

January 3rd, 2008

Comments on the 45 Day Language

These comments are limited to that portion of the 45 Day Language that I have, so far, had time to comprehend. The Commission should delay adoption of their 2008 revisions until an analysis of how, or even if, their proposed changes can be implemented successfully. I believe at least some changes will be required to the wording of the Standards in order to make them enforceable.

Administrative Procedures

§10-103(a)3.B. Reclassify Non-Residential Acceptance procedures as Installation procedures which will be verified on Installation Certificates. These Certificates should be signed by the person or persons responsible for the Installation, Calibration or Commissioning of the regulated equipment. (This is the person who did the work, not someone who shows up after the work is completed)

Signing the Certificate will signify that the requirements of Part 6, including the Mandatory Measures, have been met. It will also indicate that the appropriate procedures from the applicable Appendix have been read and completed successfully.

The Certificates should be approved by the Building Official / Field Inspector and then included in the information required to be given by the builder to the building owner. When a building is sold, the current building owner shall convey a copy of the approved compliance documents to the new owner.

§10-103(d) All Enforcement Agency Requirements must be placed in this section, not sprinkled all over the documentation. If a Building Official wants to know their responsibilities for code enforcement, they will look in this section, nowhere else.

§10-106(a) If a local agency makes no alterations to the State's Energy Code, they should be allowed to develop their own additional building energy efficiency requirements, without seeking CEC approval.

Calculation Methods

§10-109(b)1.D. Requires all ACMs to demonstrate that they are reliable & accurate relative to approved public domain computer programs. Since the Commission does not have **any** approved public domain programs, how can it legally approve ACMs?

Insulation

If "Quality Insulation Installation" procedures have been shown to be a cost effective conservation feature, why are they not mandatory requirement for **all** envelope insulation?

§118(a) This is not worded correctly. It now implies that there are no installation requirements for insulation NOT certified by the Department of Home Furnishings. For instance,

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there are many bubble wrap type insulation products, of dubious effectiveness, that are available in California that are not certified.

§118(e)2. Only refers to nonresidential buildings. It should apply to **all** buildings. With the emphasis on Green building products, more residential “attics” are being insulated with spray-on foam insulation that adheres to the bottom of the roof sheathing.

§118(g) This section seems to be confusing slab edge insulation requirements for directly heated slab on grade floors with some other insulation requirements. Table 118A only applies to directly heated **slab on grade floors**. It should not apply to non-structural topping slabs over concrete floors where there is a continuous layer of insulation between the structural concrete floor and the radiant panel above. Low-rise Residential raised floors already have higher insulation requirements. If the Commission wants to require insulation on High-rise Residential exposed concrete floors, then it must provide a separate table.

The definition of “Heated Slab Floor” (page 43) is not correct. A radiant slab could be heated by many means; hot water pipes, hot air ducts, electric cables etc. Also Table 118 **B** should be labeled and referred to as “Table 118 **A**” & 118 **C** should be 118 **B**.

Lighting Controls

§119(f)6. As long as the sensor is accurate, it should make no difference whether its’ response is linear, logarithmic or whatever.

§119[(h)&(i)]2. The requirements for these 2 sections are identical except for the offset requirements. Why? What is meant by offset and why is it specified at all?

§119(j) This seems to conflict with/replicate §119(d).

Ventilation

§121(b)1. This section conflicts with the residential prohibition of using natural ventilation to meet required minimum outdoor air amounts. Since the residential mechanical ventilation requirements will increase electrical consumption, I assume those requirements were enacted in response to some overriding public health & safety concerns. If reliance on natural ventilation in single family homes is a problem, then it would be more of a problem in high-rise residential occupancies. Due to their smaller size, apartments and condos will typically have a higher concentration of contaminants in the air. Also, since many of these units will only have windows on one side, effective cross ventilation will be impossible. If there **is** a valid health reason, mechanical ventilation should be required in all occupancies. If there **is not**, then the new mechanical ventilation requirements in the Residential Standards should be deleted.

§121(e) This section **does** seem to require all occupancies, other than low-rise residential, to have a mechanical means of providing outside air if they have a mechanical ventilation **or space conditioning** system. §121(b) should therefore be deleted to be consistent with this section.

