



# CABEC Mentoring Program

## Introduction to Mentoring Program

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# OVERVIEW

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Oversight for the Certified Energy Analyst (CEA) Mentoring Program has been delegated to the California Association of Building Energy Consultants (CABEC). CABEC improves the practice of energy consulting by encouraging its members to participate in a continuing education program of professional development. The education program covers: The State of California's building energy regulations and analysis, energy conservation technologies, ethics, compliance documentation, and any relevant topics that will develop the professional standards of those engaged in energy consulting.

The goal of the CABEC Mentoring Program is to pair seasoned and certified CEAs who are also CABEC Members with individuals currently in pursuit of certification. The mentor will share experiences and practical knowledge to supplement the mentee's development while s/he completes the training and development programs that are available through Energy Code Ace and others. While the mentoring program is intended to be customized to the preferences of the mentorship pairing, it is structured around Monthly Mentoring Meetings, which are a series of courses and application activities tied to the five competencies covered in the CEA exam.

## ***What is a Certified Energy Analyst (CEA)?***

Certified Energy Analysts (CEA) are professionals who have studied and worked in the field of building energy efficiency and energy code compliance pertinent to the California Code of Regulations, Title 24, Part 6. They have passed an exam that represents an achieved level of professional competency. These experts can help individuals and businesses reduce their building energy needs and costs. This includes reducing the amount of energy used in residential and commercial buildings and switching to alternative energy sources such as solar. Most energy analysts apply their knowledge to serving a large region or possibly the entire state of California.

Practically speaking, In California, CEAs often determine which energy efficiency measures are needed to meet the state energy efficiency requirements and prepare the necessary energy code compliance documentation to submit as part of a builder's permit application. An energy analyst uses California Energy Commission-approved compliance software to identify the energy efficiency measures, including solar water heating, that would be most effective for a building. An energy analyst might also use certain tools such as the NSHP PV Calculator to evaluate the performance of a PV solar energy system.

## ***What does it take to become a CEA?***

The Certified Energy Analyst (CEA) program is a natural outgrowth of the CABEC Statement of Purpose and is officially recognized by the California Energy Commission for establishing a

professional standard as well as providing an important link in energy compliance. The primary goal of the Certified Energy Analyst (CEA) program is to maintain and manage a professional credential for those who assist the building industry in meeting state energy standards.

The CEA certification program is designed to benefit energy analysts and their clients in the design and construction community by creating a consistent and recognizable standard of achievement. The CEA certification represents the energy analyst's level of knowledge, experience, and expertise and demonstrates a commitment to maintaining a high degree of professional excellence pertaining to the Building Energy Efficiency Standards. Separate certification is offered for the Residential and Nonresidential Standards.

### ***How does the mentoring program work?***

Mentor interactions are the primary feature of the program that distinguish it from other educational offerings. Energy analysts embark on a varied program for developing the competencies needed for certification, with most activities being self-directed. Mentor interactions are planned at key points within each Monthly Mentoring Meeting, during or following a block of completed training. These interactions provide students with an opportunity to clarify and confirm any outstanding questions from the training, and to receive feedback and guidance from a certified energy analyst in a way that is tailored to the learner's needs.

There are many ways to customize mentoring interactions, including variations on the number of participants, frequency and timing of the interactions, and the information exchanged. Mentoring sessions may occur in person if participants are geographically close, or in a combination of telephone and online meetings, these are currently supported as online meetings. Mentors will need access to an online meeting platform to facilitate online interactions. In addition, mentors may require support materials for each interaction, including sample learning objectives, practice activities and exercises, and recommended review topics related to the coursework in each learning module. In most cases these have been created for you and are included in your coaching guides for each Monthly Mentoring Meeting.

Each Monthly Mentoring Meeting is designed to map to the CEA exam competencies. To facilitate mentorship in a structured way, each block offers suggested opportunities for analysts to meet with a mentor to touch base or debrief about a sample project they've been working on. For example, in the Modeling Block, analysts complete sample projects as a downloadable self-study. When they are complete with the project they'll debrief with their mentor.

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## **BENEFITS, ROLES, RESPONSIBILITIES OF A MENTORING RELATIONSHIP**

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Mentoring is a special partnership between two people based on commitment to the mentoring process, common goals and expectations, focus, mutual trust and respect. The mentoring relationship allows for the transfer of knowledge and skills from one energy consultant to others, thus benefiting the greater good.

Both the mentor and the mentee give and grow in the mentoring process. The mentee can learn valuable knowledge from the mentor's expertise and lessons learned, and competencies can be strengthened in opportunity areas. Mentees will have the opportunity to establish valuable connections with more experienced energy consultants. Mentors often find that they solidify their own knowledge in the process of preparing to share it with others.

The success of mentoring will depend on clearly defined roles and expectations in addition to the participants' awareness of the benefits of participating in the program.

***Benefits of Mentoring for the Mentor:***

- Renews enthusiasm for the role of expert
- Obtains a greater understanding of struggles of less experienced energy consultants
- Enhances skills in coaching, counseling, and listening
- Develops and practices a more personal style of leadership
- Demonstrates expertise and shares knowledge
- Personal satisfaction of sharing their skills and experience with a willing learner

***Benefits of Mentoring for the Mentee:***

- Gains sharper focus on what is needed to grow professionally
- Furthers development as a professional
- Gains capacity to translate values and strategies into productive actions
- Complements ongoing formal study and/or training and development activities
- Gains career development opportunities
- Gets assistance with ideas and honest feedback

As participants reflect on being mentored, time should be devoted to determining the qualities desired in a mentor and what you would like to gain from the partnership.

### ***Responsibilities – Mentor:***

- Support CABEC's mission, vision, and goals
- Attend 1-hour Monthly Mentoring Meeting when possible via online meeting platforms such as "ZOOM"
  - Commit to presenting, at least, one of the prescribed monthly training meetings per year
  - One-hour meetings with mentee pods and engage in prescribed mentoring activities after monthly meetings
- Review all mentoring documents that are you provided
  - Fill out and update the Mentor/Mentee meeting tracker provide in the Mentor Toolbox for all mentee pod meetings
- Willingly share your experience
  - Explain how the Mentoring Program is structured
  - Explain how Mentee Pods work
  - Offer encouragement through genuine positive reinforcement
  - Provide open and candid feedback
  - Share lessons learned and stories from your own career
  - Look for experiences that will stretch the mentee
- Stay accessible, committed, and engaged during the length of the program
  - Practice active listening
  - Be a positive role model
  - Be a resource and a sounding board
  - Maintain confidentiality
- Let the Mentoring Program Manager at CABEC know as soon as possible if you are having a problem connecting with your mentee
- Estimated monthly time involvement is 4-6 hours per month.

