



April 26, 2016

Commissioner Andrew McAllister
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

RE: CONCERNS REGARDING CALIFORNIA ENERGY CODE COMPLIANCE

Dear Commissioner McAllister,

I am writing this letter on behalf of CALBO and other ICC Chapters in California to address concerns common to code officials regarding the California Energy Code. The concerns center on both the complexity of the energy code and the amount of paperwork required to demonstrate compliance.

The energy code has become a document of ever-increasing complexity and the amount of paperwork required has increased exponentially. For a number of reasons building officials do not have adequate time to devote to energy code development. Consequently it is difficult for us to bring forward specific changes or revisions that would further our desire to see the code simplified and also to see a reduction in paperwork. Our unique position does make us the only stakeholders who do not have a financial, political or environmental motive in the process. We are objective participants in the process and have nothing at stake other than enforcement. For these reasons we feel that our perspective is valuable to the process.

The need for 2000 pages of supporting documentation, including the compliance manuals and reference appendices, to explain the 146 pages of the California Energy Code is an indication that the information is not presented in easily understood language and format. It seems evident that the energy code is written by engineers and for engineers. The problem with this approach is that many of the end users (contractors, construction workers and building inspectors) are typically not engineers. They do not speak the same language. The energy code includes engineering terminology, presented in a way that is not understood by the end users. If the Commission genuinely wishes to improve compliance then the language and format of the energy code must be viewed through a different lens.

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As former chair of the Sacramento Valley Association of Building Officials, Code Development Committee I have been involved in code development. During this process there is significant effort put into drafting language that is understood by code users. We work to write code that is self-explanatory and does not require explanations and clarifications. The same philosophy could be applied when developing the energy code.

As further example, the energy code is not presented in a linear or simple format. One must know the entire code to effectively navigate the energy code. I will use a residential water heater replacement as an example. This is probably the simplest installation that requires energy code compliance.

If we start with the table of contents we find the "Mandatory Requirements for Service Water-Heating Systems and Equipment". This is the only reference to water heaters in the table of contents and there is no index. How would a plumber installing a water heater or a building inspector inspecting a water heater know to start in Sub Chapter 9, Low Rise Residential Buildings – Additions and Alterations?

It is neither clear nor evident that section 150.2 is where we should start. The code user must first know to use Table 100.0-A and understand that he/she should start in 150.2. They must then figure out where in 150.2 to begin.

If the user ends up at 150.2 (b) 1, G, then they would be presented with some information regarding the types of allowable water heater systems. If they do not have gas supplied to the house then they need to refer to the Appliance Efficiency Regulations. I guarantee you that most plumbers and few inspectors know how or where to access this document.

If they are installing a natural gas appliance then they are referred to 150.1(c) 8. Regardless of the type of water heating system installed they are told to comply with 150.0 (j) 2. If the intended installation does not meet the specified requirements of the section, then they are sent to 150.2 (b) 2 and told to demonstrate compliance using the performance path.

There are at least seven (7) different code sections located throughout the energy code that could be applicable to a residential water heater replacement. In the California Plumbing Code there is one chapter on water heaters; all the code sections regarding water heaters are in one easy to find location.

As a code official who has spent a great deal of time referring to and studying the energy code I understand the organizational structure. However the energy code is confusing and inaccessible to new users. I teach the California Energy Code at Cosumnes River College and by necessity I spend a significant amount of time teaching students how to navigate the Energy Code. I do not have to do this for any of the other parts to Title 24. All of the other codes in Title 24 include a typical and easily understood organizational structure with a traditional table of contents and index. We have to ask why the energy code is this difficult to navigate and essentially inaccessible to most end users.

Code officials and the building industry have many objections to the amount of paperwork, which has increased exponentially over the past few code cycles. I keep a stack forms on my desk as a reminder. The stack consists of CF2R and CF3R forms that were collected for a simple HVAC change-out at a 24 unit apartment complex. The stack includes 672 pages measuring 3.5 inches tall and it doesn't include the CF1R forms. The CF1R forms would add another 11 pages per unit for a total of 936 pages of forms to replace 24 simple HVAC units. There is no reasonable way to

justify almost 40 pages of forms to replace a simple residential HVAC unit. Much of the information required has little or no value to the contractor, property owner or enforcement agency.

Again I will turn to a simple water heater replacement as an example of the forms required to demonstrate compliance. On the Energy Commission website we find that the residential alterations form CF1R-ALT-01-E is 21 pages. Eight (8) pages make up the actual form with an additional 13 pages of instructions. There is no CF1R specific to water heaters; the form includes all alterations.

The CF2R for water heaters is 26 pages. 15 pages make up the form with an additional 11 pages of instructions.

The total is 47 pages for a simple water heater replacement.

Initially the residential forms on the California Energy Commission website were not usable for simple Non-HERS projects because they all included a watermark that states *"For information and data collection only. Not valid until registered with a HERS provider"* even though there was no HERS requirement for a simple water heater replacement. I felt compelled to purchase software for \$450 so that I could convert the PDF to an Excel document in order to remove the watermark and make the form useful to applicants. I developed a one (1) page simple water heater CF2R with no need for instructions and a one (1) page informational handout that explains the water heater requirements. I understand that simple non-HERS water heater installations do not necessarily require documentation per section 10-103, but I just wanted to make the point that the commission is not being frugal when it comes to development of forms.

We commend the Energy Commission for making some of the forms on the California Energy Commission website interactive and accessible to complete and print in PDF form. We think this is a good start that could go even further.

While all the information that is currently required on the mandated forms may hold interest for an Energy Commission staff engineer, it has little or no value for the field inspector tasked with verifying compliance. The developers of these forms need to consider a paradigm shift. The forms should only include the information that is necessary to document compliance. Much of the information required on current forms is of little value to the inspector. If the Commission chooses to maintain the current level of detail or increase the detail currently found in these forms we expect a continuing erosion of support for energy code compliance. Please see this as the current reality concerned stakeholders are experiencing in the market.

We have a few recommendations to simplify the process for inspectors, contractors and HERS raters. Include a summary list of all forms required at final inspection in the certificate of compliance package. This is something that could be written into the software so that a summary list is part of the permit submittal package generated with the performance run. This would simplify the process at final inspection so that the building inspector, permit holder, acceptance tester and HERS rater would know exactly what is required to close out the project.

At final inspection, rather than require reams of paper to document compliance, create a summary form that lists all of the forms and results of any required verification and testing on a one or two page document. For residential projects this form could be generated by the HERS provider when all of the required data has been input by the installing contractor and HERS rater. The nonresidential registry should be completed so the same process can be followed for nonresidential projects.

With these processes in place the inspector can review the summary page and if a question arises he/she can refer to the registry. The project compliance can be documented without the amount of paper currently required. Some may argue that we already have the ability to access this information without printing the documents. However, to perform a meaningful inspection the inspector needs the summary information in the field. The reality is that we cannot perform an inspection from our desks and electronic information isn't always reliably accessed in the field.

I truly believe that if this or a similar method of documenting compliance is implemented, code officials will embrace it and view it as a positive step toward simplification of the process. In support of my efforts and in support of the other organizations who have expressed similar concerns, the CALBO Board of Directors has discussed this issue and has asked the CALBO, CEC Advisory Committee to make simplification of the enforcement process a priority during the next year. We hope CEC staff will see the value in working with us in a collaborative effort to find something that will work for all of us.

I would be happy to coordinate a meeting with CEC staff and representatives from the CALBO, CEC Advisory Committee to discuss methods for simplification or other options that can make enforcement more effective.

If you have any questions, please don't hesitate to contact me.

Sincerely,



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