with a ★) to be most critical, either because they require a small amount of resources to complete and/or will make the largest impact in the state.

Resources on the Web ★

NSOE should update the codes page on its website¹ to include a description of the current code development process and provide FAQs, support resources, outreach materials, and relevant contact information. The site should also provide links to online resources made available by the U.S. Department of Energy, such as Building Energy Codes University² and training videos, as well as to the Nevada Energy Code Ambassadors (see below). The project team, including BCAP, will ensure that NSOE and UNR have copies of all training workshop materials and handouts for upload to a selected website or websites. In addition, or alternatively if NSOE so chooses, BCAP will further develop the Nevada-specific page on its OCEAN website³ and provide a link to NSOE highlighting resources available there.

Training DVDs ★

Ken Baker of K energy has created a series of 12 training DVDs for the state of Utah which cover a wide array of topics addressed through the 2009 IECC. These DVDs can be duplicated or modified (if funding allows) and distributed to building departments throughout the state or posted online. This will help provide basic information on the energy codes to stakeholders throughout Nevada, and better prepare them to ask questions during any future training or outreach.

Construction Community Outreach ★

The same training materials that were used by K energy to train code officials in the state can be used for training specific to architects, engineers, and contractors. Additionally, NSOE can fund K energy to provide advanced construction community training, including:

- Daylighting Best Practices for Commercial Design
- Bringing Ductwork in the Conditioned Space, for Residential Design
- Complex Residential HVAC Systems

NSOE should continue and expand its work with the two home builders associations (HBAs) to engage and encourage members to attend energy code training in the time before the release of the updated code, not after. Similar measures should be taken to more solidly engage the Northern and Southern Nevada chapters of the American Institute of Architects (AIA).

Marketing Training through Utilities ★

NVEnergy, the state electric utility, is an advocate for building energy code development and code training in Nevada. Once training dates are finalized, NSOE should use NVEnergy as an outlet to market the code training and increase stakeholder participation at the training.

¹ <http://energy.state.nv.us/energy-efficiency/programs/energy-related-codes.html>

² <http://www.energycodes.gov/becu/>

³ <http://bcap-ocean.org/state-country/nevada>

Future Funding ★

Perhaps the most important long-term task at hand will be to secure funding for training and support after the Recovery Act funding has been exhausted. There are a couple of areas the state can explore for more funding, most notably the state utility, NV Energy, which has an annual budget for energy code training. Additionally, the state should consider looking to grants from private or public energy-efficiency foundations, as well as any future grants, solicitations, or RFPs for state energy code funding at the federal level. NSOE and UNR should be prepared with preformatted responses to RFPs and with ideas for how to use such funding should it become available.

Energy Code Brochure

Develop for distribution electronically or hard-copy or both, a one page flyer based on the BCAP “Nevada Fact Sheet” and various cost-increment and other benefit analysis for distribution to all stakeholders in support of the new energy code. A brochure or related materials could be made to help introduce energy codes to non-technical audiences such as consumers and local government officials to help expand support for code adoption and compliance.

Existing Infrastructure at the University Level

Nevada should investigate creating a curriculum for students at community colleges interested in becoming code officials or for professionals in the construction industry interested in increasing their credentials. Tuition assistance could be offered to help cover some of the costs for the students. The state could also offer courses through extended education programs at UNR and the University of Nevada, Las Vegas (UNLV) and provide CEUs or energy code-related certifications. In the future, such a program could be tied to a state-level certification.

Energy Code Ambassadors

NSOE could leverage the seven code officials recently named Energy Code Ambassadors, each of which is located in a different jurisdiction’s building department. These Energy Code Ambassadors are well versed in the 2009 IECC, and are strong advocates of the code. Though the program is still new, the expertise of these individuals could be leveraged via the following:

- Making the contact information for all seven of the code officials readily available on NSOE’s site, and encouraging code officials throughout the state to contact them,
- Creating and facilitating an online discussion board and/or support group on the energy code with downloadable resources,
- Holding training sessions on one or more advanced segments of the IECC, to be delivered by the code ambassadors themselves, highlighting their expertise and providing needed information/training,
- Having the ambassadors travel to various parts of the state to perform energy code training
- Supporting the ambassadors so that they can serve as a “circuit riders” and travel to different parts of the state to assist with plan reviews,
- Provide opportunities for the ambassadors to serve as an advisory group to NSOE with regards to any future changes or developments to the Nevada Energy Code,
- Develop code ambassador discussion panels to answer questions and address key issues, before, during, or after energy code training sessions at EduCode conferences,
- Support on-going collaboration between the ambassadors by facilitating regular meetings or conference calls where they can share information, discuss problems and solutions, and support one another’s efforts.

EduCode

UNR should (again) collaborate with the Southern Nevada Chapter of the ICC (SNICC) to offer energy code training at future EduCode conferences. As funding permits, UNR should continue to provide scholarships for travel and course registration, contingent on attendance at these energy code courses. The major benefits of these scholarships is three-fold, as they encourage greater conference attendance from jurisdictions outside Southern Nevada, increase attendance at the energy code training, and could provide a forum for a panel of Energy Code Ambassadors at one or more of the courses.

Additional In-Field Training

The duct blaster training that NSOE funded was a great start, but it only covered rough-in HVAC installation. Barbara Collins of ERH West reports that many code officials in attendance at this training expressed interest in a follow-up in-field training that tested a finished HVAC installation. This would include blower door test training and would be a great opportunity to build on the initial training given by ERH West. Especially in Southern Nevada where the building departments have expressed an interest in doing advanced HVAC testing within the department, blower door training is a critical piece to a complete education on the 2009 IECC.

Online Training

Many design professionals, builders, and developers throughout different states suggest that the training should be adapted for online use to make its delivery more efficient, cost-effective and sustainable. Many designers (architects and engineers) suggest they prefer online training, as it makes it easier to access during their busy schedules. It could also be pay-per-view if educational CEUs were obtained, making this and other training sustainable over time. BCAP is working with Building Media, Incorporated (BMI) to develop training videos to be posted online, and could discuss such a project for Nevada.

More Detailed Training

Many stakeholders indicated that introductory training was a good start, but that much more needed to be done. Interest in more detailed training on residential building science was cited; perhaps energy code could be incorporated into training that is done to support Home Performance with Energy Star or other green building programs. Also, there was a need expressed for more extensive commercial envelope, HVAC, and lighting programs for interested stakeholders. K energy has performed advanced training in several disciplines and has been well received. Finally, training on site inspections and plan reviews, both residential and commercial, was a requested.

HERS-AS-Code Pilot

One compliance mechanism that is utilized in other states and jurisdictions is that of allowing Home Energy Ratings (HERS Ratings) to be utilized as a compliance methodology. Builders are already asking about the use of a HERS Rating as a compliance mechanism.

Building America Course

NSOE and/or UNR could host a Building America course locally. The cost is \$6,500 per one-day course, (this includes all costs, including marketing to builders in your state, and continuing education credits for builders). There are two course options available: "Houses that Work" for new homes and "Remodeling for Energy Efficiency" for existing homes. The registration fee for builders is about \$125 per person. To schedule, call Nancy Bakeman at The Energy and Environmental Building Alliance at (952) 881-1098 or nancy@eeba.org.

Clearly, there will be a greater need for training and technical support in preparation for the adoption of the 2009 IECC. By taking advantage of the many opportunities available to engage the building community in energy code training, Nevada can increase the effectiveness of the new code's implementation.