### ***Responsibilities – Mentee:***

- Meet with mentor and engage in mentoring activities as prescribed
- Discuss individual development planning with the mentor
- Attend 1-hour Monthly Mentoring Meeting in addition to 1-hour Mentor/Mentee pod training meetings as scheduled by the mentor.
- Be proactive about contacting your mentor and attending scheduled meetings
- Be prepared for every meeting and come with questions
  - Respect the mentor's time and resources
  - Review all mentoring documents that are you provided
  - Mentors are very busy people and have generously volunteered to donate time
  - Commit to self-development
  - Seek advice, opinion, feedback, and direction from the mentor
  - Assume responsibility for acquiring or improving skills and knowledge
- Be open and honest on goals, expectations, challenges, and concerns
  - Actively listen and ask questions
  - Be receptive to constructive criticism/feedback
- Maintain confidentiality
- Stay accessible, committed, and engaged during the length of the program. Understand that if mentee doesn't fully engage in all of the above, misses more that (3) consecutive meetings or

chronically comes unprepared or doesn't attend online trainings the mentee may be asked to leave the program until such time the required commitment can be made. A meeting with the Program Director may be required.

- Provide candid feedback to the mentor on what is working or not working in the mentoring relationship
- Let the Mentoring Program Manager at CABEC know as soon as possible if you are having a problem connecting with your mentor

### ***Responsibilities – CABEC Mentoring Program Manager(s):***

- Maintain CABEC Mentoring Program materials
  - Google Docs (or other as determined by CABEC Director) for materials utilized between CABEC and the mentor/mentee and between mentor and mentee(s); Monthly calendar supporting CABEC Mentoring Monthly Program Meetings; Suggested for coordination of Monthly Debrief and any other meetings between mentor and mentee(s)
  - CABEC website for CABEC Mentoring Monthly Program Meeting PowerPoint slide decks and sample project material; CABEC Mentoring Program Handbook
- Pair mentor and mentees with consideration to active mentee pods and determine if any new pods are required. For mentees that do not fall into the "mentoring group #1" and should be placed in "mentoring group #2" because they do not need to attend all flight paths, determine which existing pods they can join based on need, or determine if a new pod is required (or ask mentors if they can take a one-on-one mentee).
  - Mentoring Group #1: Those starting from the very beginning of which this program is currently structured around.
  - Mentoring Group #2: Failed parts of the CEA exam and mentoring to study and be prepared to take the CEA again and be successful. These may not need to follow all of the flight paths maybe only part of one and may need to be addressed outside of the CABEC Mentoring Program Monthly Meetings.
- Coordinate monthly CABEC Mentoring Program meetings to support Learning/Flight Paths required by "mentoring group #1". Additional monthly meetings may be required as the program grows and not all pods are following the same Learning/Flight Paths. Record these meetings and make available on the CABEC website in the mentoring location for mentors to review and be available for any mentees who could not attend.
- Check in the mentors and mentees to confirm everything is going smoothly.
- Support any mentee or mentor who is having issues with the CABEC Mentoring Program, mentor and/or any mentees within the program.
- Communicate with the CABEC Executive Director and the CABEC Board on progress of the mentoring program and relay any needs or concerns of the program. Further coordination with Jill Marver of PG&E in tandem with the CABEC Executive Director and the CABEC Board to be provided as required.

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# PROGRAM DOCUMENTS

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The following documents are provided to support a smooth process and continuously improve the mentoring program. A full list of all training and development resources used during the mentoring process can be found in the Development Plan.

## **General mentoring documents:**

- Confidentiality agreement – Agreement that the mentoring program must be a safe environment for mentees and mentors to freely share information with one another.
- Mentoring meeting tracker - The mentee and mentor should record their meetings and activities to show progress achieved. This log can be reviewed periodically to reflect on how to facilitate more effective engagement. It will also assist with end-of-program feedback for future program improvements.
- Evaluation - At the end, mentees and mentors will be asked to evaluate the program. Their input will help make any necessary adjustments to ensure the program remains effective.



# APPENDICES

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Appendix A: Schedule Overview for Mentoring Program

Appendix B: Monthly Mentoring Program Meetings

Appendix C: Roadmap between CEA Exam Objectives and Flight Plan



# Appendix A: Schedule Overview

## Getting Started: Meet your Mentee(s)

Who: Mentor and any new mentee(s)

When: First meeting with mentee(s)

What: Introduce the mentee(s) to the mentor, the CABEC Mentoring Program, discuss goals, rules of engagement, timelines and fill out initial paperwork

## Monthly CABEC Mentoring Program Meetings

Who: Mentor who volunteered for this flight path topic/All Mentees/CABEC Mentoring Program Director

When: Monthly

What: Work through flight paths in order; link applicable training to that flight path from ECA to mentees, use mentoring program example project(s) to facilitate application of what they should have learned in previous month's ECA classes

## Monthly Debrief Pod Check-ins

Who: Mentor/Mentee(s) pod

When: Monthly

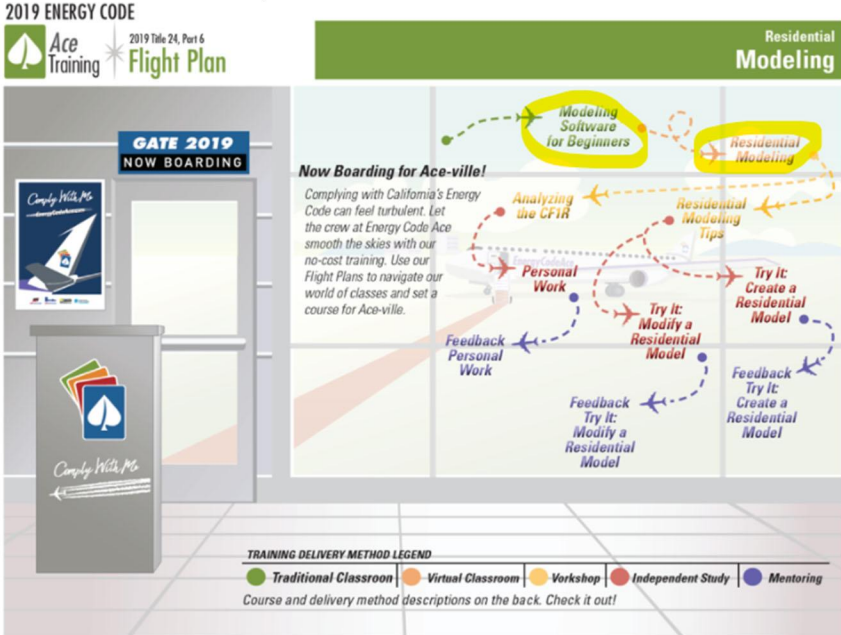
What: Mentees work on sample/personal projects with activities specific to each Flight Plan and then discuss results and issues with the mentor and other mentees in pod

