



*Residential Certified Energy Analyst (CEA)
Under the 2013 Energy Standards*

Overview of the CEA Program

First in a six-part series



California Association of Building Energy Consultants



Host: Gina Rodda

Gina has been in the energy modeling field since 1991, through the course of seven California building energy code cycles.

- Provides residential and non-residential energy calculations for a variety of building types throughout California:
 - A Certified Energy Analyst (CEA)
 - Certified Energy Plans Examiner (CEPE)
 - LEED AP
- Delivers training focused on Title 24 (Part 6) Building Energy Efficiency Standards
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GABEL ASSOCIATES, LLC

BUILDING ENERGY ANALYSIS & ENERGY CODE COMPLIANCE



CABEC's Mission

- Further technical expertise and ethics through certification
- Foster professional development through training, information, and peer exchange/networking
- Represent and enhance the stature of its members to the California Energy Commission and other political entities
- Encourage energy efficiency and regulatory compliance throughout the energy consulting industry



Brought to you by...

California Statewide Codes & Standards



This program is funded by California utility customers under the auspices of the California Public Utilities Commission and in support of the California Energy Commission.

► Welcome

- CEA History
- The “New” 2013 CEA Exam

- Value and Benefits
- Overview of the Exam
- About Presentations Two through Six
- Wrap Up



CEPE & CEA history

CEPE

- California Energy Commission created the Certified Energy Plans Examiner (CEPE) in 1987 through CALBO.

CABEC took over CEPE administration in 1998.

- CEPEs are professionals who:
 - Have a firm understanding of the Energy Standards
 - Are qualified to provide Title 24 reports or to function as Plan Checkers

CEA

- CABEC established the Certified Energy Analyst (CEA) program in 1990.
- CEAs are recognized as technical experts who understand broader energy efficiency issues.
- CEAs are committed to:
 - Provide quality service to clients
 - Conduct business in an ethical fashion
 - Meet ongoing educational requirements



The “new” CEA exam

Supported

- With support from the CA Statewide Codes & Standards team, a new CEA exam has been in development since 2010.

Developed

- The exam development team is composed of testing and measurement experts and some of the top energy analysts in the state.

Tailored

- The exam is designed to specifically reflect the skills and knowledge associated with qualified professionals in the energy consulting field.

Verified

- The exam has been through rigorous alpha and beta tests, with fine-tuning based on detailed analysis of alpha and beta results.

(continued)

The “new” CEA exam

Supported

- With support from the CA Statewide Codes & Standards team, a new CEA exam has been in development since 2010.

The exam is sponsored by the California Statewide Codes & Standards Compliance Improvement team.

- The team is here to help meet the requirements of Title 24, Part 6 by providing training, tools, and resources.
- All efforts are designed to improve compliance with the state’s building energy code and aimed at locking in long-term energy savings.



(continued)

The “new” CEA exam



Developed

- The exam development team is composed of testing and measurement experts and some of the top energy analysts in the state.

The exam is effective.

- The overall program was designed by CABEC’s Development Committee and Executive Director with guidance from certification program experts.
- It includes a balance of requisites — direct experience with Title 24 Part 6 projects and further education and training is proven through the ability to demonstrated competency with the energy standards (via exam).



(continued)

The “new” CEA exam



Tailored

- The exam is designed to specifically reflect the skills and knowledge associated with qualified professionals in the energy consulting field.

The exam is relevant.

- The exam is based on five core competencies and the behaviors associated with those competencies.
- It addresses a range of performance levels (from “understand” through “apply,” “analyze,” and “create”).
- There are two components: multiple choice questions and hands-on with modeling software.



(continued)

The “new” CEA exam

Verified

- The exam has been through rigorous alpha and beta tests, with fine-tuning based on detailed analysis of alpha and beta results.

The exam is sound.

- The exam was developed with a team of subject matter experts and certification test specialists.
- It was reviewed by testing and technical experts throughout the development process.
- Alpha and beta test feedback provided guidance for further refinement to the exam structure and questions.

Value & Benefits

- Welcome

- ▶ **Value and Benefits**

- Who should become a CEA?
 - Why use a CEA?

- Overview of the Exam
- About Presentations Two through Six
- Wrap Up



Who should become a CEA?



Recognized Professional

- Qualified for providing energy calculations under these programs:
 - New Solar Homes Partnership
 - Build It Green, Green Point Rated
 - California Advanced Home programs
 - California LEED for Homes
 - California Tax Credit Allocation Committee (CTCAC)
 - Low-Income Housing Tax Credit Program
- Measured and recognized skill in the energy field
- Membership privileges of a respected organization when a CABEC member.

Why use a CEA?



Insist on the BEST!

Have confidence that using a Certified Energy Analyst provides the best energy expertise.

