HEARING
BEFORE THE
CALIFORNIA ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

In the Matter of:

Revisions to the 2008 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS - California Code of Regulations Title 24, Part 1 and Part 6

CALIFORNIA ENERGY COMMISSION
HEARING ROOM A
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

MONDAY, DECEMBER 17, 2007
10:02 A.M.

Reported by:
Peter Petty
Contract No. 150-07-001

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Patrick Eilert
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Advanced Conservation Technology, Inc.
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PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345
P R O C E E D I N G S

10:02 a.m.

PRESIDING MEMBER PFANNENSTIEL: We'll be in session. This is the workshop or hearing, actually, of the Energy Efficiency Committee of the California Energy Commission, as an opportunity to receive comment on the 45-day language on the building standards.

We have a pretty full agenda for the day, as it's described on the graphic. And so what we're asking, if you'll look through this, but after we do some opening staff remarks that will go section by section through the standards, the draft standards, and get comments and questions per section.

I have blue cards up here; I'm not sure they're actually organized that way, but we'll figure it out as we go and make sure everybody gets a chance to provide input, and that we get a full discussion. We will be here as long as we need to just to make sure that we do get everybody having a chance to comment.

We should do introductions. I'm Jackie Pfannenstiel. I am the Chair of the Energy Commission and the Presiding Commissioner on the
Efficiency Committee. To my left is Commissioner Rosenfeld, who is the Associate Member on that Committee. To his left is his Advisor, John Wilson. And to my right is my Advisor, Tim Tutt.

With that, I think I'm going to turn it -- is Mazi going to take it next? Thank you.

MR. SHIRAKH: Good morning. I have a brief presentation on the standard changes. It's going to be a very quick overview of the process that we've gone through and some highlights of the changes in the 2008 standards.

First, the standards are a significant tool in meeting many of the Energy Commission's, and also the Administration's and Legislative mandates for achieving energy efficiency and peak demand goals.

Some of the highlights include Energy Commission's own action plan, or the IEPR; there have been several executive orders by the Governor; and legislative mandate including West Coast Governors Global Warming Initiative, green building initiative executive order and climate action initiative executive order.

All call upon the energy -- the building standards to meet the environmental and energy
efficiency goals.

The 2008 standards had many many collaborators. And among them are the Commission's PIER project that has provided substantive funding and resources for various measures that you've analyzed and proposing.

PGC funding through the utilities, our utility partners, PG&E, SCE, Sempra and southern California, and San Diego Gas and Electric have provided both funds and consultant resources to this process.

And members of the public in general, various industry groups we've worked with, CABEC, ARMA, ConSol, CBIA and CALBO and many others in a collaborative fashion to reach the language that you're going to be witnessing today.

Throughout the 2008 standards we've had many many workshops, staff workshops, which started back in 2005. And during these workshops is when we presented the draft language and received public comments. And we went back and worked with various industry groups and other stakeholders to reach consensus on the standards.

Next, please. This represents the list of standard changes that affects both residential
and nonresidential buildings. The first thing was
to operate our time-dependent valuation levels,
the TDV numbers, to reflect the 2008 gas and
electricity costs.

We made changes to the administrative
section of the standards, 10-103 is the section
that describes the requirements for compliance
documentation reporting and filing. We've made
some changes to that.

We made changes to 10-105, which defines
the roles and responsibility of enforcement
agencies. 10-103 (sic), we clarified the
requirements for cool roofs and introduced the
concept for SRI in there.

And 10-114, we amended that to describe
the requirements for local jurisdiction to adopt
lighting ordinances for outdoor lighting.

Another change that will affect both res
and nonres is the introduction of the programmable
communicating thermostats; it's in section 112(c).
The PCTs will be required in all new construction
and some major retrofits.

We made revisions to section 118 which
are the mandatory requirements for cool roofs.
Made revisions to section 119 which is the
mandatory requirements for lighting control devices.

Added prescriptive requirements for steep-slope roofs; in 2005 we had only requirements for low-slope roofs; 2008 introduced steep-slope for both res and nonres.

And we've also made significant changes to the joint appendix 4; that's the document that has all the tables for walls, roofs, floors, the insulation levels, the assemblies, basically, the envelope assemblies. We've made many many changes, updates, to those sections.

We reorganized the joint appendices completely. Where joint appendix was only four chapters long, now it's a much longer document and has been reorganized into a new document called the reference appendices. And what we did was we migrated many other documents that were scattered into other standards documents, all into one place. Most of them came from the residential and nonresidential appendices. And this way we've restored the function of the ACM manuals in the original intent, which was for compliance software certification.

And we've worked with many industry
groups, including CALBO and CABEC, to alter or 
change or update our alteration requirements for 
additions and alterations.

These are the series of changes that 
have been proposed for nonresidential buildings. 
We have revised and made clarifications --

I was told that they can't hear me in 
the back.

-- made revisions to section 130 to 134, 
which is the mandatory requirements for lighting 
systems. And if you look at those sections 
there's a lot of edits to them; most of them are 
clarifications.

We changed our complete building method 
type of use and area category method in lighting. 
We added new categories. We actually deleted 
retail from the complete building method. We have 
revised the lighting power densities or LPDs for 
selected occupancies. We also revisited our 
tailored lighting method, and we changed the wall 
and floor display lighting and some of the 
compliance procedures for the tailored lighting. 
We think we made it simpler. And also modified 
some of the LPDs.

We added a requirement for occupant
sensors for selected occupancies like offices, for instance. We also made many improvements and clarifications for nonresidential lighting requirements.

We revised compliance credit for high efficacy dimmable ballasts that are able to shed load. This is a DR measure that we introduced in 2005; in 2008 we actually went in there and refined it and changed the compliance credit for it.

We required that large retail stores, over 50,000 square foot, have certain lighting DR equipment installed in them. We also revamped our outdoor lighting compliance procedures in a way that's supposed to be more intuitive. Gary Flamm worked long and hard on that; it's called the layered method.

And we also revisited the lighting power densities for many of these outdoor lighting applications. And we worked with the sign industry to revise the sign compliance requirements related to some of the newer technologies like LEDs and that.

We updated our lighting control schedules based on the new TDV values. And this
is mostly a change to the ACM manuals, actually.

Added acceptance requirements for outdoor lighting; 2005 we introduced outdoor lighting, but we didn't have acceptance requirements for them.

In 2008 we actually have, for the first time, acceptance requirements for outdoor lighting.

We updated the compliance requirements for side lighting and top lighting in nonresidential buildings. We changed the requirements for skylights so smaller buildings will not have to put in skylights. So it would be for buildings that are -- what's the square footage, 25,000 square foot? Going down to 8000. So significantly more number of nonres buildings will not qualify for the skylight requirements.

Working with NFRC to change their site-built fenestration requirement. This was a very confusing process before that was not employed by folks who were doing compliance for nonresidential buildings. It was very time consuming and costly. The staff has been working with NFRC to completely revamp this process. Hopefully we'll have a method in place by the effective date, or even before that, that will greatly simplify site-built compliance. And you can actually do compliance in
real time, or within a few days, at a fraction of
the cost that was possible before.

We have introduced new nonres
fenestration acceptance requirement, the
standards. That's something new that didn't exist
in 2005. And we have revised the cool roof
requirements for low-sloped roof. In 2005 we
introduced requirements for low-slope buildings;
in 2008 we worked with the industry to fine-tune
those requirements.

And as I mentioned before, we revised
the roof and wall and floor insulation
requirements. And these are all reflected in
joint appendix 4.

We revised the overall building envelope
compliance to allow tradeoffs between heating and
cooling. And we're providing some calculation
tools to the industry so they can easily use this
new method.

Refined acceptance requirements to
insure HVAC controls work properly. These were
introduced in 2005. We got a lot of feedback from
the field and people who are doing acceptance
requirements. So we're changing these
requirements in response to those comments.
New controls for single zoned variable air volume, VAV, systems. And these requirements will go into effect January 1, 2012. So there's actually a delayed date for these requirements.

We have, for the first time, introduced requirements for warehouse, refrigerated warehouses. It is an entirely new section that didn't exist before. And also requiring direct digital control to the zone level. And other improvements to energy management system and control of the HVAC nonresidential buildings.

We have expanded the demand control ventilation to a multi-zone system and exempted certain occupancies from those requirements.

The new global temperature adjustment, that's a DR measure that enables people in large nonresidential building to shed air conditioning load in event of a electricity shortage.

New requirements that hotel/motel occupancies must use residential water heating models. The residential model heating waters have been changed significantly, and the hotel/motel occupancies must meet those requirements, as well.

And prescriptive requirements for gas, water heating and nonresidential buildings has
also been changed.

This next list are the list of changes for residential buildings only. We've added new Solar Homes Partnership compliance option to the residential buildings, which has been one of our top policy goal priorities.

Roof and attic modeling, the so-called unconditioned zone model, or UZM, has been introduced this time into the standards. And this will allow much better modeling of the things that are going on in the attic and related to cool roofs, radiant barriers, insulation, ducts and so forth. So we can get much more precise evaluation of these systems.

We have operated the windows requirements for solar heat gain and U factors in 2008; the 2005 standards and before that, you know, we had U factors and SHGCs which were not really representative of what's going in the marketplace. So we brought the two in line.

We've clarified lighting requirement, including the kitchen lighting, and some of the lighting controls for residences. We've introduced new mechanical ventilation requirements in compliance with in line with ASHRAE 62.2
requirements into residences.

Updated swimming pool and spa requirements to include two-speed pump motors and time clocks. And a new energy efficiency measure for furnace fans.

Updated requirements for air conditioning and refrigerant charge verification procedures. Proper air flow and thermal expansion and valve treatment. In 2005 all these requirements were there except that the TXV could have been used as an alternative to refrigerant charge verification and air flow. And we are removing, or proposing to remove the TXC as the option.

We have revised the ACM manual calculation for slab heat flow and water heating. And new revised compliance credit for furnace fan model, HVAC sizing and duct leakage, and water heating distribution systems.

Improving cross-flow prevention and pump protection for central water distribution system in multifamily buildings. And under-slab hot water installation to mitigate pipe loss has also been introduced.

As a part of 2008 standards there's also
going to be several compliance options. Now, some
of these compliance options actually started
before the 2008 got underway, but they will be
incorporated into the 2008 standards and the
compliance software.

And they include the distributed energy
storage, that's ICE energy, evaporative cooled
condensers and evaporative coolers. These are for
residential. And for nonres we have the
compliance options include the under-floor air
distribution systems, or UFAD. And fault
detection and diagnostics for air handler units
for VAV and rooftop. And this is a device that
would alert the operator there's something goes
wrong with the rooftop units, if the economizers
aren't working or the charge is incorrect. So it
will alert someone to take some corrective action.
And people will get a compliance option for this
device. And thermal energy storage system will
also be added.

So that was a very quick overview of all
the changes that we've been talking about over the
past several years. And with that I'm going to
turn it over back to the Chairman.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, Mazi. The way we thought would be most
efficient to go through this is section by section
of the standards. And I have some people who have
asked to speak in certain sections. But whether
or not you've given me a blue card on a given
section, on each section we'll open it for
comments and questions.

So, starting with the standards section
10-101 through 109, any comments, questions? If
there are, please come up to the mike and
introduce yourself and make your comments.

MS. HICKS: Good morning; my name is
Kathy Hicks; I'm the Deputy of Policy for the
Division of the State Architect. I'm here today
to provide comments on behalf of the Department of
General Services and to hand-deliver a letter to
the Commission from the Department of General
Services.