# Appendix B: Monthly Agenda's

## CABEC 2019 Code Mentoring Program Monthly Meeting Calendar

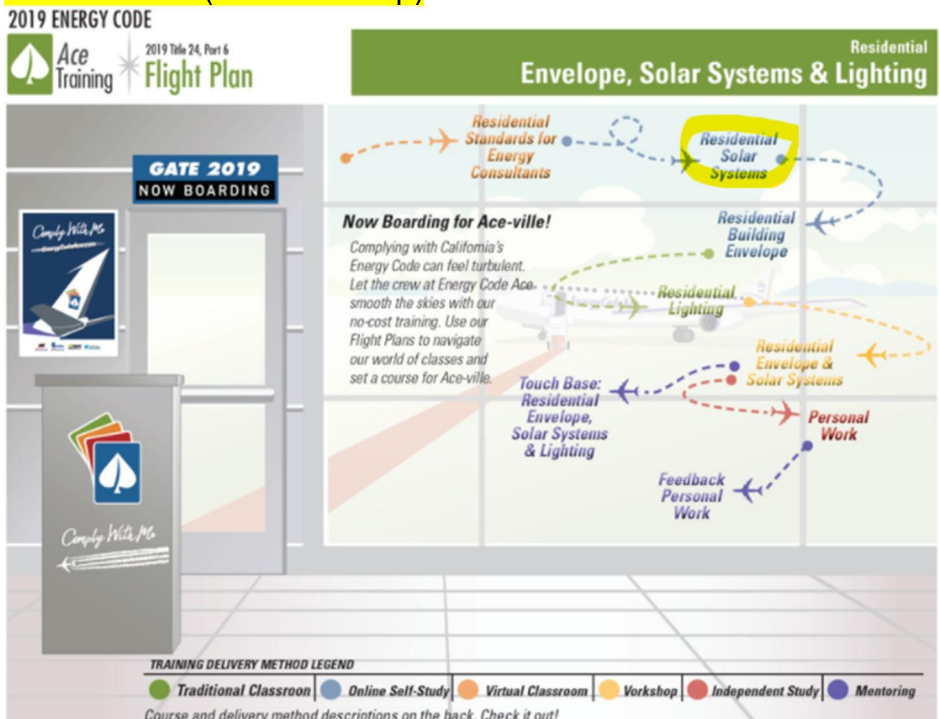
Month	Topic	Classes	Activity
February	Introduction	<ul style="list-style-type: none"><li>Energy Efficiency Concepts online self-study (OLSS)</li><li>Live Res Standards for Energy Consultants</li><li>Prep: Modeling Software for Beginners: Energy Pro</li></ul>	N/A
March	Intro to Modeling	<ul style="list-style-type: none"><li>Intro to Modeling</li><li>Modeling Software for Beginners (CBECC-Res)</li></ul>	Pick a Project
April	Job Organization	<ul style="list-style-type: none"><li>OLSS Res Building Envelope</li><li>Code &amp; Coffee Plan take-offs, both ADU sessions (total of 3)</li></ul>	Research insulation and use Job Aide to complete envelope intake.
May	Envelope: Opaque Assemblies	<ul style="list-style-type: none"><li>Res Envelope &amp; Solar Vorkshop</li><li>Code &amp; Coffee Shading; 2 story; E+E+A (3 total)</li><li>Code Breaker: ADU / BAYREN QII (2 total)</li></ul>	Model opaque envelope using personal project.
June	Envelope: Fenestration	<ul style="list-style-type: none"><li>Code Breaker: Res Solar Systems</li></ul>	Model fenestration using personal project.

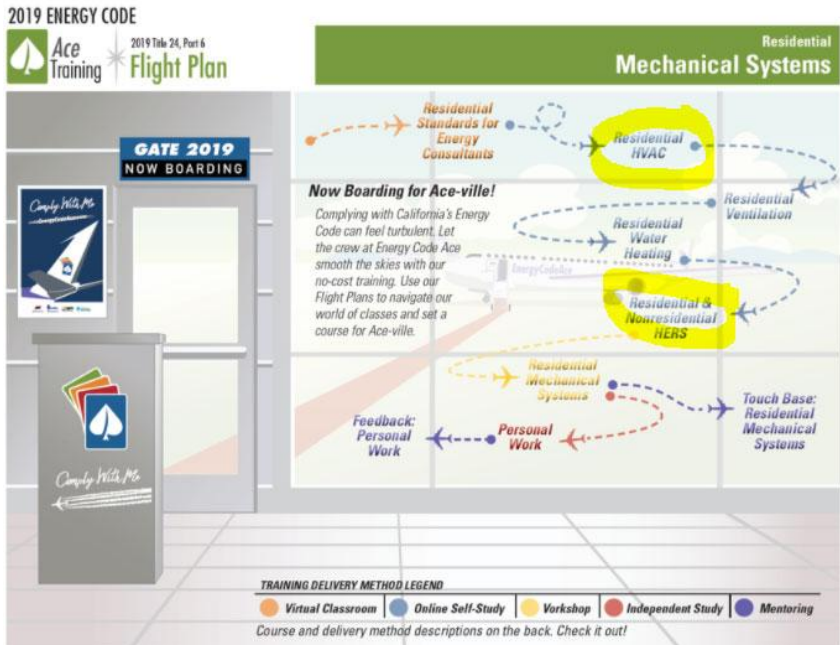
		<ul style="list-style-type: none"> <li>• Code &amp; Coffee on PV</li> <li>• OLSS Solar</li> </ul>	
<b>July</b>	Envelope: PV, Solar Ready, Battery	<ul style="list-style-type: none"> <li>• Code &amp; Coffee on HVAC</li> <li>• OLSS Res HVAC</li> <li>• OLSS HERS</li> </ul>	Model PV and Battery using personal project.
<b>August</b>	Mechanical: HVAC	<ul style="list-style-type: none"> <li>• Contractor HVAC classes</li> <li>• OLSS Res Water Heating</li> <li>• Res Mech Systems Vorkshop</li> <li>• C&amp;C: Townhomes</li> </ul>	Model HVAC using personal project.
<b>September</b>	Mechanical: IAQ	<ul style="list-style-type: none"> <li>• OLSS Res water heating</li> </ul>	Model DHW using personal project.
<b>October</b>	Lighting	<ul style="list-style-type: none"> <li>• Res lighting class</li> <li>• Intermediate software modeling class (Energy Pro or CBECC-Res)</li> </ul>	Research lighting products.
<b>November</b>	Modeling	<ul style="list-style-type: none"> <li>• CF1R class</li> <li>• Modeling tips</li> </ul>	Present 3 compliance approaches for personal project.
<b>December</b>	Final	<ul style="list-style-type: none"> <li>• CEA Prep</li> </ul>	Sign up for CEA exam.