- Proven ability in modeling to the energy standards
- Measured experience and skill level based on high industry standards
- Upheld by CABEC to be ethical, professional and informed

Overview of the Exam

- Welcome
- Value and Benefits

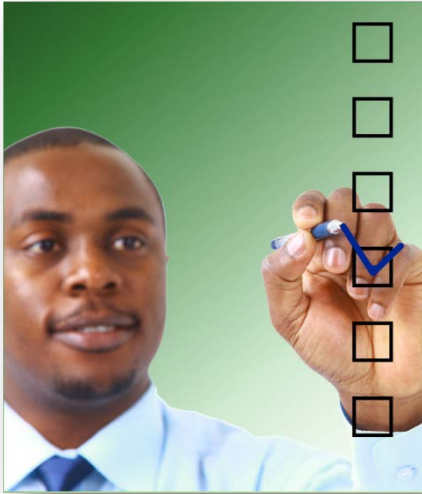
► Overview of the Exam

- Competencies
- Exam Structure
- Next Steps

- About Presentations Two through Six
- Wrap Up



Five main competencies tested



1

Basic understanding of heat flow, energy units, and building energy design

2

Correct application of the 2013 Standards based on the project's permitted scope of work

3

Gathering and organizing all necessary input data for energy modeling

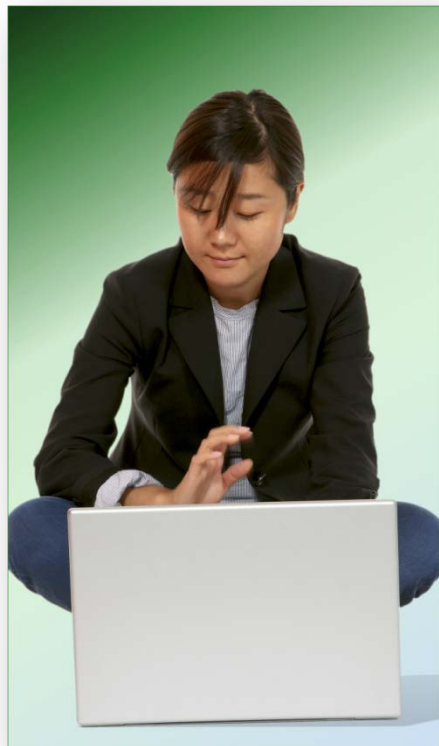
4

Creating an accurate energy model, and troubleshooting when results do not make sense

5

Interpreting energy performance results and making design recommendations

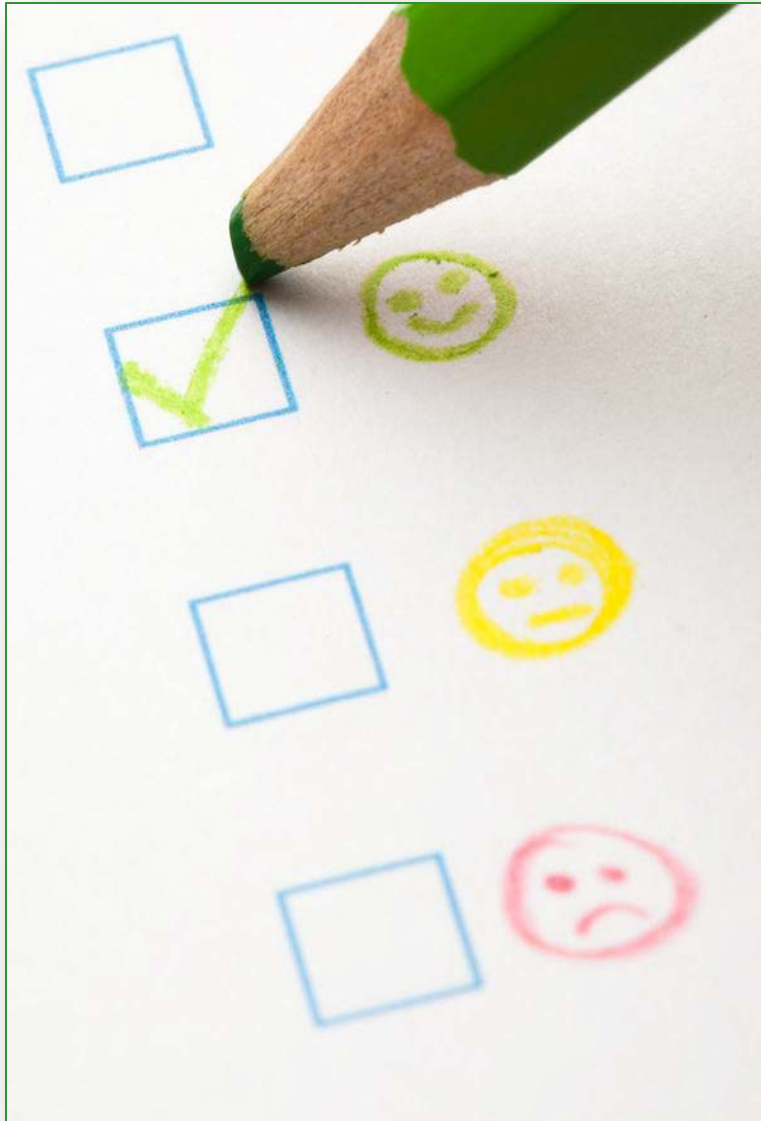
What should I bring?