The Department of General Services has
substantial concerns with the proposed amendments
to section 10-105 of the California energy
efficiency standards. We believe the California
Energy Commission has not demonstrated the need
for the proposed amendments to the existing
regulations.
We question the statutory basis upon which the Energy Commission believes it can require state and local agencies to make specified representations and certifications to the Executive Director of the California Energy Commission.

Further, we believe that the proposed amendments to section 10-105 of the Energy Code are duplicative of statutory provisions set forth in subparagraph (5) of subdivision (g) of section 25402.1 of the Public Resources Code.

We're also concerned the proposed amendment also creates new enforcement responsibilities for all state and local agencies with construction oversight jurisdiction, as well as creates a potential state-mandated local program.

We believe that there will be significant costs to both the state and local entities involved in permitting construction.

There are also other technical issues for the proposed language that need to be addressed which we will include in a followup letter that we'll provide in more detail the basis of our concerns.
Finally, the Department believes that,
as drafted, the proposed regulations amending
section 10-105 fail to meet the standards in
section 11349.1 of the Government Code for
adopting regulations.

Thank you for your consideration of
these comments, and we look forward to working
with the Committee on modifications to the
regulations that are acceptable to both the
Department of General Services and the Commission.

PRESIDING MEMBER PFANNENSTIEL: Thank
you.

MS. HICKS: And who can I leave the
letter --

PRESIDING MEMBER PFANNENSTIEL: Why
don't you give it to the staff at the table.

MS. HICKS: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank
you. Any other comments on sections 101 to 109?

MR. SPLITT: Good morning; I'm Pat
Splitt, President of APP-TECH, Incorporated. I
want to make it clear that today I'm speaking on
behalf of APP-TECH and not CABEC or any other
organization.

PRESIDING MEMBER PFANNENSTIEL: Would
you spell out APP-TECH for the --

MR. SPLITT: A-P-P-T-E-C-H, --

PRESIDING MEMBER PFANNENSTIEL: I mean what it -- okay.

MR. SPLITT: -- I-n-c.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. SPLITT: First off I'd just like to comment that this happens to be about the worst time you could have possibly picked to hold this hearing, because besides being the holidays, it's right before all the state codes change in January, building codes.

And I know energy consultants, and I'm sure building officials, too, are very busy right now. And I have not had a chance to read over even half of the materials. So my comments are going to be limited to the parts that I have read, but that doesn't mean that I probably wouldn't have concerns about other things.

So, just for this first section, one thing I have a big problem that's in section 10-103(a)(3)(B), the whole idea of acceptance procedures in nonres. It seems to me it's just a solution for a problem that really doesn't exist.
If there is a problem in nonres with features not being installed correctly it's because the installers haven't been informed adequately on what they're supposed to do.

The Commission has had on the books requirements for installation certificates that's supposed to be given to an installer and he's supposed to then tick off the items that he has installed and certify that they've been correctly installed.

And it's required by law that the building officials are not supposed to give a final permit until they've gotten these certificates.

Well, they don't exist. The Commission has never developed the certificates. But yet you don't do anything to try to get the installer the information he needs, and you turn around and then try to come up with these convoluted and confusing acceptance procedures where somebody's supposed to come in, after the fact, and check to see that this guy does all these things that you never told him he had to do in the first place.

So, what I think, if you look through the acceptance procedures now for at least which
items actually make some sense, they shouldn't be acceptance procedures. They should be procedures for the installation of these devices. They should be part of an installation certificate. And they should be required of the installer. Let him know what you want to do and he'll do it.

It's doesn't make any sense to have this whole other industry that's being developed when you haven't attempted to address the real problem.

So, anyway, to the extent that some of those requirements for acceptance should be done by someone, they should be on the installation certificate, and you should require the installer, and require the installer. Right now you have a whole list of people who may sign these acceptance forms. Well, each one of those individuals says, well, it's not my job, somebody else will do it. Well, nobody does it.

You have to make it somebody's responsibility if you want somebody to do it. So, I won't say any more about that; i might come back to it later. But, anyway, so get rid of acceptance procedures and make it installation certificates.

There's also a section 10-103(d). This
is the area where the requirements for the
enforcement agencies are supposed to be listed in
the Administrative Code, the requirements for the
building department.

A building official, if he wants to know
what he's supposed to do to enforce the code he's
going to look in this section and only in this
section. But you've got requirements for building
officials spread all over the Administrative Code,
all over the appendices, all over creation.

Well, none of those are binding. It's
just wasted words. If there's anything that you
are going to require a building official to do, it
has to be in section 10-103(b). Nowhere else. A
building official is going to read that; says this
is what the code says I have to do. If it isn't
there he doesn't have to do it. You got to fix
that.

So, anyway, that's all I have on this
section.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, sir.

MR. SALAZAR: Jay Salazar, City of
Vacaville Building Official. I have four points
that I would like to make related to these
particular sections. I want to summarize them first.

First point I'd like to ask the Honorable Chairperson and Commissioner to consider is building officials in the State of California are the implementation arm of the energy standards. There has been some controversy about building officials and enforcement at the local jurisdiction and whether we've succeeded in successfully implementing the standards over the years.

One consideration that I'd like the Commission to take into their analysis on these issues is that we, beginning now and in the future, as building officials, need to be considered as equal partners with Energy Commission Staff. Not simple participants in a public hearing process.

We cannot effectively implement the standards when we are simply just another voice in the process asking staff to make changes. We realistically evaluate staff's proposals. We realistically give them feedback on whether those proposals can be adequately enforced at the line level, at the front level where we do the
enforcement.

And relatively consistently staff is swayed by all sorts of pressures related to implementation and recommendations of standards and changes to the standards. Often our comments are not included, not out of anyone's fault but because of the various pressures placed on staff in creating new standards.

So, for the first point, we'd like the Energy Commission to seriously look at building officials as an equal partner in getting this very important job of compliance with the standards done, once the Commission passes the set of standards.

The second point is related to the timing of this process. As you know, the California Building Standards Commission has implemented new building standards. Local building officials are stretched to the maximum amount they can be stretched to in terms of trying to train and implement the current building standards.

We have barely had time to sufficiently review the proposed standards on a regular basis. We really appreciate staff's efforts at trying to
keep us informed, but we simply don't have the
resources to devote the necessary time to evaluate
these important public policy and implementation
issues in the limited scope of time we have
currently.

So, I ask, as a building official, that
you postpone adoption of these standards until
July of 2008 and give every building official in
California the chance to give adequate feedback on
these standards.

The third point. A lot of the wording
in the current standards has fiscal implications
for local jurisdictions. Those implications have
been brought forward to the staff through emails
at various times through this process.

That would be another reason why we
would ask that we postpone the adoption of these
current standards until July so that we can
adequately investigate the fiscal impacts that the
wording of the standards have at the local
jurisdiction.

Simple wording that includes
verification and acceptance has time and motion
cost and benefits to local jurisdictions. We've
asked staff to show us in any way they can what
are the cost/benefits to some of the wording in
the new standards. And they've been unable to
provide that.

So we would like to give them additional
time to show us what cost/benefit would be to the
wording related to additional compliance standards
and acceptance standards in the proposed
standards.

And the fourth process, I know that the
staff report just recently mentioned that they
simplified some of the inspection process for
fenestration. It's simply not enough.

Building officials in the State of
California, at least the ones I've met with, and
as in my own case in the City of Vacaville,
Honestly believe that the standards are too
complicated to enforce currently at the inspection
level.

We have consistently over the last two
years recommended keeping all the complexities and
options available in design and plan review.
That's not the problem. The problem is we have
evolved the standards such that they're unbearably
complex for the level of education and training
for the individuals who have to do the job on a
day-to-day basis out in the field. And that message we've repeated over and over and over again to staff.

Those are the four main points. Again, implementation as partners; move the adoption of the current standards to July of 2008; recognize that the new wording in the current standards has fiscal impact to local jurisdictions; and finally, we need to do more to simplify the standards at the inspection level.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. GARCIA: Hello; my name's Tom Garcia; I'm the building official for the City of Fairfield. I'm also on the Board of the California Building Officials organization, and I'm here representing CALBO.

I would reiterate part of what Jay said, so I won't go over all of what he said, but a couple of points that I'd like to make.

Looking at sections 10-103(a)(3) and 10-103(d)(2). Those two sections talk about the installation certificates and certificates of acceptance.
And my point is I've talked to the Energy Commission Staff and said building departments don't want to be responsible to hold all of the certificates for every project that's out there. You pretty much set us up for failure.

And what this means for a building department is that anytime any person can come off the street and say, I want to see the certificate for my property. Seems like a good idea that they should have that availability, but it puts an additional burden on the building department staff to now go into archives, find the material for them, explain it to them, walk through the process, tell them what it means. And then argue or kind of try to show them that their standards were met on their property.

You know, I submit that if the Energy Commission wants to have this stuff collected, then the Energy Commission should set up a site where they collect and hold the material, and let the building departments do the enforcement and learn the codes and spend our time doing enforcement of standards.

I think our time would be much better spent if we could have better tools for education.
and spend our time actually inspecting out in the field rather than trying to dig up forms and talk to people about whether or not the forms were put into their house.

Right now, and one of the best things that the Energy Commission ever did, was they developed a CF1 for residential, and then the ENV1s and MECH1s and lighting 1s, all of those forms, because those become the standard for what's built. Those are mandated to be on the plans.

And if you have a CF1 that specifies all of the things that the structure has to have, then the structure has to be built to that standard. We do all of these forms at the end, but all we're really doing is showing that, yes, those things were installed to the CF1 or to the ENV1 or the MECH1.

So I, again, would submit we need to do away with some of the acceptance criteria, put the burden on the contractors, train the contractors, make the standards simple for inspectors to be able to enforce. And we'll get a lot better product and a lot better energy savings.

Again, the standards are just becoming
unwieldy. It started out in 1981 when I started doing this business, we had about a half-inch thick energy standards and a couple of books that were maybe an inch thick on how to use these standards. We now have 2000 pages.

And Jay Salazar works in Vacaville, I work in Fairfield, we're ten miles apart. We both work very hard to make sure that the standards are enforced, as well as accessibility standards, building standards, structural safety standards, all of these things.

So with the time that we have to do this Jay and I may be able to go through those 2000 pages of documents, although I haven't had time yet because, as somebody else stated, we're adopting new codes this year and I've been very busy working with counsel and contractors and trying to educate on all of the additional codes that we're adopting.

So, somehow we need to simplify this process. We need to get this down to some packages that the contractor can understand. We need a "Readers Digest" version of this that a contractor can understand.

And I believe that myself, I'm on CALBO,
I'm also on the energy committee for CALBO, I'm committed to save energy in this state. I saw a presentation that Panama gave at the CABEC conference, a 15-minute presentation that talked about how much energy we need to save by the year 2050, 2020, 2030 and so forth. And it's a very moving argument that he puts out in a 15-minute presentation.

And so, you know, I believe in this. I will work with the Energy Commission. I will work through CTI, which is the education portion of CALBO, to help make the standards enforceable. But I would tell you right now that most of the building departments in the state don't even understand the 2005 standards. And we're talking about stepping up and adding things that are going to be complex and hard to understand with this new set of standards.

I don't want to ramble. I could probably talk for 30 more minutes on this. But I would say to you the first step you need to make today is to postpone these standards to give CALBO, CABEC, the Energy Commission and other parties time to work these details out.

Don't specify that residences now have
to have mechanical ventilation and leave it up to
anybody in the world to try and figure out what
that means. I saw one solution that said, well,
you can put a bathroom fan in the house and leave
it run all the time, and maybe run some ducts to
some other rooms to pull some air through the
house. That's a terrible way to put something
into the standards and not have a solution.

There's probably only one -- maybe one
manufacturer that can actually have a unit that
pulls in outside air right now. We should go
through the process of making sure that the people
that provide these HVAC units can actually pull
outside air into a house and do it properly and
make it work.