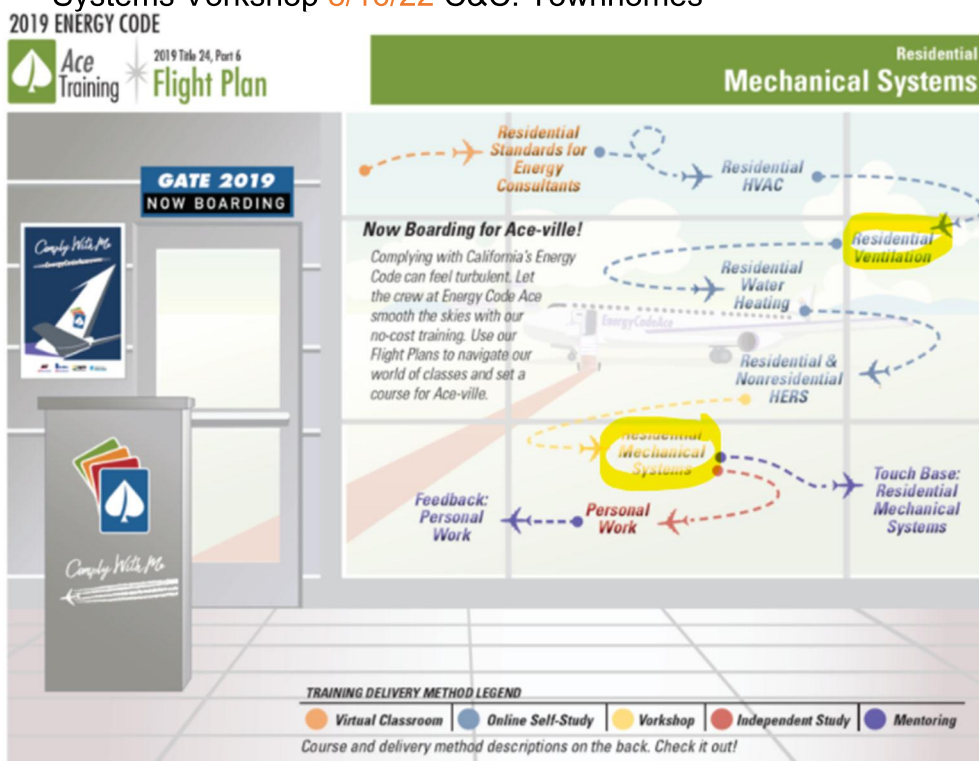
February (1 <sup>st</sup> meeting) - Introduction	
<b>Review:</b>	Welcome to the CABEC Mentoring Program: Introduction (review “Intro to Mentoring” document) Set up monthly platform to use each month (1 <sup>st</sup> Wednesday of each month at 5:30 PM for 1 hour)
<b>Provide:</b>	CABEC Introduction To Mentoring / Confidentiality Agreement / Quick Reference Glossary
<b>Mentees to do:</b>	Review and sign mentoring documents Confidentiality Agreement
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Prep for next month: Energy Efficiency Concepts online self study (OLSS)/ Live Res Standards for Energy Consultants Feb. 23-25, 2022</li> <li>□ Prepare for next month: Modeling Software for Beginners (Energy Pro 2/28/22 or CBECC-Res 3/10-11/22)</li> </ul>
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>□ Set up monthly check in date with your mentee(s). Suggest it be the same day of month and time each month using online platform of choice (screen sharing essential)</li> <li>□ Get mentoring paperwork done, ask and document about the mentee(s) goals, confirm they are taking the class(es)</li> <li>□ Set up and use Mentoring Tracker with your group (via CABEC google docs)</li> </ul>
March (2 <sup>nd</sup> meeting) – Intro to Modeling	
<b>Review:</b>	The basics
<b>Provide:</b>	Applicable ECA resources: Quick Reference (all CZ); EDR Factsheet
<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>□ Pick a project to use throughout this program</li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Job Aides and Pick a Project/start modeling</li> <li>□ Prep for next month: Intro to Modeling March 15-17, 2022 / Modeling Software for Beginners (Energy Pro 2/28/22 or CBECC-Res 3/10-11/22)</li></ul> 
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>□ Confirm they are taking the class(es)</li> <li>□ Determine if they have a project they would like to work on throughout this program, or assign a “sample” project provided by the program</li> <li>□ Update Mentoring Tracker</li> </ul>