- Bring a picture identification (such as a driver's license)
- Bring your own laptop (updated and with power cord) that can connect to WiFi and read a USB flash drive. Pre-loaded with any CEC-approved Residential software that can model E+A+A projects (Existing + Additions + Alterations). *Make sure it is the most current version.*
- You may bring hard copies of any materials you want to use, such as:
 - 2013 Energy Standards *
 - 2013 Joint Appendices *
 - 2013 Residential Manual*
 - Your personal notes

*These will also be provided on a flash drive in PDF format
- Lunch & drinks in containers — this is a full day exam at a CABEC testing location from 7:30 AM (*sharp*) through 4:30 PM

Exam structure



Multiple Choice

- 50 multiple choice questions cover all five competencies
- Up to 4 hours allowed to complete this section during the morning portion
- "Setup" for each question may include an energy code compliance scenario and/or a drawing and/or a part of the CF1R form
- You must pass both the multiple choice and modeling test sections

(continued)

Exam structure



Modeling

- Case study is an existing home with alterations and an addition
- Up to 2-1/2 hours allowed to complete this section during the afternoon portion
- Must create an accurate energy model from scratch and generate a CF1R from the information provided
- Scoring is based on:
 - Number of selected inputs correctly showing up in the CF1R
 - The model's compliance margin

Assessment



Feedback on YOUR Results

- Scoring feedback on each section of the test
- Organized by competency to help CEA candidates see where they are strongest and weakest
- Based on the exam scoring feedback, look for ways to improve your skills

Completing CEA Qualifications



Now What?

- Attain or prove 100 points combined within these categories:
 - Must show experience with minimum of five Title 24 Part 6 projects
 - Further education or other professional certifications
 - OR..you are a 2008 CEA
- Continuing Education
 - 9 approved credits per calendar year
- Attend professional practices workshop, or you are a 2008 CEA

About Presentations Two through Six



- Welcome
- Value and Benefits
- Overview of the Exam

► About Presentations Two through Six

- What the presentations provide
- The focus of each presentation

- Wrap Up



What the presentations provide



Why watch the other presentations?

Each presentation explains an area of expertise tested by the exam:

- Provides an overview of a competency, plus its objectives and key content
- Reviews at least one sample exam question
- Lists resources for further study

Presentation Two: Competency 1



1

Basic understanding of heat flow, energy units and building energy design

Comprehend Key Residential Energy Efficiency Design Concepts and Issues

Demonstrate knowledge of basic heat transfer, residential energy design measures, and how they relate to building energy performance metrics and code compliance

Presentation Three: Competency 2



2

Correct application of the 2013 Standards based on the project's permitted scope of work

Conduct Initial Project Assessment and Determine How to Apply the 2013 CA Building Energy Efficiency Standards

Gather preliminary information from drawings, related documents, and the client to determine the nature and scope of the project; and determine how to apply the Standards in establishing the correct code requirements and the available energy compliance options

Presentation Four: Competency 3



3

Gathering and organizing all necessary input data for energy modeling

Gather, Calculate, and Organize All Information Needed for Energy Modeling:

Review drawings, specifications, and information provided by the designer or client; gather, calculate, and record all pertinent data to input into the energy modeling software

Presentation Five: Competency 4



4 Creating an accurate energy model, and troubleshooting when results do not make sense

Model the Building with Approved Energy Compliance Software:

Create an energy model of the building from all information gathered. Check to see if on-screen and report results are reasonable; and, if not, correct the source of the error(s)

Presentation Six: Competency 5



5

Interpreting energy performance results and making design recommendations

Consider Recommendations for Improving Energy Performance and Comfort:

Use the knowledge of the project design and climate zone to make recommendations for improving energy performance to meet or exceed code

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► Wrap Up

- Study Resources
- Thank you



Study resources

CABEC

www.cabec.org

- Register for CEA Exam
- Recorded webinars on 2013 Energy Standards

Energy Code Ace www.energycodeace.com

- Training
- Resources

CEC

www.energy.ca.gov/title24/2013standards/index.html

- Title 24 Part 6 documents
- Supporting content

Res. Software (E+A+A)

- CBEECC-Res: www.bwilcox.com/BEES/BEES.html
- EnergyPro: www.energysoft.com

ASHRAE

www.ashrae.org

- Resources
- Publications



A new website developed by the Statewide Codes & Standards Program
to help you meet the requirements of Title 24, Part 6

We offer **FREE**



A variety of tools to
help you identify the
forms, installation
techniques, and
building energy
standards relevant to
building projects in
California



Classroom and online
trainings on Title 24,
Part 6.

**Learning Portal
Coming Soon!**



Fact Sheets, Trigger
Sheets, Checklists,
and FAQs to help
you understand when
Title 24, Part 6 is
“triggered” and how
to correctly comply
when it is



visit us at
www.EnergyCodeAce.com

Thank you



In memory: Douglas Beaman

We would like to recognize some of those who helped make the CEA program happen:

- CA Statewide Codes and Standards team of PG&E, SCE, SDG&E, and Southern Cal Gas
- California Energy Commission
- CABEC Board, the CEA Committee and Executive Director Kim Coolbaugh
- Benningfield Group, Inc.
- Gabel Associates, LLC
- McLain ID Consulting