So, thank you for your time. Any
questions?

PRESIDING MEMBER PFANNENSTIEL: No, but
thank you, Mr. Garcia.

MR. GARCIA: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Other
comments on these sections, 101 to 109?

Moving on to sections 110 to 119, I do
have a comment, a blue card from Gayatri Schilberg
from TURN.
MS. SCHILBERG: Thank you. My name is Gayatri Schilberg; I work for JBS Energy and represent today TURN, The Utility Reform Network, an organization that represents residential and small commercial ratepayers.

We filed some written comments on Friday and I won't go through them in detail. But I wanted to discuss specifically section 112(c), the requirements for programmable communicating thermostat, PCT.

As I researched this project it appears to me that the project of putting the PCT in residential new and some retrofit residential homes, is not adequately defined because the goal is to achieve peak reductions in megawatts, a very laudable goal. But a PCT, by itself, will not do that.

Other elements are also needed. The communication system from the utility and the acquisition of a customer who is willing to go along with this program.

According to my reading of the documents that support -- the cost/benefit analysis that supports the PCTs, I can only locate the costs for the hardware, itself, the device, and the
installation in the home. There is no cost for
the utility system or any sort of system to give a
signal that it's peak day; nor is there any cost
for acquiring the customer to acquiesce to this
program of having his thermostat adjusted.

These costs, indeed, can be significant.
At the Public Utilities Commission PG&E just filed
a new AMI application where they're figuring it's
going to cost $77 to acquire a customer for a
program like this.

And the costs for the communication
portion, utilities such as Edison and PG&E are
planning to do with their AMI application, their
advanced metering infrastructure, but those costs
also are very significant.

So my assessment of the data that I've
been able to locate is that the cost/benefit
analysis and the project, itself, is only defined
as a portion of what the full project is.

However, the benefit, which is the peak
reduction in megawatts, is being attributed solely
to the PCT hardware and installation. But, as I
just said, the PCT, all by itself, cannot achieve
these peak megawatt reductions. There are other
elements that are essential to this project before
those reductions can be achieved.

The other problem then is the other essential component, the communication portion, which is being examined at the Public Utilities Commission, in the case of Edison and PG&E looking at their AMI systems, those applications are taking credit also for the same megawatt reductions that are being taken credit for here at the Energy Commission in the cost/benefit analysis for the PCT hardware.

So now we have two proceedings in front of two different agencies, two sets of costs, the PCT and the communications, and the customer acquisition, but they're both alleging the same benefits. So we've double counted. By piecemealing the project we're double counting the benefit.

The consequence then if both of these aspects go forward and no one remedies what they're doing, is that ratepayers will be paying twice for the same set of benefits, which TURN finds an unacceptable outcome.

Therefore, we're suggesting at least, if you can't analyze the whole project, which is the hardware and the customer acquisition and the
communications, then at least put in costs for modest, the minimum communications and the minimum customer acquisition. And then anything incremental can be analyzed at the PUC in the proceedings regarding AMI.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

ASSOCIATE MEMBER ROSENFELD: Gayatri, good morning.

MS. SCHILBERG: Good morning.

ASSOCIATE MEMBER ROSENFELD: First, I haven't had time to respond to your letter in detail; it only came Friday and the staff did work most of the weekend but had a few other things to do.

I'm going to make a word or so about the double-counting problem, and then ask Dave Hungerford, who's the head of our demand response team, to make a few comments, too.

I don't see the double counting quite the way you do. The PUC certainly is responsible for deciding whether the whole AMI system is cost effective. And they have done that, and ratepayers will pay for the advanced meters.
And, as the Energy Commission observed, that if a customer installs a PCT he will -- he or she will be able to save money by responding to the signal. But we're not raising the rates. We don't have any power to make ratepayers pay for this.

We do observe that it is very cost effective to install a PCT in a new home, thermostat costs something like $50 or $60; the PCT will cost an additional perhaps $40. The ability to respond and save electricity will involve saving electricity at pretty cheap rates, 5 cents a kilowatt hour or something, on a peak afternoon. So we think it's cost effective.

So, we will respond to you about the double-counting issue, but that's my view.

But David Hungerford is sitting at the back of the room. David, do you want to make a couple of comments? It's so crowded he had to sit around the partition.

MR. HUNGERFORD: I'm David Hungerford with the California Energy Commission. And I just wanted to thank TURN for pointing out some of the lack of clarity in the language. And we will respond directly to some of the concerns that you
have raised. And we appreciate the opportunity to make our position clear and our analyses more effective.

And, as Art said, we got your letter on Friday, and so we will work to respond to it in a timely manner. Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you, David. We have somebody else in this area, Gordon Roessler of Tyco Thermal Controls, who would like to speak to section 113(a).

MR. ROESSLER: Good morning. I had three specific questions on section 113(a)(1) specifies temperature controls for service water heatings. The exception is residential occupancies. Are those defined as the CEC defines residential occupancies or ASHRAE defines residential occupancies?

I think the CEC defines residential occupancies as hotels, motels, highrise residential. And those buildings should also have temperature controls I would assume.

So.

PRESIDING MEMBER PFANNENSTIEL: Mazi or Bill, do you want to respond to that?

ASSOCIATE MEMBER ROSENFIELD: Mazi, we
can't hear a thing. Are you mumbling on purpose?

MR. SHIRAKH: Well, I'm just wondering if --

MR. PENNINGTON: What section are we talking about?

PRESIDING MEMBER PFANNENSTIEL: 113 --

MR. ROESSLER: Section 113(a)(1). And then there's an exception.

PRESIDING MEMBER PFANNENSTIEL: -- the definition of how we are looking at residential. We may need to get back to you --

MR. ROESSLER: Okay.

PRESIDING MEMBER PFANNENSTIEL: -- on that, thank you.

MR. ROESSLER: Second is section 2. It says the pumps for circulating system shall turn on when hot water's not required. My question is how do you know hot water's not required.

PRESIDING MEMBER PFANNENSTIEL: Again, I think we'll have to respond --

MR. ROESSLER: Okay. And then section 5, it talks about --

MR. ELEY: When you say section 5, you mean -- small letter --

MR. ROESSLER: I'm sorry, it would be
113(c)(5). Water heater recirculation loop
serving multiple dwelling units, highrise
residential and hotel occupancies. I guess
there's a whole section there about the specifics
of what those circulation systems shall do.

My question is what about other
commercial buildings using recirculation systems,
schools, colleges, office buildings. Are those
standards also applicable to those types of
construction?

MR. SHIRAKH: Yeah, we'd appreciate it
if you get your comments in writing so we can
actually look and respond to you.

I'm looking at your first comment on
113(a)(1); it does say chapter 9 of the ASHRAE
handbook of HVAC applications.

MR. ROESSLER: So is that how ASHRAE
defines residential buildings, as opposed to the
CEC's definition of residential buildings? That's
really the question, because the CEC says that
residential buildings are highrise residential,
hotel, motels. ASHRAE would define it
differently. And that would affect the
interpretation of how that would be applied.

MR. SHIRAKH: We need to get back, but
we'd appreciate it if you'd get these comments --

MR. ROESSLER: Okay.

MR. SHIRAKH: -- in email or some other form.

MR. ROESSLER: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Are there other comments -- yes, go ahead, Mike.

MR. HODGSON: Commissioners, Mike Hodgson representing California Building Industry Association. It's really more of a question, if I may direct it through the Chair, that is in section 112(c) on programmable communicating thermostats.

There's a uniform -- the question I have or the building industry has, is the utilities have made quite a lot of discussion over the PCT requirement. And there was a fairly large discussion about a year ago in a workshop over the PCT requirement. And out of that became, I believe, the technical specs that are referenced in appendix JA-5.

The building industry has not heard whether or not the utilities have agreed to that, and whether or not we now have a uniform standard
the utilities will now be requiring, so that
thermostat manufacturers will know what to make.

So my question through the Chair would
be have the utilities agreed to this standard, and
do we now have a product that we can have
manufactured and purchased in say the next six to
12 months.

PRESIDING MEMBER PFANNENSTIEL: I'll put
that to Mazi or Bill.

MR. SHIRAKH: The requirement for the
PCT is statewide. The PCT allows for an expansion
port that the utilities could use to enable their
own AMI or communication protocols.

So the goal of the state standards was
to introduce one device that can be purchased
anywhere in the state and be used anywhere in the
state. And also allow the utilities to run
expansion port to enable their own communication
devices.

It is also possible for utilities to
actually go out to bid and make a utility-specific
PCT so long as it meets all the requirements in
section 112(c).

And at this point I'm not clear what
that device would be like, but it would still have
to meet all the requirements of 112(c).

But if they want to do that then they have to pay for that device, not the building. So the builders' obligation is to buy the minimally complying Title 24 PCT. Which the information we have from at least one vendor is that they're going to be selling that to retail outlets for about $50. And that's the retail cost. I imagine the wholesale cost would be even lower.

So that's my understanding currently.

PRESIDING MEMBER PFANNENSTIEL: Bill, did you have a comment on that?

MR. PENNINGTON: No, I don't.

MR. HODGSON: A followup. We've had this discussion with staff, and I presume by the note additional comments from the utilities they're in unanimous agreement with appendix JA-5 and we'll have a uniform product in the market. Thank you.

MR. SHIRAKH: I think Carlos wants to make a comment.

PRESIDING MEMBER PFANNENSTIEL: Yes, I just -- I'd also say that this is a, you know, we're at the point of seeking comments and they don't need to be necessarily here. There will be
further opportunity for comment, so.

MR. HAIAD: Carlos Haiad, Southern California Edison. As a general statement the utility Edison, and I can't officially speak for PG&E or SDG&E or Sempra, but I believe, in general, we are in agreement with the appendix. And so we are ready for products to be developed and put in the marketplace.

In terms of the comments from TURN, I'll be more than happy to work with the state in addressing those comments since most of them were based on a report that we produced. So, seems fair that I will be part of the response.

PRESIDING MEMBER PFANNENSTIEL: Great, thank you.

MR. HAIAD: All right, thank you.

PRESIDING MEMBER PFANNENSTIEL: We have also on section 118, Craig Lease, L&L Suppliers, Incorporated.

MR. LEASE: Thank you very much. My comments on 118(c) and on the subdivision (1), or excuse me, subdivision (i) and the table 18A and C, insulation and roofing products was amended to require aged values of solar reflectance as they became available through the Cool Roof Rating
Council testing.

Specified to reflectance and emittance for products that do not have a CRC certification, added solar reflective index as an alternative to meeting separate thermal emittance and solar reflectance requirements.

This is something that is new and I definitely need this as my products were product samples were lost. And of all the 140 manufacturers my 18 samples sent back to PRI Asphalt Testing back in Tampa Bay, Florida, are now missing after three and a half years.

There is -- my most important samples of all time are gone. I asked Don Portfolio, asked to send me a copy of the shipping receipt that he sent it to Atlas Testing, Scottsdale, Arizona. He went and looked in my file and said there was a handwritten note that he had sent them to Atlas.

Consequently I asked him to please fax me that note, and he would not send me that note. I told him I would have email in a couple of days, and that he would email me that note. I am assuming that he was going to scan it and then email it to me.

Two days in a row I requested that he do
so. I did have email the next day. And still no
note. No shipping receipts; no confirmation.

I talked with Dan Sprowls of the CRRC
explaining my situation that I no longer had the
initial test results for my heat shield cap sheet
and heat shield tar and gravel.

I've been in front of the Commission
here about six, seven times, defending myself and
my products. And this particular piece of roof is
the same piece of roof that I sent to them. This
roof is now 44 years old. The central valley of
California, without a white roof coating on top,
it will last 18 years. And this is still in
operation after 44 years. And this is my white
cement products.