April (3rd meeting) Job Organization	
<b>Review:</b>	<input type="checkbox"/> Job Aides and Pick a Project/start modeling
<b>Provide:</b>	Applicable ECA resources: Envelope App Guide; Opaque Factsheet; Rebuild Factsheet/ Insulation Guide / Job Aide
<b>Mentees to do:</b>	<input type="checkbox"/> Research at least 5 different insulation products (batt, rigid, blow-in, spray, etc) and be comfortable with specifications, R-value, and install criteria (cost is a bonus) – Be ready to share with pod resources you used <input type="checkbox"/> Personal Project: Fill out “opaque envelope” sections of intake sheet; set up modeling spreadsheet
<b>Mentees to take:</b>	<input type="checkbox"/> Envelope Insulation <input type="checkbox"/> Prep for next month: OLSS Res Building Envelope / Res Envelope&Solar Vorkshop <b>May 10, 2022</b> / Code & Coffee Plan take-offs, both ADU sessions (total of 3) 
<b>Mentor check in:</b>	<input type="checkbox"/> Confirm they are taking the class(es) <input type="checkbox"/> Review their intake sheets; Confirm they are on target; Share stories about the importance of being organized <input type="checkbox"/> Update Mentoring Tracker
May (4th meeting) Envelope: Opaque Assemblies	
<b>Review:</b>	<input type="checkbox"/> Envelope Insulation
<b>Provide:</b>	Applicable ECA resources
<b>Mentees to do:</b>	<input type="checkbox"/> Personal Project: Taking into consideration the insulation products you researched, model at least 3 different wall types, roof types and floor types SEPERATELY from each other (9 different runs) with at least 2 runs including each building feature being prescriptive options. Record change in compliance margins in spreadsheet. Do this for at least 2 climate zones (you decide based on where you think you will be doing your work, or asked to be assigned CZ's by your mentor) (now you have 18 different runs 😊). Be ready to talk about the assemblies used and the cost/install implications that would have to be communicated to client

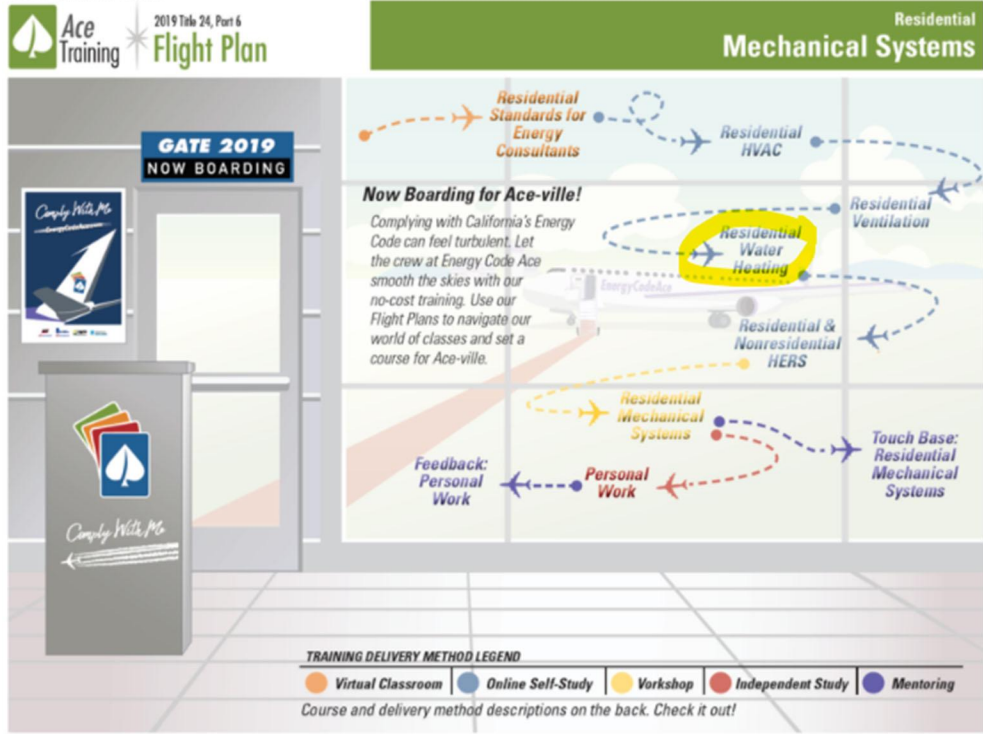


<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>Envelope Opaque</li> <li>Prep for next month: Catch up on classes if needed / Code &amp; Coffee Shading; 2 story; E+E+A (3 total) / <b>Code Breaker: ADU / BAYREN QII (Gina to set up)</b></li> </ul>
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>Confirm they are taking the class(es)</li> <li>Show example of modeling spreadsheet correctly filled out with opaque surface runs required (see above)</li> <li>Review modeling of opaque assemblies and talk about swings in compliance margins they are getting. Have a discussion about the research they are doing on insulation products and how that fits into the prescriptive assembly requirements</li> <li>Review any software error messages they are getting and how you suggest they work through them</li> <li>Update Mentoring Tracker</li> </ul>
<b>June (5th meeting) Envelope: Fenestration</b>	
<b>Review:</b>	<ul style="list-style-type: none"> <li>Envelope Opaque</li> </ul>
<b>Provide:</b>	Applicable ECA resources: Fenestration Factsheet
<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>Research at least 3 different window types and be comfortable with specifications, U-factor/SHGC, and install criteria (cost is a bonus) – Be ready to share with pod resources you used</li> <li>Personal Project: Model at least 3 different window types (U-factor, SHGC, NFRC versus default) and add each without an overhang, and each with 10' overhangs SEPERATELY from each other (6 different runs) with at least 1 run meeting prescriptive efficiency and area requirements. Record change in compliance margins in spreadsheet. Be ready to talk about the values used and the cost/install implications that would have to be communicated to client</li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>Prep for next month: Code Breaker: Res Solar Systems / <b>Code &amp; Coffee on PV (Gina to set up)</b> / OLSS Solar</li> </ul> 
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>Confirm they are taking the class(es)</li> <li>Show example of modeling spreadsheet correctly filled out with fenestration runs</li> </ul>

