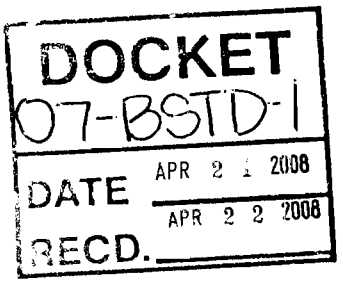
APP-TECH Inc.



April 21st, 2008

Commissioner Jackalyne Pfannenstiel
Commissioner Arthur H. Rosenfeld, Ph.D.
California Energy Commission
1515 Ninth Street
Sacramento, CA 95814-5512

Re: California Energy Commission Docket #07-BSTD-1, "Building Energy Efficiency Standards 15-Day Language Express Terms"

Comments on the 15 Day Language

These comments are limited to that portion of the 15 Day Language that I have had time to review. The Commission should delay adoption of their 2008 revisions until an analysis of how, or even if, these proposed changes can be implemented and enforced successfully. I believe at least some changes will be required to the wording of the Standards in order to make them effective. If the major errors that I and others have pointed out are not rectified prior to adoption, a clean-up Emergency Rulemaking Proceeding prior to the effective date of the 2008 Standards will be inevitable.

I believe that all of the following outstanding problems with the proposed 2008 Energy Code must be addressed and corrected now, prior to adoption of the Standards.

Administrative Procedures

§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.

There are still enforcement Agency requirements in other parts of these regulations such as NA1.3.4, that have not been moved to §10-103(d).

§10-106(a) If a local agency makes no alterations to, and enforces the State's Energy Code, they should be allowed to develop their own additional building energy efficiency or "Green Building" 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 now have, or ever will have **any** approved **public domain** programs, how can it legally approve ACMs? [The Commission approved a **proprietary** State version Non-residential compliance program 6 months after the 2005 Standards went into effect. As far as I know, the Commission has still not approved any State Residential Compliance Program]. The entire contents of §10-109 that deal with Performance Method Compliance Programs is defective/obsolete and should be replaced. The following proposed language is preliminary and incomplete. It is intended to serve as the

basis for discussing this matter. This should probably be done at a public workshop. The fact that these topics have not yet been adequately and openly discussed is another example of the defective adoption process that has been plaguing these proceedings.

§10-109 – CALCULATION METHODS AND ALTERNATIVE COMPONENT PACKAGES

(a) **CEC Performance Method Computer Programs**. The Commission shall develop, adopt, or approve one or more computer programs that will enable contractors, builders, architects, engineers, energy consultants, and government officials to estimate the energy consumed by residential and nonresidential buildings, and to demonstrate that proposed designs use no more energy than the Commission prescribed Performance Method energy budget. The Commission may charge a fee for use of these programs. These programs shall be certified, approved and made available to the general public at least 120 days prior to the effective date of the 2008 standards.

(b) **Procedural requirements for certification of All Performance Method Computer Programs**. In order to obtain Certification, the applicant must comply with the requirements, specifications, and criteria set forth in the appropriate Residential or Nonresidential Performance Program Certification Manual. These Manuals specify application requirements, methods to calculate greenhouse gas emissions, minimum modeling capabilities, required output forms and instructions, input assumptions, testing requirements, test approval criteria, vendor requirements, and other related requirements. The 2008 Residential and Nonresidential Performance Program Certification Manuals are hereby adopted by reference.

The Commission shall also develop a procedure for assuring the ongoing quality and accuracy of all certified programs and timely correction of any reported calculation errors. Correction of errors will not normally require re-certification. If a vendor refuses to correct program errors in a timely manner, the Commission may de-certify the program.

(c) **Application to enhance CEC Performance Method Programs**. [This section will describe how an applicant can incorporate new products, materials, and calculation methods into the CEC Performance Method Programs. The applicant will be responsible for all costs associated with their application.]

(d) **Exceptional Methods**. [If the CEC Compliance Programs cannot accurately model… wording is similar to current section. The applicant is responsible for all costs associated with this application.]

(e) **Alternatives to the CEC Performance Method Computer Programs**. [This section will describe how vendors can apply for certification of Performance Method Programs to be used as alternatives to the CEC's Compliance Programs. One criteria for approval will be demonstrating that the proposed alternative is reliable and accurate relative to the

CEC's Compliance Program. Therefore, applications under this section should not be accepted until after certification of the CEC's programs.]