So, I would ask the Commission to please
allow me to add the solar reflective index as an
alternative to meeting separate thermal and solar
reflectance requirements. As I said, I do have
the initial requirements, which means he did
receive my 18 samples. Nine of the heat shield
cap sheet, nine of the heat shield tar and gravel.

And Atlas said they never received them;
they have no paperwork. And talking to the CRRC I
now have four and a half more months out of the
six months they've given me to put my samples back in, only to be over three years behind everybody in the country.

Also, my testing for white cement coatings, there is the ASTM change, not a change but in the paperwork it says, ASTM 5870 -- excuse me, ASTMD 5870, and it should be ASTMD 5870-95, in parentheses the year 2003. Standard practices for calculating property retention index of plastics, which is one of the three ASTMs that I'm required to do, which is fine.

So I have a copy for you of the initial reflectivities of the heat shield cap sheet and heat shield tar and gravel, which were 85 and 90, 83 and 89. Excuse me, 91 and 89 for the tar and gravel. I have a copy of the ASTM document stating the correct number, which you guys are changing; it's double underlined. And I have a copy of the -- from Momentum Technologies, I have a copy of the 42-year-old roof stating that the condition of this roof is exceptional. This tar is the best in California. They don't make tar like this anymore. They don't have tar like that anymore.

And I also put in a couple of other
things. So I would ask that you please allow the
solar reflective index under my particular case.
Thank you very much.

PRESIDING MEMBER PFANNENSTIEL: Thank you, Mr. Lease.

MR. LEASE: Who should take this?

PRESIDING MEMBER PFANNENSTIEL: Staff.

Mr. Pennington will take that.

MR. SPLITT: Pat Splitt from APP-TECH, again. I have a comment on section 118(g) that relates to, I think, heated slab insulation.

This section seems to be confusing slab edge insulation requirements for directly heated slabs on grade, and insulation requirements for indirectly heated exposed grade structural concrete floors.

There's a table that lists insulation values just for slab edge insulation, which were for structural slabs that were directly heated by either tubing or air ducts. And somewhere I remember there was discussion on adding requirements for insulation under exposed concrete structural floors, like say over a parking garage or something.

And I'm thinking that someone tried to
incorporate these together but it didn't work, and
the wording now is just gibberish; doesn't mean
anything.

PRESIDING MEMBER PFANNENSTIEL: Thank
you. Any further comments on sections through
119? If not, moving to 120 to 126 we do have one
comment from Brian Larkin, Tyco Thermal Controls,
on section 123.

MR. LARKIN: Thank you very much. I'm
here representing electrical heat tracing for hot
water temperature maintenance. And looking in the
table 123A, one of the primary purposes for the
basics of electrical heat tracing systems to work
for hot water temperature maintenance is to
maintain all the piping at the same uniform
temperature.

The only way to do that is to have
uniform heat loss on all the different stems,
branches and twig piping.

The insulation schedule that is
presented in this will not resolve in said uniform
heat loss, and actually would not work for the
kind of electrical heat tracing systems it's
trying to represent.

We've been working utilizing European
standards such as the German energy commissions
where the insulation thickness is equal to the
pipe diameter presenting good heat losses through
the entire application, as well as uniform heat
loss so electrical systems can work.

I would like to just propose that we
evaluate the insulation schedules that are
utilized with electrical heat tracing so that we
can effectively provide good energy savings and
systems that actually function.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, sir.

MR. LARKIN: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Any
other comments on sections 120 to 126?

MS. LUCIDO: Hi. With respect to
121(c)(3) --

PRESIDING MEMBER PFANNENSTIEL: Would
you make sure to provide your name for the record,
please, and your affiliation.

MS. LUCIDO: I wrote my name on a little
blue sheet, you mean?

PRESIDING MEMBER PFANNENSTIEL: I know,
but I think you need to do it --

MS. LUCIDO: Oh, for the record, yeah.
Danielle Lucido, L-u-c-i-d-o. I'm with Worksafe, one word, Worksafe. It's a California-based, nonprofit organization dedicated to promoting occupational safety and health. We do it through education, training and advocacy.

We share the concerns expressed by CalOSHA. Written comments, I believe, submitted to you by CalOSHA regarding 121(c)(3), which mandates the use of demand control ventilation and multizone occupancies with direct digital control to the zone level.

We appreciate that the current proposal exempts classrooms from mandated use of DCV; and an exemption for call centers. But we believe these exemptions to be insufficient to protect worker health.

We're concerned that CO2 sensors have not been shown to be sufficiently reliable to protect workers, particularly workers in nail salons, social services offices and medical offices, where proper ventilation is particularly important.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. SHIRAKH: Jackie.
PRESIDING MEMBER PFANNENSTIEL: Yes, Mazi.

MR. SHIRAKH: We have been in dialogue with CalOSHA and we have actually added those exemptions that you just mentioned. Just we got them too late to put them in the 45-day language. They will be part of the 15-day language with other enhancements, actually. They made other suggestions related to sensor reliability and redundancy. So, you know, we're going to incorporate also those into the 15-day language. And with some possible enhancement to the acceptance requirements.

So, we think we've addressed most of their concerns. There's a few issues still remaining related to measuring CO2 at the zone level, which we do not think is feasible at this point.

But other than that issue I think we're modifying the 15-day language along the same lines that you just suggested.

MS. LUCIDO: Okay, thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Other comments on sections 120 to 126? Yes.

MR. RAYMER: Yes, Madam Chair and
Commissioner. Bob Raymer with CBIA. A question through the Chair.

Mazi was mentioning about the 15-day language that would incorporate any changes that come from today's testimony. Could you provide us with a bit of a timeline here? I know that you were looking at a January 30 or 31st adoption. What would be the timeline for 15-day language?

PRESIDING MEMBER PFANNENSTIEL: Mazi, would you walk through the expected timeline, please.

MR. SHIRAKH: Well, first of all, we'd like to have everybody's written comments in by January 3rd. And, you know, even if you're providing oral testimony today, it's going to be in the transcripts, we like to get them electronically because transcripts will take awhile. And we'd like to get started right away. So if you can give it to us by January 3rd, and preferably before. But it's going to be hard with the holidays and so forth.

The adoption date is set for January 30th, but that's the adoption date for the 45-day language. And the assumption in there is that if we are not getting substantial comments, and the
full Commission wanted to adopt the 45-day language as is, it would have been on January 30th.

But now it's becoming increasingly evident that we are going to have to modify the 45-day language and go to 15-day language. So that pushes the adoption date into February.

Unfortunately, the next business meeting in February is only 14 days away from January 31st, and 15-day language won't fit in that timeframe. So it appears that the adoption date is going to be February 27, 2008.

PRESIDING MEMBER PFANNENSTIEL: Thanks, Mazi. Other comments, 120 to 126. Let's move to 130 to 134, specific comments here?

MR. NAKAMURA: I had comments on 121. My name's Robert Nakamura with CalOSHA. I'm in the Research and Standards Unit of the Division of Occupational Safety and Health. And the Division has a responsibility for enforcing indoor air quality requirements for all the employees in California. And also for the requirements for employers to maintain, operate and have access to the information about their operation of their HVAC systems.
Now, Worksafe mentioned, a letter was submitted to Mr. Pennington, and this was October 29th of this year. And I could read it into the record, or I could just simply provide it.

PRESIDING MEMBER PFANNENSTIEL: If it -- it's been provided to the docket.

MR. NAKAMURA: Okay. And I just wanted to amplify a little bit on some of the remarks that were made.

Essentially our concerns have been about the control systems, DCV. And especially with the reliability of the CO2 sensors. So basically we've been saying from the earliest stages of the publication that expansion of DCV to the multizone occupancies is not supported by research, and is likely to provide unacceptable health conditions for building occupants.

For example, when we noted a study from LBL showing that some installed DCV sensors were not functioning appropriately even within five years of installation. And part of the response to us has been that a method for calibrating the system would be to use exhaled breath as a source of CO2. And, of course, the CO2 that's present in exhaled breath is about 5 percent, which exceeds
the 1000 ppm or less limit that's needed to
calibrate the CO2 sensor.

Also, Mazi noted that we've had some
discussions back and forth about some of our
concerns, and we appreciate all the work and
effort that they've been providing to us. And
it's been mentioned that we're concerned about
social services and health-related occupancies
that have waiting rooms, where the presence of
people who have an infectious air-borne disease
might pose a contamination risk for others.

Also it's been mentioned that nail
salons may not have adequate ventilation for the
system controlled by DCV.

So those are our basic concerns. And we
have talked about whether the feasibility of the
CO2 sensors is an issue; and that was our last
feedback from Mr. Pennington's staff. And what
we'd like to see in more detailed form is the
basic remark that has been sent back to us is that
the CO2 sensors that would be put in each zone
controlled by the DCV system would be too
expensive in a sense that a sensor and meter for
each zone would add to the cost of the total
system.
And we'd like to see exactly how much that is since we tend to consider the system as a whole in terms of hundreds of thousands of dollars or something on that order; whereas the CO2 sensors would be probably a few hundred dollars.

So we'd like to go into more detail about that particular aspect of it, and others.

So we would appreciate it if we could submit more comments in detail under the timeframe.

MR. SHIRAKH: Yes, I would --

PRESIDING MEMBER PFANNENSTIEL: Yes, certainly. We'd welcome your comments.

MR. NAKAMURA: And I think that pretty much covers it, thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Further comments -- yes, go ahead, Gary.

MR. FLAMM: Gary Flamm, Energy Commission Staff. I just want to say for the record that I recently received comments on section 119 from the National Electrical Manufacturers Association; and another set of comments from Jim Benya and Kosta Papamichaels on section 119. And staff will be working with these folks to address these written comments.

PRESIDING MEMBER PFANNENSTIEL: Further
comments up through section 134?

MR. SPLITT: Pat Splitt from APP-TECH.

I have a comment on section 131(c). This section requires that skylit areas are to be shown on the plans. But it doesn't say what plans and who's supposed to actually do this.

And, again, we have a requirement that is too vague and anyone can always assume it's somebody else that's going to do it.

So, it seems to me that where they should be drawn is since they're a function of the skylight areas and installations of the skylights in the roof and the windows, these are all determined by the building designer or architect. So that the requirement for these drawings should be on the designer or the architect to require these areas be shown on the plans that they give as backgrounds to whoever's doing the lighting design. That way somebody really will do it; otherwise, no one will do it.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. SHIRAKH: So, Pat, are you going to give us this in writing?

MR. SPLITT: Yeah, I started last night,
but I mean it'll be a lot thicker by the time I'm done.

MR. SHIRAKH: All right, thanks.

PRESIDING MEMBER PFANNENSTIEL: Going up then through section 140-149. I do have comments on section 149(b) from William T. Callahan of the Associated Roofing Contractors, Bay Area Counties. Mr. Callahan.

MR. CALLAHAN: Good morning, thank you; I'm sure there'll be others that have similar comments to make.

My name is Bill Callahan; I'm Executive Director for Associated Roofing Contractors. I represent union employers throughout northern California.

At the outset I'd like to say that what we have in front of us today is much improved over what we saw many months ago. I've had a lot to say about the standards over the last six months. A number of things now simply need clarification and working with staff I understand in the compliance manuals that those concerns will be addressed. The only major issue we have right now has to do with exception number 2 to section 149(b)(1)(B)(iv).
The intent of this is fine. The idea is to trade off adding insulation against the expense of moving rooftop equipment and conduits, vents, raising curbs and so on. It's a good concept. The problem is that four inches is not the right number.