	<ul style="list-style-type: none"> <li>□ Review modeling of fenestration features and talk about swings in compliance margins they are getting. Have a discussion about the research they are doing on insulation products and how that fits into the prescriptive fenestration requirements</li> <li>□ Review any software error messages they are getting and how you suggest they work through them</li> <li>□ Update Mentoring Tracker</li> </ul>
<b>July (6th meeting) Envelope: PV, Solar Ready, Battery</b>	
<b>Review:</b>	□ Fenestration & Renewables
<b>Provide:</b>	Applicable ECA resources: N/A
<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>□ Research PV and Battery costs (3 PV system sizes: 2 kW, 5 kW, 12 kW; 2 Battery technologies: 10 kWh (lithium and 1 other) <ul style="list-style-type: none"> <li>○ Be ready to share at mentor meeting the resources you used</li> </ul> </li> <li>□ Personal Project: Model the 3 different PV sizes for 2 different climate zones (6 different models) <ul style="list-style-type: none"> <li>○ Take one of those models, and add 10 kWh battery (1 additional model)</li> <li>○ Record change in compliance margins in “Job Aide-Building Feature Summary”.</li> <li>○ Be ready to talk about the systema controls used and the cost/install implications that would have to be communicated to client.</li> </ul> </li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Prep for next month: Code &amp; Coffee on HVAC / OLSS Res HVAC / OLSS HERS</li> </ul>  <p>The graphic is a 'Flight Plan' for the 2019 Energy Code Ace Training. It features a stylized airplane icon and a path through various topics. The path starts with 'Residential Standards for Energy Consultants' and leads to 'Residential HVAC', 'Residential Water Heating', 'Residential Ventilation', 'Residential &amp; Nonresidential HERS', 'Residential Mechanical Systems', and finally 'Touch Base: Residential Mechanical Systems'. A 'Feedback: Personal Work' section is also shown. A legend at the bottom identifies training delivery methods: Virtual Classroom (orange circle), Online Self-Study (blue circle), Workshop (yellow circle), Independent Study (red circle), and Mentoring (purple circle). The text 'Now Boarding for Ace-ville!' is prominently displayed, along with a 'GATE 2019 NOW BOARDING' sign.</p>
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>□ Confirm they are taking the class(es)</li> <li>□ <b>Show example of modeling spreadsheet correctly filled out with HVAC runs</b></li> <li>□ Review modeling HVAC features/options and talk about swings in compliance margins they are getting and impact of distribution. Discuss how all-electric Reach Codes may dictate HVAC system type (<a href="http://www.localenergycodes.com">www.localenergycodes.com</a> ). Review applicable HERS measures</li> <li>□ Review any software error messages they are getting and how you suggest they work through them</li> <li>□ Update Mentoring Tracker</li> </ul>

August (7th meeting) Mechanical: HVAC	
<b>Review:</b>	HVAC
<b>Provide:</b>	Applicable ECA resources
<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>□ Research at least 3 different HVAC systems (ducted, ductless, radiant) considering utility (gas, electric)</li> <li>□ Personal Project: Model 3 different HVAC system types (ducted, ductless, radiant) at minimum efficiency for both natural gas and electric/heat pump (6 different runs) in 2 different CZ's (12 different runs)</li> <li>□ Research at least 3 different IAQ systems (exhaust, balanced, HRV/ERV) and how to find HVI/AHAM kitchen hood</li> <li>□ Personal Project: Model 3 different IAQ system types (exhaust, balanced, HRV/ERV) (3 different runs) in 2 different CZ's (6 different runs)</li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Residential Standards for HVAC Contractors – Installers 8/30/22 &amp; Designer/Estimators 8/31/22</li> <li>□ Prep for next month: OLSS Res Water Heating / Res Mech Systems Vorkshop 8/16/22 C&amp;C: Townhomes</li> </ul>  <p>2019 ENERGY CODE Ace Training 2019 Title 24, Part 6 Flight Plan</p> <p><b>Residential Mechanical Systems</b></p> <p><b>GATE 2019 NOW BOARDING</b></p> <p><b>Now Boarding for Ace-ville!</b> Complying with California's Energy Code can feel turbulent. Let the crew at Energy Code Ace smooth the skies with our no-cost training. Use our Flight Plans to navigate our world of classes and set a course for Ace-ville.</p> <p><b>TRAINING DELIVERY METHOD LEGEND</b>  <span style="color: orange;">●</span> Virtual Classroom    <span style="color: blue;">●</span> Online Self-Study    <span style="color: yellow;">●</span> Vorkshop    <span style="color: red;">●</span> Independent Study    <span style="color: purple;">●</span> Mentoring  Course and delivery method descriptions on the back. Check it out! </p>
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>□ Confirm they are taking the class(es)</li> <li>□ Show example of modeling spreadsheet correctly filled out with IAQ runs</li> <li>□ Review modeling IAQ features/options and talk about swings in compliance margins they are getting. Review applicable HERS measures</li> <li>□ Review any software error messages they are getting and how you suggest they work through them</li> <li>□ Update Mentoring Tracker</li> </ul>
September (8th meeting) Mechanical: IAQ	
<b>Review:</b>	IAQ & DHW
<b>Provide:</b>	Applicable ECA resources



<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>□ Research at least 3 different water heating systems (tankless, tank, solar thermal) considering utility (gas, electric)</li> <li>□ Personal Project: Model 3 different DHW system types (tankless, tank, solar thermal) at minimum efficiency for both natural gas and electric/heat pump (6 different runs) in 2 different CZ's (12 different runs)</li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Prep for next month: OLSS Res water heating</li> </ul>  <p>The diagram is titled "2019 ENERGY CODE Ace Training Flight Plan" and "Residential Mechanical Systems". It features a stylized airport gate labeled "GATE 2019 NOW BOARDING" with a sign that says "Comply With Me". A path of colored arrows leads through various training modules: "Residential Standards for Energy Consultants" (orange), "Residential HVAC" (blue), "Residential Ventilation" (blue), "Residential Water Heating" (yellow, circled), "Residential &amp; Nonresidential HERS" (grey), "Residential Mechanical Systems" (yellow), "Personal Work" (red), and "Touch Base: Residential Mechanical Systems" (blue). A legend at the bottom identifies the colors: Virtual Classroom (orange), Online Self-Study (blue), Workshop (yellow), Independent Study (red), and Mentoring (purple). Text in the center says "Now Boarding for Ace-ville! Complying with California's Energy Code can feel turbulent. Let the crew at Energy Code Ace smooth the skies with our no-cost training. Use our Flight Plans to navigate our world of classes and set a course for Ace-ville."</p>
<b>Mentor check in:</b>	<ul style="list-style-type: none"> <li>□ Confirm they are taking the class(es)</li> <li>□ <b>Show example of modeling spreadsheet correctly filled out with DHW runs</b></li> <li>□ Review modeling DHW features/options and talk about swings in compliance margins they are getting. Review applicable HERS measures and how they might get "extra credit"</li> <li>□ Review any software error messages they are getting and how you suggest they work through them</li> <li>□ Update Mentoring Tracker</li> </ul>
<b>October (9th meeting) Lighting</b>	
<b>Review:</b>	DHW
<b>Provide:</b>	Applicable ECA resources
<b>Mentees to do:</b>	<ul style="list-style-type: none"> <li>□ Go to local hardware store and research lighting controls and lighting fixtures/bulbs and see if you can find enough that meets Energy Code requirements for permitted work</li> <li>□ Personal Project: Sketch out a lighting plan, schedule and controls for at least 4 rooms</li> </ul>
<b>Mentees to take:</b>	<ul style="list-style-type: none"> <li>□ Lighting</li> <li>□ Prep for next month: Res lighting class 10/21/22; Intermediate software modeling class (Energy Pro 10/14 or CBECC-Res 10/10-11/22)</li> </ul>