Insulation

If "Quality Insulation Installation" procedures have been shown to be a cost effective conservation feature, why are they not mandatory requirements for **all** envelope insulation? This would be a more effective and less burdensome method of reducing energy consumption than many of the other proposals in this rulemaking.

§118(e)2. This section 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. The benefits of this insulation will be negated if the space below it is allowed to be vented to the outdoors.

§118(g) This section has been corrected as it applies to directly heated **slab on grade floors**. However, I believe the Commission also intended to require insulation of High-rise Residential exposed concrete floors. This requirement seems to have disappeared. It should be re-introduced in its own section.

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. The current definition of "heated slab floor" used in conjunction with §118(g) would allow one to embed electric heating cables in a slab on grade without any requirement for slab edge insulation.

Ventilation

§121(b)1. This section conflicts with the residential §150(o) 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, including high-rise residential. If there **is not**, then the new mandatory mechanical ventilation requirements in the Residential Standards should be deleted.

§121(e) This section requires 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)1 should therefore also be deleted to be consistent with this section and the intent of §150(o).

Lighting Controls

§131(f) Delete this section. The heading for this section indicates that there are special automatic lighting control requirements when a Tailored Method of lighting compliance is used.

However, none are listed. This section merely duplicates the §131(e) circuiting requirements that are required regardless of compliance method.

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? How would a vendor get their load calculation program certified, and what are the certification requirements?

Hydronic Systems

§144(j)1. "Hydronic Variable Flow Systems" does not have an exception for hydronic (Radiant/Convection) heating systems. "No more than 3 control valves" is not sufficient, nor is "Total pump horsepower does not exceed 1½ HP." A hydronic heating system could have dozens of fractional HP pumps that total more than 1 ½ HP and also contain scores of control valves. Do all the pumps have to be variable flow, just some, only one? If only one, which one?

Outdoor Lighting

§147 This (overly complex) section 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 a plan included with the compliance documentation. [Note that the indoor lighting standards do require the submission of a detailed daylit area plan, so that the daylighting calculations can be verified]

This section should require that all outdoor lighting fixture wattages are to be included in a fixture schedule included with the plans. It should also require that all general and specific task outdoor lighting areas, task perimeters and fixture locations are indicated on this plan. The Non-Residential manual should define a standard method to be used specify these features, in order to facilitate plan check and compliance verification.

If the CEC does not require an outdoor lighting compliance plan, enforcement will be impossible and this entire section should be deleted. No Plans / No Compliance!

Mandatory Features

§150(j)1.A. Why is insulation required of gas storage & indirectly heated storage tanks but not storage **electric** water heaters? It is much easier to add insulation to an electric water heater than to a gas water heater. Ignoring the heat loss of electric water heaters makes no sense.

§150(m)10. Acoustic, sound attenuating duct has a porous inner core. Does the CEC intend to prohibit the installation of these products in California?

Compliance Approaches

§151(f)8.E. There are several flexible pre- insulated piping systems available for buried water lines. It is not possible to remove or replace the enclosed PEX water pipes in these systems. Does the Commission intend that the use of these products in Residential construction will be illegal in California?

Appendices

RA1 The requirements of this appendix conflict with §150(h). For instance, the SMACNA Residential and ACCA Manual J load calculation methods are forbidden by this appendix. Also, appendix RA1 prohibits room by room load calculations, among other things. This entire appendix must be deleted.

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 yet now know all the costs, how can the Life-Cycle Cost Analysis be correct?

Compliance Manuals/Procedures/Forms

It is also not possible to accurately design the compliance forms, which are included in the ACM procedures that are included in this Rulemaking, unless the compliance procedures are defined first.

Finally, I must reiterate my position that none of these regulations can be adequately evaluated without first developing the procedures and methods necessary to assure correct implementation of these regulations, so that the expected energy savings will be attained. I therefore, ask the Commission to suspend adoption of the 2008 Standards until after public review of the methods and procedures contained in the, yet to be completed, Compliance Manuals. I believe this will lead to the rejection of at least some of the proposed Standards due to the complexity of the procedures needed for their implementation.

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