If you go to the National Roofing Contractors roofing manual, our industry standard, it requires base flashings a minimum of eight inches. The Asphalt Roofing Manufacturers Association guidebook, same thing, eight inches. Every material manufacturer specifications I've ever seen are the same thing, eight inches. And that usually is attached to their warranties, as well. If you don't meet that standard they are not going to warrant the roof.

That's a major problem for a roofing contractor in a state that has become absolutely infamous for construction defect litigation based on these sorts of differences. If the manual says eight, and you've got seven, you've just bought yourself a new roof on behalf of an owner.

That said, I think that we have come a long way. I think that there's a willingness to move this to eight inches, from what I understand.
And if that is done we will certainly support it.

So, thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Mazi.

MR. SHIRAKH: Others have brought that to our attention and we have agreed to change that number to eight inches, along with some other clarifications which will go into the 15-day language. We'll present that to you, as well. And I think we have a resolution here.

MR. CALLAHAN: Terrific, thank you.

PRESIDING MEMBER PFANNENSTIEL: We also have Phil Dregger, Pacific Building Consultants on behalf of ARMA.

MR. DREGGER: Thank you. My name's Philip Dregger with Pacific Building Consultants, here this morning on behalf of ARMA, Asphalt Roofing Manufacturers Association.

I wanted to concur with comments by Mr. Callahan, thank you. And acknowledge from Mazi that these comments regarding the four-inch minimum for curb height in section 149(b)(1)(B)(iv), to be exact. So I don't want to cover that ground over again other than to say that ARMA did submit a letter, which is now
posted, in support of the change to make it clear that it's an eight-inch flashing height. So, thank you.

I did want to follow up on that with a couple of other comments specifically on that point. Let me back up. Today I want to comment on two specific things. First, which I've already begun, the four-inch flashing height. And then I want to spend a little time talking about the cost effectiveness of the required insulation to be added as part of roof replacement projects also in this section.

So, going back to the four-inch height question, which is now eight inches, I wanted to comment on -- this is a little awkward because informally I understand there's some other language being thrown around. And it talks about if a roofing project does not include removal of the rooftop equipment -- and earlier I mentioned that it would probably be best to phrase it if the reroofing project did not include temporarily disconnecting and lifting, as opposed to removal, you know, can be interpreted as removing off the roof, et cetera.

Second item, again we're talking about
some phrasing. And there's an emphasis in this exception to curb height. And I believe that that also can be inadvertently confusing because the curb height is not necessarily the flashing height.

Mechanical equipment often has a side rail, a structural element, a box section that slips over the curb. And if the intent, as I understand it and support that we want to require insulation as long as we don't have the cost prohibitive, you know, requirement to lift, to change-out equipment curbs.

If that, indeed, is the intent then we should be talking or phrasing the requirement in terms of effective curb height, or available base flashing height. I believe it just fine-tunes the requirement making it more understandable for those of us who work in that industry.

And then final comment about this exception is to recommend adding language that would incorporate wall coverings, lifting equipment, major part -- also major part is if we had to cut a wall covering like stucco, wood siding. I believe along the same line as being a cost prohibitive item, the cutting of the wall
coverings can be.

So I believe with some language changes there we can preserve the intent and clean it up a little bit.

Okay, the second item I wanted to comment on in this, the cost effectiveness of this insulation requirement, and dovetailing with the exception number 1 -- let me back up and just paraphrase.

This Roman numeral iv says that when roofs, is part of a replacement, exposes the roof deck or recover boards there's now a requirement to add insulation up to certain levels. And there's a table, 149A, and that up to R8 or R14.

And then exception 1 talks about this is not a requirement if the existing roof has R11. And, thank you, in response to a request from ARMA, we were provided with some information that talks about the cost effectiveness of this proposed change.

And I specifically want to talk about that for two reasons. In fact, ARMA recommends that the cost effectiveness of this proposal be revisited for two reasons. The first reason the installed costs associated with adding R8 and R14
appear low. And the second reason, which I'll go into more, is that the basis of the cost effectiveness analysis appears to be incomplete.

And let me explain more what I mean. In information provided to us by staff, and again, thank you, shows the costs associated with adding R8 and R14, and it contrasts that with energy savings of adding the R8 or the R14.

Now, the energy savings is presented in two ways. It's presented in an assumption where you don't have any insulation to start with. And a second assumption where you have insulation of R11.

And I'm going to try to get through this without getting stuck in some of the details. But let's first talk about the general cost of adding R8 or R14 as part of a roof replacement project.

According to the information that we were provided, the analysis is based on looking at the cost to install insulation, which is adjusted for overhead profit in the California adjustment in accordance to standard cost estimating protocol. And then there's also a line for a recover board.

And taking these two installed costs,
one for the R value and then one for recover board, which can have some R value in it, they came up with totals of $1.75 for R8 and $2.19 for R14.

And that was broken up, let's talk about the R8, as 71 cents -- let me back this up -- an adjusted cost for the R value of $1 plus the recover board at 75 cents, to get to $1.75. And then an adjusted cost for the R14 of $1.44 to get a total cost of $2.19.

And what we'd like to recommend is to revisit the insulation cost component of $1 and the $1.44. We were unable to find those numbers in the cost information that we had available, so we would ask, I guess, for copies of it.

And then also to maybe inquire, was this cost information taken from new construction information; or was the cost information taken from repair and remodel costs? Can we pause for a clarification if it's available?

PRESIDING MEMBER PFANNENSTIEL: If it's available. Bill or Mazi, do you have the answer? Or, Charles, do you have the answer?

MR. ELEY: I believe there were two documents that were forwarded to ARMA. One of...
them was the analysis for reroofing. There was another report which had the cost estimates. And that was the -- those cost estimates were used for all of the changes to the insulation requirements, not just reroofing.

I don't have that particular report in front of me right now, but if memory serves me, I don't remember there being a separate insulation cost for reroofing, either labor or materials. Because the process is pretty much the same. You're putting down a rigid board.

The 75 cents for the cover board was a figure that was given to us in, I believe, the June workshop by the roofing industry. So that was added in at your request.

MR. DREGGER: Okay. I am not drawing attention to the 75 cent number. I am actually asking for the basic cost of adding insulation of the $1 and the $1.45.

Again, the information that I had available to me would put numbers like 1.75, 2.50 for those kind of numbers, instead of the $1 and $1.44. So that's why I would inquire and ask that that be looked at.

And I do know, from my own use of the
information, that one will get different numbers if you look at the new construction costs versus looking at repair costs.

And when you look at repair typically you'll look at the complexity also. And Lee Saylor is a publication that I'm familiar with, has an F1 and an F4, and they range in factors of three between them. And they are related to the complexity and the size of the project.

So, it's a recommendation to look at that in a general sense.

I want to move on and also recommend that the rationale for the exception of R11 be revisited. And the idea here is that the threshold of cost effectiveness is, I think, relatively obviously it's going to be less than R11. Based on the information that was provided to us.

And what I'm referring to, Charles, if I can direct it to you, is these charts, you know, that clearly illustrate the cost savings associated with various assumptions.

And there was basically two examples provided to us. The cost effectiveness, if one doesn't have any insulation in the building and
were to add it. And then the cost effectiveness
if one started with a certain amount of insulation
and the one example was R11.

And if one doesn't have any insulation
at all, the data, again based on the cost that was
used to develop so it was cost effectiveness if
you don't have any insulation. And the savings
are in the terms of $2.50 to $3, $5, very large
numbers.

But if one assumes that you start with a
base insulation, in here the example is 11,
instead of talking about $2, $3, $5, we're talking
about 35 cents, 50 cents, 60 cent kind of numbers.
I mean, you know, greatly less.

And so basically, as we understand this,
this was shown that if you don't have any
insulation it's cost effective. And if you have
R11 it's not cost effective. Therefore the
exception at R11.

But because the R11 example is so much
lower than the break-even point, we suggest that
additional cases be run, R4, 5, 6, 7, to more
closely find where the breakpoint is.

The way that the standard reads now,
unfortunately, people, building owners insulated
to R say 8, based on this information, would be
required to add insulation. And it's at least
going to be 75 cents, no matter what. And which
would actually be counter-productive for them and
for the state, as a whole, even considering time-
dependent valuation of the information.

Any questions at this point?

MR. SHIRAKH: We'd appreciate getting
all this in writing, again.

MR. DREGGER: Certainly, Mazi.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, Mr. Dregger.

MR. DREGGER: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Further
comments on, now we're moving to section 150-152.

Please come up.

DR. AKBARI: My name is Hashem Akbari;
I'm from Lawrence Berkeley National Lab. The
comments that I make are related to section 143
and 149. And I will go into each separately.

Section 143, which is nonresidential new
construction, there are two items for exceptions,
item (i)(3) and item (r)(4). Item (i)(3) suggests
that either roof is installing building integrated
photovoltaic it is exempted from using cool roofs.
I would like to bring to the attention of the staff that not all the roof areas are typically covered with the BIPV, and only that portion of the roof that it is covered with BIPV should be subject to this exception.

On exception of having a ballasted roof to replace a cool roof, there are -- number one, I have not seen any data, solid data for all 16 California climate zones that showing having a ballasted roof would replace the energy performance of the cool roof.

And secondly, I would like to mention that in some places, based on some calculations that I have, adding a ballasted roof may actually increase your energy consumption, your cooling energy consumption. Therefore, I would like to suggest that this exemption to be eliminated.

And there is always the opportunity to show performance standard through the performance approach if any measure like ballasted measure or high attic ventilation or more insulation in the attic is going to be substituting the cool roof.

Going forward to paragraph numeral 2 and 3, which is related to nonresidential steep slope roof. First of all, I am very disappointed to see
that such a minimum requirement of .20 being selected as the threshold for cool roof. And to me this is not a great day to be here and to make this comment.

And while we know that ten years ago EnergyStar EPA picked out .25 to be the minimum level, now we are even going lower than that. Knowing that also there are many products out there in the market which bid this point to zero, the message that we are basically sending to the industry is that, thank you, we don't want your participation anymore, and cool roof is not going to be basically considered whether the roof it is out there, roofing product out there is good for the industry, for California.

And I have to mention that I would find this thing very hard to believe, both as a scientist and as a citizen of California, that the cool roof are not effective in California.

Having mentioned that, I would like to bring a slight inconsistency in section 2 and section 3. Section 2 requires minimum solar reflectors of .20 for climate zones 2 through 16. And nothing is required for climate zone 1.

However, section 3 requires a cool roof,
quote-unquote, cool roof of minimum requirement
.15 for all climate regions.

So just to be consistent it would make
sense, even though I do not agree with these
numbers, to add to the section 2 a minimum
requirement of .15 for climate zone 1.

So that is -- these are my comments on
section 143. And I would like to -- no, there is
another comment that I have on section 143, item
3, exceptions.

It is again requiring minimum solar
reflectance of .55 in climate zones for 10, 11, 13
to 15. And knowing that there are a lot of
products for low slope roof available that easily
beat the market at no incremental cost, at least
add a solar reflectance of .25 or .3.

I would like to suggest that for all
other climate zones a minimum requirement of say
about .3 also be selected.

Section 149, alteration. The same
comments that I make in regard to the new
construction for the low slope roof would also
apply to items 2 and 3. And I would like to see
this section at least to be modified to be
consistent.
And I would be more than happy to answer any clarifying questions.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Are there questions? Commissioner Rosenfeld.

ASSOCIATE MEMBER ROSENFELD: Yes, I have a comment. First of all, like you, Hashem, I think that the threshold numbers are pretty disappointing. I'm sort of disappointed with the Cool Roof Rating Council, which I would have thought by now would have had hundreds of examples on its website of higher effective roofing materials so that we could do better cost analysis.