	<div data-bbox="483 69 751 168"> <p>2019 ENERGY CODE Ace Training 2019 Title 24, Part 6 <b>Flight Plan</b></p> </div> <div data-bbox="852 94 1469 163"> <p>Residential <b>Envelope, Solar Systems &amp; Lighting</b></p> </div> <div data-bbox="483 174 1469 835"> <p><b>GATE 2019 NOW BOARDING</b></p> <p><b>Now Boarding for Ace-ville!</b> Complying with California's Energy Code can feel turbulent. Let the crew at Energy Code Ace-smooth the skies with our no-cost training. Use our Flight Plans to navigate our world of classes and set a course for Ace-ville.</p> <p><b>Touch Base:</b> Residential Envelope, Solar Systems &amp; Lighting</p> <p><b>Feedback Personal Work</b></p> <p><b>TRAINING DELIVERY METHOD LEGEND</b>      ● Traditional Classroom ● Online Self-Study ● Virtual Classroom ● Workshop ● Independent Study ● Mentoring      Course and delivery method descriptions on the back. Check it out!</p> </div>
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	<input type="checkbox"/> Review compliance packages – ask them to be prepared to share at next CABEC Mentoring Program Monthly meeting <input type="checkbox"/> Review any software error messages they are getting and how you suggest they work through them <input type="checkbox"/> Update Mentoring Tracker
<b>December (11th meeting) Final</b>	
<b>Review:</b>	Have volunteers share their projects and their three compliance packages
<b>Provide:</b>	Applicable ECA resources
<b>Mentees to do:</b>	<input type="checkbox"/> Look into CEA testing dates
<b>Mentees to take:</b>	<input type="checkbox"/> Prep for res CEA exam
<b>Mentor check in:</b>	<input type="checkbox"/> Have a party



## Competency 2: Conduct Initial Project Assessment and Determine How to Apply the 2019 California Building Energy Efficiency Standards

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

	1 EEC	2 Intro Modeling	3 Envelope Insulation	4 Envelop Opaque	5 Envelope Fenestratio n	5 Renewable s	6 HVAC	7 IAQ	8 DHW	9 Lighting	10 Intermedia te Modeling
2.1 Explain scope and triggers for specified portions of the Title 24 low-rise residential standards, federal and state appliance standards.	<ul style="list-style-type: none"> <li>• Res Stds EC</li> </ul>	<ul style="list-style-type: none"> <li>• Res Modeling</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> </ul>	<ul style="list-style-type: none"> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res Solar</li> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> <li>• CodeB Solar</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res HVAC</li> <li>• Vshop Res Mechanical Systems</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res Ventilation</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res Water Heating</li> </ul>	<ul style="list-style-type: none"> <li>• Res Lighting</li> </ul>	<ul style="list-style-type: none"> <li>• Res Modeling Tips</li> <li>• Res Lighting</li> </ul>
2.2 Analyze information about a proposed project (e.g., drawings, related schedules and documents, information from client) to determine scope and key attributes.	<ul style="list-style-type: none"> <li>• Res Stds EC</li> </ul>	<ul style="list-style-type: none"> <li>• Res Modeling</li> </ul>		<ul style="list-style-type: none"> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• CodeB ADU</li> <li>• CodeB Solar</li> </ul>					<ul style="list-style-type: none"> <li>• Res Modeling Tips</li> </ul>
2.3 Analyze proposed project information to determine which standards apply, possible compliance options and strengths and weaknesses of compliance methods.	<ul style="list-style-type: none"> <li>• Res Stds EC</li> </ul>	<ul style="list-style-type: none"> <li>• Res Modeling</li> </ul>		<ul style="list-style-type: none"> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• CodeB ADU</li> <li>• C&amp;C PV</li> <li>• CodeB Solar</li> </ul>					<ul style="list-style-type: none"> <li>• Res Modeling Tips</li> </ul>
2.4 Review information about a proposed project to determine key data about the building's envelope/PV and mechanical components.	<ul style="list-style-type: none"> <li>• Res Stds EC</li> </ul>	<ul style="list-style-type: none"> <li>• Res Modeling</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> </ul>	<ul style="list-style-type: none"> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res Solar</li> <li>• CodeB Solar</li> <li>• Vshop Res Env &amp; Solar</li> <li>• CodeB ADU</li> </ul>	<ul style="list-style-type: none"> <li>• OLSS Res HVAC</li> </ul>				<ul style="list-style-type: none"> <li>• Final Project activity</li> </ul>
2.5 Analyze proposed project information to determine if all data is correct and internally consistent, and whether relevant information is missing or incomplete		<ul style="list-style-type: none"> <li>• Tools</li> </ul>									<ul style="list-style-type: none"> <li>• Final Project activity</li> </ul>

## Competency 3: 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.

	1 EEC	2 Intro Modeling	3 Envelope Insulation	4 Envelop Opaque	5 Envelope Fenestratio n	5 Renewable s	6 HVAC	7 IAQ	8 DHW	9 Lighting	10 Intermedia te Modeling
3.1 Analyze a proposed project to determine pertinent data regarding HVAC systems and zones, including any HERS measures, to input into energy modeling software.		• Res Model ing					• OLSS Res HVAC • C&C Advan ced HVAC & DHW		• C&C Advan ced HVAC & DHW		• Res Exam Prep
3.2 Analyze a proposed project to identify pertinent data regarding water heating system(s) to input into energy modeling software.		• Res Model ing					• C&C Advan ced HVAC & DHW				• Res Exam Prep
3.3 Organize and perform zone-by-zone area take-offs in accordance with the scope, type, and compliance approach for the project.		• Res Model ing	• C&C ADU Detac hed • C&C ADU Attach ed	• C&C ADU Detac hed • C&C ADU Attach ed	• C&C ADU Detac hed • C&C ADU Attach ed	• C&C PV • C&C ADU Detac hed • C&C ADU Attach ed					
3.4 Analyze take-offs for a proposed project to identify any relevant information that is missing or inconsistent.		• Tools	• C&C Take- off & Analys is	• C&C Take- off & Analys is	• C&C Take- off & Analys is		• C&C Take- off & Analys is	• C&C Take- off & Analys is	• C&C Take- off & Analys is		