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Lighting Controls

§131(c) Requires sky lit and side lit areas to be shown on the plans. What plans, Architectural or Lighting? The background drawings given to the lighting designer by the Architect or Building Designer should be required to include the Day Lit Areas. If this is not done then some other means must be developed to alert the building designer to the lighting control consequences of their fenestration design.

§131(c)4.A. Adequate illumination is provided by the correct design of the fenestration and lighting fixtures, **not** the photo sensor.

§131(c)4.C. Shouldn't the range be **30%** to 70%?

§131(f) Doesn't §131(e) already require this regardless of compliance method?

How are roof monitors and clerestory windows accounted for in the requirements for daylighting?

Space Conditioning

§144(b)1. This section states that only load calculation programs approved by the Commission can be used to size equipment. Where can one find a list of these approved programs?

Hydronic Systems

§144(j)1. "Hydronic Variable Flow Systems" does not have an exception for small hydronic (Radiant/Convection) heating systems. "No more than 3 control valves" is not sufficient. How about adding this exception?

"Exception: Systems where individual pump horsepower does not exceed 1½ HP."

Indoor Lighting

§146(c)3.B.iv. The display cases in religious worship & museum occupancies are not normally used for "merchandise" for sale.

Outdoor Lighting

§147 Does **not** require plans for outdoor lighting. **It has to**, and they need to be detailed. It will not be possible for plan checkers to verify compliance unless outdoor lighting task areas and luminaire assignments are clearly detailed on the plans. No Plans / No Compliance!

Additions / Alterations

§149(a)&(b) How does one differentiate outdoor lighting **additions** from **alterations**?

§149(b)1.F.&J What are the procedures for meeting these requirements for outdoor lighting alterations?

Mandatory Features

§150(j)1.A. What about storage **electric** water heaters?

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§150(j)1.B. Most unfired hot water tanks do not have R-value labels. The CEC should require that unfired tanks with less than R-16 insulation and an attached label, can only be sold in California if the seller includes a properly sized R-12 insulation blanket at the time of sale.

§150(j)4. Does this mean that **only** SRCC certified collectors & systems will be able to be installed on residences in California?

Compliance Approaches

§151(e) Only the Commission, not the Executive Director, should be able to approve calculation assumptions and calculation methods.

§151(f)8.E. There are several flexible insulated piping systems available for buried water lines. It is not possible to remove or replace the enclosed PEX water pipes in these systems.

Appendices

JA2 Design Day Data should be listed alphabetically by City, **not** County. If I am working on a project in some other part of the State, I will know the city but often will have no idea what county that city is in.

HERS

If the CEC wishes to produce an enforceable HERS verification system, they must start over from scratch in the 2008 Adoption Proceedings with a completely new Rulemaking. The CEC has clearly not done this since HERS requirements are not mentioned in the ISR, for instance. The current HERS rules in the ACM Manuals are **Underground Regulations** that are totally unenforceable. They were first surreptitiously inserted into the ACM Manuals in 1998. The Summary of ACM Changes listed in the Overview of the 1998 Residential ACM Manual did not mention HERS in any way. They were buried in the midst of instructions for program vendors. I believe they were deliberately placed there to avoid public scrutiny. The CEC did not intend for the ACM Approval Manual to be used for any purpose other than the design of programs for use with the Energy Standards. The inclusion of the HERS program in the 1998 ACM appears to be a clear violation of that policy.

I can see no reason for requiring **Home Energy Raters** on Non-residential projects.

Life-cycle cost analysis

The procedures defining how to comply with various requirements in the Energy Code do not yet exist. These procedures will supposedly be included in the Manuals. If one does not yet know what must be done to comply with the Code, the costs of performing these procedures cannot be determined. If we do not now know all the costs, how can the Life-Cycle Cost Analysis be correct?

Compliance Manuals/Procedures/Forms

I do not believe it is possible to accurately design the compliance forms unless the compliance procedures are defined first.

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Do not provide a printed version of the Manuals. Generate a searchable/downloadable Web version of the manuals with optional CD. This will require a reformatting of the Manual content in order to work efficiently.

Contact:

For additional information regarding these comments, please contact:

Patrick Splitt
President
APP-TECH Inc.
235 Blackburn Street
Santa Cruz, CA 95060
(831) 458-0485
info@app-techinc.com