And I'm sort of disappointed with the industry for not pushing sales further for hot roofs -- cool roofs. The reason I said hot roofs is that it seems to me that we're not being very consistent with cool roofs in California. We're trying to do everything we can to comply with AB-32 and reduce our CO2 emissions back to 2000 levels by 2020.

We are looking into appliance standards which will phase out incandescent lamps. And we're not doing anything very much about phasing...
out hot roofs. And we have to get started and
take this more seriously.

The good news is that there will be a
possibility for doing market transformation
through the utility incentive programs. The
utilities are planning on doing incentives for
beating the present discouragingly low thresholds.

I think ten cents a square foot for
greater than EnergyStar, .25, reflectance, and
maybe 20 cents a square foot for greater than .4.
And I'm going to lobby with them for giving even
higher incentives for white roofs. I think that
in Florida or places where they know it's really
hot, Phoenix and Tucson, white roofs are taken
almost for granted as the right thing to do. And
we're not pushing them in California yet. And we
should lobby hard to make sure the utilities do
that aggressively.

So, I think this is a sort of
disappointing first step. We need to do market
transformation, we need to tighten these things up
greatly by the next phase.

And thank you very much for your
remarks.

PRESIDING MEMBER PFANNENSTIEL: And
identify yourself for the record, please.

MR. MAEDA: Hashem, you mentioned that -
- Bruce Maeda, California Energy Commission Staff.
You mentioned that ballasted roofs increase
cooling energy consumption. First of all, is that
time-dependent valuation, TDV energy consumption
for cooling? And also what is the total energy
consumption for our analyses?

DR. AKBARI: I qualified that
calculation by mentioning some limited
calculations that I have done has shown that. So
it only takes one example to say that this
particular exemption is not universally valid.
And obviously if one puts the resources one can
get a better understanding.

And my point is that we already have
that posture in place to comply with the standard
through performance approach. Why do we have to
make exceptions about wishy-washy standard, or
wishy-washy measures that we really do not know
their impact on all climates and for all
conditions.

MR. MAEDA: Well, it is important to
know whether or not it's time-dependent valuation
or not, using raw kilowatt hours I can indeed see
a situation where cooling energy could increase,
but TDV doesn't increase on the cooling side.

MR. ELEY: If I may, Charles Eley, contractor to the CEC. The 25 pounds per square foot was calculated using TDV energy. We took some typical buildings and gradually added mass to the top of the building until we reached equal TDV energy with the required cool roof. And that's the technical basis of the 25 pounds per square foot.

And this analysis was done in response to comments that we received from members of the roofing industry to provide some recognition for ballasted roofs.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

DR. AKBARI: Thank you.

PRESIDING MEMBER PFANNENSTIEL: More comments? Please come forward.

MR. ENNIS: Hello. My name is Mike Ennis; I'm Technical Director of SPRI, Single Ply Roofing Industry. And I just really wanted to -- we certainly support the California Energy Commission's objective to improve the thermal efficiency of buildings. And in particular to use
cool roofing strategies to do so.

Initially it was highly reflective roofs
was the approach that was being used. SPRI and
the Department of Energy sponsored a study that
was conducted at Oak Ridge National Labs to
document the energy saving potential of highly
reflective roof systems. And much of that data
has been used to develop the numbers and where
highly reflective roofs have and produced this
thermal efficiency.

In a similar manner, SPRI and the
Department of Energy also jointly sponsored a stud
of ballasted roofing systems. And this study was
conducted again at Oak Ridge National
Laboratories. And looked at various weights of
ballasted roofs. All of that information was
provided to the staff, and they have duly noted it
and have studied that information.

And, as was noted, was a basis. And
then additional information was taken. And that's
where the ballasted roof exception, and why it is
in the California Energy Commission. So it was
the roofing industry, as was noted, requested
that.

And if anybody has any questions on that
we would be glad to provide the report; the final report has been issued. There was a presentation given just last week at the building envelopes conference about ballasted roofs and their thermal performance. And we will provide any information to anybody that requests it.

Any questions or comments?

PRESIDING MEMBER PFANNENSTIEL: Thank you, sir.

MR. ENNIS: Okay.

ASSOCIATE MEMBER ROSENFIELD: Sir, Mr. Ennis, I guess I would like you to say a word or so. Let me assume that the ballasted roof really is a good idea. On the other hand, I guess I'm not quite clear about the logic of why not -- that is, the lighter color the ballast, or if the ballast were a sprayed white or something, the roof would be even cooler.

MR. ENNIS: Yeah, --

ASSOCIATE MEMBER ROSENFIELD: Is there any real reason why you shouldn't do both?

MR. ENNIS: Well, those technologies you're talking about have been employed with pavers, concrete pavers. And they have put coatings on concrete pavers, and that was part of
the study.

And you are correct, that does provide a
dual impact. However, ballast, in itself, it's
not reflective, but it's a thermal mass effect.
It's not the reflectivity of the ballast, --

ASSOCIATE MEMBER ROSENFIELD: I
understand that, but --

MR. ENNIS: -- so what we're doing is
demonstrating equivalency to a highly reflective
roof system and how much ballast, how much thermal
mass do you have to add.

So, this helps you include systems such
as garden roof systems, stone ballasted systems
which are very cost effective method for
installing roofs.

Now, you are correct, if you put a
coating on a paver and use that paver you can get
a dual benefit. But what the intent of the study
was to determine do ballasted roofs, standard
ballasted roofs improve the thermal efficiency and
reduce the energy consumption of buildings. And
they do at a certain ballast weight.

ASSOCIATE MEMBER ROSENFIELD: I guess I'm
going to make my prejudice clear again. Global
warming is a serious problem. And you haven't
really convinced me that for another 10 cents a
square foot or something you can't contribute
additionally with your ballasted roof that have
them black colored. And I think I'm going to ask
if you can get together with the staff and show
why it wouldn't be cost effective to have some
reflectivity criteria in addition.

I agree that ballasted roofs seem to be
a good idea, but I repeat, I don't think you
answered why we shouldn't do both.

MR. ENNIS: So your position, then, sir,
is that ballasted roofs should perform above and
beyond cool roofs?

ASSOCIATE MEMBER ROSENFIELD: The call to
duty, yes.

MR. ENNIS: So they have to meet a
higher standard?

MR. ENNIS: Yeah, I think everything we
can do to delay global warming by another year or
so is a good idea. And other countries are going
to copy us, and we should be setting an example.

MR. ENNIS: Well, yeah, I will be glad
to work with staff, and we can certainly generate
some of those economies. I don't know why a
ballast roof would be held to a higher standard
than other materials that are being utilized to -- it does, in and of itself, it does reduce global warming potential because it does reduce the energy consumption in a building when you reach a certain mass.

So, that, it has demonstrated equivalency to a highly reflective roof system. And I understand, you know, anything we can do to certainly improve beyond that is fine. I just -- maybe there's an approach that if you combine the effects, here are some additional savings, maybe it becomes a preferred system because you can go above and beyond the requirements. But, -- would maybe be the approach.

ASSOCIATE MEMBER ROSENFIELD: You know, there's a pretty big tendency in our society for the automobile manufacturers to say, why do you pick on us; why don't you just make biofuels and we'll solve the problem that way. And the biofuels people say, why do you pick on us, why don't you go for fuel economy.

And, we all have to pitch in. Thank you.

MR. ENNIS: Yes.

MR. SHIRAKH: If I may, I have an
explanation.

ASSOCIATE MEMBER ROSENFELD: Thanks,

Mazi.

MR. SHIRAKH: The way --

ASSOCIATE MEMBER ROSENFELD: Go ahead.

MR. SHIRAKH: The proposal is at 25 pounds per square foot it would be equivalent to cool roofs. If they add a coating like you suggested, that would buy them an additional compliance credit. But that budget is not incorporated prescriptive budget that we're talking about.

I guess, if I'm hearing you correctly, Art, you want to actually set up an additional credit; you want to put that part of the prescriptive requirements?

ASSOCIATE MEMBER ROSENFELD: No, I guess you're making a very good point. If it's widely advertised that you can always get compliance credit for beating the system, maybe utilities will add that to their incentive --

MR. SHIRAKH: Well, in the performance approach you can have ballasted roof and cool roof and you'll get the additional credit.

ASSOCIATE MEMBER ROSENFELD: All right.
So I will leave it as a sermon --

(Laughter.)

ASSOCIATE MEMBER ROSENFIELD: -- and go

for compliance credit. Okay, Mazi, you have a
good point.

PRESIDING MEMBER PFANNENSTIEL: Bruce,

quickly on this line.

MR. MAEDA: Bruce Maeda. I have one

more quick comment. Certain kinds of ballasted

roofs like using round rock, coating it may

actually be detrimental to the performance of the

roof because it bounces more radiant energy deeper

into the -- towards the roof.

PRESIDING MEMBER PFANNENSTIEL: Thank

you. We have another comment in this section.

MR. WILCOX: I'd like to say one thing
to Art. This is Bruce Wilcox; I'm a consultant to

the Commission. I think there's a general problem

that I don't think we have any technology for

rating the reflectivity of ballasted roofs or

roofs with gravel on them that's deemed to be

practical.

So, the proposal from the ballasted roof

industry ignored reflectivity completely. And

that was part of the limitations in trying to look
at it.

And I think that one of the things that, if you really want to push ballasted roofs and tar-and-gravel roofs, all those kinds of things, there needs to be a technology that allows those things to be reliably rated and measured for solar reflectivity. And I don't think we have that.

ASSOCIATE MEMBER ROSENFIELD: Okay.

MR. HITCHCOCK: My name is Reed Hitchcock; I'm the Executive Director of the Asphalt Roofing Manufacturers Association. Thank you for the opportunity to comment.

I'd first like to express sincere appreciation to Bill, Mazi, Charles and Pyam (phonetic) really for the cooperative spirit that has gotten us to this point in the revisions to Title 24, part 6. It's been a long process and it's clearly not over yet.

Just a few comments in no particular order of importance, just as I wrote them down in response to a couple of issues.

Number one, ARMA does appreciate the efforts to develop language, in particular I'm referring to the .20 reflectance that reduces confusion in the marketplace. Earlier drafts of
the code included variable reflectance depending on new roof versus re-roof, which climate zone you were in, and what-have-you; making it very difficult, both from a supply perspective, as well as from an enforcement perspective, to comply.

We're very pleased that we've been able to work with the Commission to come to language. We, in fact, supported the addition of climate zones that were not previously included in earlier drafts in exchange for some of the reflectance, in order to insure that not only is the state able to meet the energy savings that they require, but that at the same time the consumer is able to get the products that they want to have with the technology that exists currently.

We did a survey that we provided to the Energy Commission some time ago where we actually tested the reflectance of shingles that were sold into the California market including the, quote-unquote, reflective granule shingles. I believe the year was 2005.

At that time the average shingle surface reflectance for products sold into the market was 9.1 percent. We see 20 percent as quite an increase from that point. But we don't consider
that we're done there.

Our understanding with the Energy Commission is that this is an interim step, probably one of many interim steps to ultimately get to much higher levels once the technology has increased and the costs have come down on those products.

At the same time it's our understanding from the Commission that only 2 percent of roofs are following the prescriptive approach. So we're not sure what the ultimate impact will be.

With that said, we do support the language as proposed, and appreciate the cooperative spirit in which it was developed.

On the steep slope, as a side note, I would like to point out one different -- one inconsistency. Section 118(i)(1) differentiates between asphalt shingles and, quote, all other roofing products. Whereas, elsewhere in the code products are separated in terms of the density of the product. And I don't know if that's -- I'll leave that for you all to consider, but just in terms of consistency.

One more point on the steep slope.

There is research going on. Dr. Akbari is really
helping lead on an initiative for cool roofing materials research. I think that initiative has gone slower than some people expected, as well. Although it's certainly moving in what I would consider the right direction in terms of the ultimate goals of the State of California and the Energy Commission.