## Competency 4: 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).

	1 EEC	2 Intro Modeling	3 Envelope Insulation	4 Envelop Opaque	5 Envelope Fenestratio n	5 Renewable s	6 HVAC	7 IAQ	8 DHW	9 Lighting	10 Intermedia te Modeling
4.1 Create an accurate energy model of a proposed project using state-approved energy modeling software.	• Res Exam Prep	• Beg EnergyPro/C BECC-Res • Res Modeling,				• C&C PV	• OLSS Res HVAC • Vshop Res Mechanical Systems • C&C Advanced HVAC & DHW		• OLSS Res Water Heating • C&C Advanced HVAC & DHW		• Intermedia te EnergyPro/C BECC-Res
4.2 Explain how the Standard Design is established based on the modeled envelope, HVAC and water heating.	• Res Stds EC	• Res Modeling								• C&C 2-Story • C&C E+A+A	• Analyzing the CF1R
4.3 Evaluate the results of a building energy model to determine whether the results shown in reports and on-screen are reasonable.		• Res Modeling	• C&C 2-Story • C&C E+A+A	• C&C 2-Story • C&C E+A+A		• C&C 2-Story	• C&C 2-Story • C&C E+A+A	• C&C 2-Story • C&C E+A+A	• C&C 2-Story • C&C E+A+A		• Analyzing the CF1R
4.4 Compare the CF-1R and other relevant compliance forms relative to known or listed project information (e.g., drawings, schedules and other data from client) to determine any modeling or data entry errors.		• Res Modeling			• C&C Res Modeling					• C&C Advanced HVAC & DHW	• Analyzing the CF1R
4.5 Summarize the mandatory envelope, mechanical, water heating, and lighting measures that apply to a proposed project.	• Res Stds EC	• Tools C&C Take-off & Analysis • C&C New Construction	• Vshop Res Env & Solar		• C&C Shading	• OLSS Res Solar • Vshop Res Env & Solar	• C&C Advanced HVAC & DHW		• C&C Advanced HVAC & DHW	• Res lighting	• Final Project activity

## Competency 5: Consider Recommendations for Improving Energy Performance and Comfort

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

	1 EEC	2 Intro Modeling	3 Envelope Insulation	4 Envelop Opaque	5 Envelope Fenestratio n	5 Renewable s	6 HVAC	7 IAQ	8 DHW	9 Lighting	10 Intermedia te Modeling
5.1 Evaluate the energy model for a proposed project to determine defensible recommendations for improving envelope design to meet or exceed code.	• Res Stds EC	• Res Model ing									• Analyz ing the CF1R
5.2 Evaluate the energy model for a proposed project to determine defensible recommendations for improving HVAC and water heating systems to meet or exceed code.	• Res Stds EC	• Res Model ing					• C&C Advan ced HVAC & DHW		• C&C Advan ced HVAC & DHW		• Analyz ing the CF1R
5.3 Identify HERS measures, when they apply, and the HERS registration and verification process; determine installation certificates and other documentation that must be completed after permit issuance.	• Res Stds EC	• Res Model ing	• Vshop Res Env & Solar	• Vshop Res Env & Solar	• Vshop Res Env & Solar	• OLSS Res Solar • Vshop Res Env & Solar	• OLSS Res HVAC • OLSS Res and NR HERS	• OLSS Res and NR HERS		• Res Lighti ng	• Res Model ing Tips
5.4 Describe the general characteristics and requirements of local Tier 1 energy codes, various utility incentives, tax credits and other energy programs; and energy-related calculation methods other than the Title 24 performance approach.						• CodeB Solar					



## Key to Roadmap Abbreviations:

Analyzing the CF1R:	Title 24 Part 6 Essentials: Residential Analyzing the CF1R: ECA Vorkshop
Beg&Adv EnergyPro:	Beginning EnergyPro – Residential, and Advanced EnergyPro – Residential
DLSS 1:	Modeling Downloadable Self Study 1: Project Scope and Envelope Take-offs
DLSS 2:	Modeling Downloadable Self Study 2: Create Computer Model and Show Compliance
DLSS 3:	Modeling Downloadable Self Study 3: Analyze CF1R for More Compliance Options
EE Concepts:	Residential and Nonresidential Energy Efficiency Concepts: Online Self Study
HVAC & DHW DLSS:	HVAC & DHW Downloadable Self Study: Model and Analyze System Options
Intro to HERS:	Introduction to HERS: Online Self Study
Res Env & Solar:	Title 24, Part 6 Essentials — Residential Standards: Envelope & Solar Systems: ECA Vorkshop
Res Exam Prep:	Residential CEA Exam Preparation Workshop
Res Mech:	Title 24, Part 6 Essentials — Residential Standards: Mechanical Systems: ECA Vorkshop
Res Modeling:	Title 24 Part 6 Essentials: Residential Modeling
Res Modeling Tips:	Title 24 Part 6 Essentials: Residential Modeling Tips
Res Stds & Tech DHW:	Title Title 24, Part 6 Essentials on Demand — Residential Standards & Technology: Water Heating: Online Self Study
Res Stds & Tech Env:	Title 24, Part 6 Essentials on Demand — Residential Standards & Technology: Building Envelope: Online Self Study
Res Stds & Tech HVAC:	Title 24, Part 6 Essentials on Demand — Residential Standards & Technology: Heating, Ventilation, and Air Conditioning: Online Self Study
Res Stds & Tech Lighting:	Title 24 Part 6 Essentials: Standards and Technology for Residential Lighting: Online Self Study
Res Stds & Tech Solar:	Title 24, Part 6 Essentials on Demand — Residential Standards & Technology: Solar Systems: Online Self Study
Res Stds EC:	Title 24 Part 6 Essentials: Residential Standards for Energy Consultants
Res Stds Vent:	Title 24, Part 6 Essentials on Demand — Residential Standards: Ventilation: Online Self Study

*Note: Go to [EnergyCodeAce.com](http://EnergyCodeAce.com) for more information on all classes listed here.*

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