On low slope I won't reiterate all of Phil Dregger's points or somebody will shoot me. But I do support the comments that Phil Dregger made and encourage the Commission to consider those comments.

One other point that I do have related to low slope roofing, however, is the inclusion of the solar reflectance index. ARMA proposed that. We appreciate that. The one thing that we disagree with, in its current form, is that the benefit of the inclusion of SRI is somewhat negated by the penalty that's installed as part of the SRI.

And this gets complicated in terms of how I was trying to write it. But, long story short, you've got a requirement for reflectance and emittance in the code. However, when you calculate the SRI, that calculation is based on a
higher value for thermal emittance.

And so really the products that you
would hopefully get into the code that certainly
have substantial benefits in terms of energy
efficiency and sustainability, that may not meet
one or the other of those requirements, but could
meet that SRI, were it put into place using the
values that are being proposed in the code, you
don't get those products because of this quote-
unquote, SRI penalty.

We're disappointed with that. We think
that the SRI values should be calculated on the
basis of the thermal emittance and solar
reflectance that's being proposed elsewhere in the
code.

One last point I'd like to make, as an
aside, and I don't see it happening in this cycle.
But, would like to go on the record. And that's
as relates to the Cool Roof Rating Council. It's
been our experience and the experience of other
industries that I've talked to other roofing
product industries, that the Cool Roof Rating
Council is probably growing faster than they can
keep up with.

And we're experiencing problems both in
the scope of what the CRRC is doing, and also in terms of their ability to effectively do what they need to do. I would like to just say for the record that we hope in the future that the CEC would consider expanding the supervisory entities to include other capable organizations to rate roofing products.

And that's all I have. I appreciate the opportunity to comment. Any questions?

PRESIDING MEMBER PFANNENSTIEL: Thank you, we appreciate your comments.

MR. LEASE: Craig Lease, L&L Suppliers, a manufacturer of heat shield white cement. This is a ballasted roof. Okay. When you talk 25 pounds per square foot, one square is 100 square feet; 100 times 25 pounds is 2500 pounds per ten by ten, one square, 100 square feet.

My specifications on this ballasted roof are 170 pounds a square, and 50 pounds of my white cement. As you can see, this is still the 44-year-old roof. That system alone, never being touched, never being washed, never being sprayed, will last 35 years.

So if you're looking for a ballasted roof with -- excuse me -- Bill, what was the
reflection and emissivity of the heat shield tar-
and-gravel?

MR. PENNINGTON: What's your question?

MR. LEASE: It's on your first sheet.

PRESIDING MEMBER PFANNENSTIEL: I'm

sorry, you need to stay at the mike if you're

going to be --

MR. LEASE: I'm sorry.

PRESIDING MEMBER PFANNENSTIEL: --

recorded.

MR. LEASE: Well, I believe it's 81,
because it's a rough surface, so there's less
reflectivity. And 89 or 91 for emittance.

So, 2500 pounds per square, I've never
really heard of that kind of weight before. And
there is an answer, either a three-ply or four-ply
system, 170 pounds, 50 pounds of heat shield,
comes out to 7 gallons. Ends up a quarter-inch
thick.

So, thank you very much.

PRESIDING MEMBER PFANNENSTIEL: Thank

you.

MR. SPLITT: Pat Splitt from APP-TECH,
again. I have two comments on this section. One

at section 141(j)(1). Has to do with hydronic
There doesn't seem to be an exception for small hydronic radiant heating systems that would just be, say, heating a slab to condition a space. To these -- the exception they give is for a system that has no more than three control valves.

I think basically people were thinking about like four-pipe, big commercial systems. But even a small residential radiant system could have 50 control valves.

So it seems like we need another exception here. Maybe except systems with just fractional horsepower pumps.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. SPLITT: Okay. And the next comment under this section is section 147. Section 147 has to do with outdoor lighting. But even though in places they refer to dimensions that come from plans, they nowhere require that the outdoor lighting zones be provided on plans.

Whereas in the sections on the indoor skylighting and side-lighting, the Commission actually has required that someone provide these
It's even more of a problem with outdoor lighting because you have no walls. So if you -- I've been trying to design forms for the new standards, and I can come up with a form that has a bunch of numbers on it just like the forms we have now, but for a plan checker or anybody to look at those, it's impossible to know where those numbers came from.

And I have a twisted mind so I can actually imagine a way that we could define all this and come up with a system where we actually would define what someone has to put on all the plans defining each area, tying it to some reference on a sheet; defining each pole, each lamp on the pole and how much wattage of each lamp is allocated to each different task.

And I could do that, come up with something that would technically work. But if I then step back and say, well, wait a minute, this is so ridiculously complex, I'm not even sure I know what I just did.

So, if we are going to do anything with outdoor lighting that requires areas, someone has to be required to actually provide a drawing and
submit that drawing, with the plans, that
delineates all those areas and has the area --
calls out the area and little arrows pointing,
this area is this much, this perimeter is this
much, these poles are allocated here and there. I
think that's the only way to make it work.

And if you're not going to do that, I
don't think it's worth doing all this. It's
getting -- and even if you do do that, it may not
be worth doing it because it's getting too
complicated.

And I'm starting to think that there
really should be a simpler way of doing this.

And we sort of got our discussion cut
off when the 45-day language came up, I'm sure a
lot of people have done a lot of work on this, and
they're going to throw things at me, but I was
just wondering if maybe we couldn't come up with
some system where, in fact, you didn't even try to
specify the installed wattage. Forget about it.

Take lamps that you want to say are
disallowed any more, low pressure sodium, mercury
vapor, incandescent, those aren't allowed anymore,
so you get rid of the worst cases.

The assumption made when we're doing all
this calculations and we have all these watts per
square foot and illumination numbers, is that
somebody's actually doing a computerized
calculation, and calculating the light levels to
show that they meet IES standards.

If they're doing that, if they're just
being simple and just doing parking lot 1
calculation, we get one calculation. If they're
doing all these different little areas and saying
we need more for this, we need more for that,
they're breaking it down.

So, they've already got a plan that has
all that, and they've calculated the illumination.
Most of these programs also you can tell it to
give you boundaries. Say anything over a certain
illumination, label it this way. Anything below a
certain illumination, label it this way.

So it seems like if we just came up with
a specification basically just shooting for the
IES standards, and put a limit on how many
measurement points could be above a certain
percentage over that limit, and throw out all
these lamps that we don't think are efficacious
anymore, that would cut the work in half. And
most of this work is work designers are already
doing. And most of the calculations are
calculations that are already done by the
software.

So, I just think that would be the way
to go.

PRESIDING MEMBER PFANNENSTIEL: Thank
you.

MR. SHIRAKH: So I'm wondering if Jim
Benya or Gary Flamm want to respond to that.

MR. BENYA: Jim Benya, Benya Lighting
Design, and consultant to the Commission.

We made some -- put some real work into
this section this year. You'll recall that it
first showed up in the 2005 standards. The 2008
standard we realized that the forms, the
calculations and everything, had gotten to be very
difficult to document and very difficult to show.

So a couple things we did. Number one,
we did simplify and come up with what we called
the layered system. And that is a technique
whereby filling in the forms and demonstrating
compliance is going to be pretty straightforward.

The other thing that I want to flag is
that when, some of Pat's comments just a second
ago, none of these are very practical. What we
are charged with is demonstrating we're going to be saving outdoor lighting energy. The way it works right now is pretty good.

The comments about filling in plans or putting the areas on the plans, keep in mind that we simplified it tremendously so that the single largest calculation is hardscape. Hardscape means streets, walks, driveways, et cetera. We got rid of overlapping hardscapes and a lot of other things that were complicated from the 2005 standard.

I'd have to disagree with Pat. I think that the way it's been rewritten is going to be quite easy and quite repeatable for someone to measure the amount of hardscape, which is the most dominant calculation.

And I think at this point, although it should be taken under advisement whether or not there ought to be a standardized format for submitting plans, I do believe that we've made some significant improvements that I'd have to disagree with Pat on on his recommendations.

PRESIDING MEMBER PFANNENSTIEL: Thank you. We have one sort of general comments overall on the standards. We have a blue card from

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Michael Gabel.

MR. GABEL: Gabel. Gabel. Thank you, Commissioners, thank you. I'll keep it brief because I'm sure we all want to get to lunch.

CABEC supports the general changes in the new standards. We support the effort the Commission has made and the staff has made. We want to thank staff for an awful lot of time that they've put in working with us formally and informally on standards development and on language. And, you know, we appreciate the opportunity to be included in that process.

We have some qualifications to that support. And over the weekend I emailed the Commissioners a letter which at some point I'd like you to read; maybe when the dust clears in February or March.

We're interested really in implementation, compliance and enforcement. We think that the standards need an extreme makeover at some point, maybe not this round obviously, but we're going to work with staff on the 15-day language to clean up a few nonsubstantive things. However, there is a time between February 27th or '8th, and sometime in the fall
when the compliance manuals are going to be ready.

We think the compliance manuals do need an extreme
makeover. We're not sure that the staff has the
time or the resources to do it. We want to focus
on what's most in need of fixing or improving in
those manuals.

We generally concur with some of the
comments by CALBO that in the long term we think
we need to think of standards somewhat differently
to meet AB-32 goals. And, you know, I think, as a
confession by CABEC and others, you know, we have
failed to get the attention of the Commission all
these years. I think to impress upon all of you,
and focus more in the next round on
implementation, compliance and enforcement issues.

We're going to work the best we can with
the 2008 standards to make those happen as best as
possible. And we're available to do that. And we
also would like to see a process where we have
some opportunity to work with you talking about
long-term planning about changing things. Because
we think they're in need of changing.

Thanks very much.

PRESIDING MEMBER PFANNENSTIEL: Thank
you. Thank you for your help and we hope and
assume that you will continue to work with us on this.

MR. SPLITT: Pat Splitt again. Just want to make one comment about what Mike just said. Art spoke earlier about the need to try to not miss these opportunities to get energy saving. Well, I've been complaining about these same processes since the 45-day language came out in 2005, and basically been ignored. So we've had problems of compliance for three years.

Now Mike is sort of suggesting well, we know we still have a lot more problems, but let's wait until 2011 to fix it.

If we know we have problems I think it's much better to put off a couple of months and try to fix the problems now, and not wait till 2011.

You just recently, in your energy report, determined that the New Solar Homes Partnership program isn't meeting its goals. And I think that the 2005 energy code wasn't meeting its goals, either. I don't think there's been much increase from anything new that was supposed to have been added, and for most of the things in 2005.

Like I know in my area there's not one
building department that requires an acceptance forms. There are no contractors even know what they are. So all this energy savings you think you got from these things is just imaginary.

The energy savings we're getting, we do get energy savings, but they're from the efficiencies have gone up, those are federal standards. The fact that people have bought into earlier standards, they're still sort of expecting things to be done the way they were then. And we're still getting those energy savings.

But, I think you really have to look at these problems now. And if it takes a couple of months, then take a couple of months now and try to fix these things so we can actually get some implementation and figure out how to have people actually build the building the way you want, not just develop a pile of paperwork to turn in for a building permit.

So I have a couple of questions here in general. One thing I want to know is like for compliance manuals and these appendices that are appendices to the part 6 regulations, are they regulations or not. Are the residential and nonres and joint appendices, are they regulations?
Are they part of part 6 or are they not? Are they law?

MR. PENNINGTON: They are interpretative manuals that are required.

MR. SPLITT: The appendices?

PRESIDING MEMBER PFANNENSTIEL: They are interpreting --

MR. SPLITT: We all know what he means now, right? The answer is solved.

(Laughter.)

MR. PENNINGTON: They are not regulations. That's obvious.

PRESIDING MEMBER PFANNENSTIEL: The standards are the regulations.

MR. SPLITT: So the appendices are not the regulations?

MR. PENNINGTON: I'm sorry, you said compliance manuals.

MR. SPLITT: No, I said appendices.

MR. PENNINGTON: So I was responding to your comment about compliance manuals. These appendices are being adopted by regulation.

MR. SPLITT: So the appendices are --

MR. PENNINGTON: All the documents in front of the Commission today are being adopted by

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regulation.

MR. SPLITT: Okay, so those will be the law?

MR. PENNINGTON: You said compliance manuals, we're not considering compliance manuals.

MR. SPLITT: Okay, but the compliance manuals then are not the law, they're just recommendations?

MR. PENNINGTON: They are -- that's correct. They are providing additional information to clarify the standards, to provide examples, to provide forms, all of the stuff --

MR. SPLITT: They're not laws, take it or leave it. I don't have to -- I only have to obey the law. I don't have to obey anything that's in those manuals?

MR. PENNINGTON: They are guidance documents.

MR. SPLITT: Well, the reason I'm asking is because there's several -- I heard some comments before about people have been assuaged that their concerns about the regulations are going to be handled by you doing something in the manuals.

And I just want to make it clear that if
someone has a problem with the regulations,
anything they do in the manuals isn't going to fix
it. That you have to -- you can't assume anything
about the manuals because they don't exist yet.

And again, I think that the appendices
are a good idea. I think the acceptance forms are
a terribly bad idea. I think where there are
acceptance requirements -- I'm speaking mainly on
nonres here, that's what I've been mainly looking
at -- if there are requirements that are
necessary, they should be put at the
responsibility of the installer and certified to
in an installation certificate.

But that I know the building officials
don't want these certificates getting complex, so
then the certificate then can refer back to
sections in the appendices which are now
instructions for the installer and the designer.

There's been all this work on somebody
coming in after the fact and testing some feature
and deciding that it's right or wrong. But
there's no effort made by the Commission to
instruct the designers on how to design these
things correctly, or on the installers on how to
install them correctly.
And then people get all upset because it's not put in right. Well, there's a reason for that.

So, anyway, I think that we've really got to take some time to try to get this done. And, in particular, I don't think you can look at anything that's been proposed here without looking at it in the light of what would be in these manuals. The regulations are calling out specifically details of what you want to have done. But the manual says how it has to be done.

PRESIDING MEMBER PFANNENSTIEL: Mr. Splitt, we will be dealing with the manuals after lunch. We have a whole section on the agenda for talking about the manuals.

MR. SPLITT: Okay, I'll get back to that then. Let me see here. Are we going to deal with life cycle cost analysis? Or should I do that now?

PRESIDING MEMBER PFANNENSTIEL: Well, given the hour, I would suggest that we might want to put other specific questions that will be covered in either the manuals or the appendices till this afternoon.

MR. SPLITT: Well, I don't care when I
say what I'm going to say. I can do it after lunch, or keep on going, that's fine.

PRESIDING MEMBER PFANNENSTIEL: Do we have others, though, who would like to now make comments on the standards that we have just been discussing? Thank you.

DR. AKBARI: A short question to the Chair. We skipped section 151, 152, is that intentional?

PRESIDING MEMBER PFANNENSTIEL: No, I did not intend to skip any section. This is for any part of the standards you'd like to --

DR. AKBARI: Okay, so my comments refer to section 151 and 152. Not repeating my disappointment regarding the level of performance, I would like to bring a slight inconsistency in section 11(a) where the current standards define the minimum prescriptive requirement of .15 for all climate regions.

However, for the products less than 5 pounds only defines a minimum standard requirement for climate zone 10 to 15.

I would recommend extending or adopting a minimum requirement for the other climate regions for the products less than 5 pounds per
square foot.

On section 11(b) the same comment is applied. A minimum requirement for low slope roofs in residential buildings are recommended for climate zones 13 and 15. To be consistent with the other sections, we perhaps would like to extend that to the other regions, as well.

And I guess that's my comment on these sections. Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Another? Yes.

MR. CHAPMAN: I am Jeff Chapman with California Living and Energy. A quick item, really, Mazi and Bill, it's a point of dialogue for us, not so much for a discussion on it right now.

In your comments in the manual dealing with building departments we respect our esteemed colleagues from Fairfield and was it Vacaville? We appreciate what they're doing.

We provide Title 24 calculations and HERS ratings throughout the state. One of our biggest issues consistently are homeowners moving in without our raters being in the homes testing. Because the house is final and no CF4R has been
issued because no testing was done. Nothing was requested.

In 2000 and in 2005 I know from Mike's office and from our office we provided a lot of education for building departments. We heard the constraints of time from those two building officials. Possibly in your agenda we can dialogue about this. There should be some training from people that can be certified like I have been, and people from Mike's staff have been, to train building departments and make them sign up they've been trained.

And then secondly, what will you do, and I mean that you second person, plural, what will happen to building departments who do not comply with the standards. And that's meant for something we can dialogue about or email about.

Thank you much.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Further general comments overall on the standards, the 45-day language?

As the agenda shows, we will come back after lunch and specifically take up the appendices and the compliance manuals.

So, with that, I think we should be back
here let's say in an hour, so 1:30.

(Whereupon, at 12:21 p.m., the hearing was adjourned, to reconvene at 1:30 p.m., this same day.)

--o0o--
PRESIDING MEMBER PFANNENSTIEL: We're going to start this afternoon talking about the appendices and appendices changes. We're going to ask Charles Eley to walk us through a summary of what's in the joint appendices. Charles.

MR. ELEY: Okay, thank you, Commissioner. All right. In 2005 we created the concept of joint appendices. And at that time there were four of them, the first four that you see listed here.

And the first one is simply a glossary of terms that previously was scattered around in multiple places within the standards. It's now been consolidated to one place.

The only changes that have been made to the glossary are related to new concepts and measures that have been added to the standards like PCTs is now defined and terms like that.

The second joint appendix 2 is a consolidation of the climate data for California. And this consists both of a description of the 16 climate zones, but it also includes several hundred sites that are used for sizing equipment.
And there's design data that's included there.

The only significant change to JA-2 is some language that permits the Energy Commission to modify the 16 reference climate weather files to adjust them to meet the individual cities within California. That hasn't been done yet, but there's a procedure in there that enables that to happen.

JA-3 is the time-dependent valuation data. This was updated with this round. It's been available for at least 18 months now. And it's been used as a part of the lifecycle cost analysis.

JA-4 was also created in 2005. As Mazi mentioned in his summary this morning, there have been a number of modifications to this. There's one new table that was added for steel framed walls in residential applications. And apart from that there were some various other changes and modifications that were made to this.

All of the criteria for U factors and thermal performance in the standards, in the ACMs, all reference joint appendix 4.

The other, JA-5, -6, -7 and -8 are all new. JA-5 is the reference design for
programmable communicating thermostats. JA-6 is specification for charge indicator lights, which is now an option for refrigerant charge, for verifying refrigerant charge and mostly residential-scale equipment.

The TXV, thermal expansion valve, alternate was dropped and it's been replaced with this charge indicator light. So that appendix specifies what you need to do to take credit for that.

JA-7 is a procedure for verifying installation quality in spray foam insulation. And JA-8 is a testing protocol for LED lighting systems.

Next slide, Chris. Okay. And then we have a series of residential appendices. Most of these actually are not new, but rather they've just been moved here from what was in '05 the residential ACM manual.

The sizing, RA-1, is on sizing; RA-2 is what used to be chapter 7 of the residential ACM manual. RA-3 is a consolidation of a number of appendices all of which deal with field verification and diagnostic testing procedures. These deal with verification of insulation
quality, refrigerant charge, air flow, duct

sealing and so forth.

RA-4 is not new, either. It's a reorganization. In the 2005 ACM manual there were a lot of measures there that -- and each measure had a set of eligibility criteria attached to it. So you had to meet those eligibility criteria in order to take credit for that measure. Those eligibility criteria have now been moved out of the ACM manual and consolidated in RA-4.

And then RA-5 is also relocated from the residential ACM manual. This is used for determining the interior mass capacity which qualifies a residence as a high mass building. And when it qualifies as a high mass building, it can be modeled as such. And there's some credit involved.

Next slide. Then the nonresidential appendices, there's eight of those. These are largely material that's been moved either from the standard or from the residential -- excuse me, the nonresidential ACM manuals.

NA-1 used to be chapter 7 of the nonres ACM manual. NA-2, I don't remember which appendix that was, but that deals with duct sealing in
packaged equipment.

NA-3 is data on fan motor efficiency.

NA-4 are the compliance procedures for relocatable public school buildings. And this deals with the Division of the State Architect's precheck and final check for that process.

NA-5 is the revised building envelope tradeoff procedure. This used to be contained in section 143(b) of the standard. But it's been moved to NA-5 so that because we felt that's a better home for it, since there's a lot of equations and a lot of fairly detailed data. So section 143(b) now just makes reference to the calculation procedures in NA-5.

NA-6 was also used to be a part of the nonresidential ACM manual. And this has fenestration, default fenestration thermal properties, SHGCs and U factors for site-built fenestration and for skylights. All other fenestration would either need to use the defaults in the standard, or they would need to use NFRC data.

NA-7 is the new home for the acceptance requirements. These previously were also a part of the ACM manual. And there have been a few
things that have been added to that. There was a
new set of requirements for fenestration and a few
other things I think were mentioned earlier this
morning.

And then NA-8 used to be a part of the
nonres ACM manuals. Well, this has information
that's needed for the tailored lighting method; it
has data from the IES handbook. And it also has
default luminaire power levels for common lamp and
ballast combinations.

So that's a summary of the -- this is
quite a large document. It's mostly just
reference material for the most part. And most of
it existed in the 2005 standards. And now it's
been relocated into the standards appendices.

And as Mazi noted this morning, the
primary motivation for this is so that the ACM
manuals, the residential and nonresidential ACM
manuals, can go back to their central purpose,
which is to be a specification for compliance
software.

PRESIDING MEMBER PFANNENSTIEL: Thanks,
Charles. I do have one card from somebody who'd
like to speak to appendix JA-7. Jim Francisco,
NCFT.

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MR. FRANCISCO: I'd like to thank the Commission for allowing us to speak here today, and for the work that we've put in on this for the last two years.

We have one concern with this and it comes to JA-7.9. It speaks to the value in the U value specifications. The first line reads: For median density foam all the total R values shall be calculated based on the normal thickness of the insulation times an R value of 5.8."

That is an arbitrary number. It has nothing to do with foam. This number was got from the Bureau of Home Furnishings. And they're going to revise their numbers in January, so the number's going to be outdated.

What the Commission needs to know about the foam is that foam calculation are by each manufacturer. Depends on the blowing agent that's used in it; depends on the formulation that's used. So they will usually rate somewhere between 6.2 and 7.1. There is no foam in the market that has an R value of 5.8. Not one.

MR. SHIRAKH: Could you repeat that range, again?

MR. FRANCISCO: Range of 6.2 to 7.1.
What this does is it -- you, in your appendices here, have also stated that before you came down to a 5.8. If you go back and you look in section JA-7.2, it states in there that SPF may be a two component reactive system, and SPF can be formulated to have specific physical properties such as density, compressive strength, closed cell content and R value. They will vary.

I mean you recognize it in the first of it, and then you set an arbitrary number of 5.8.

What we would like to do is supply the Commission with the lab tests that shows throughout the industry from all of foam manufacturers the HR values of the materials. Because we feel, to produce a even playing field for this, we have to have a true value of the foam listed.

And as I said, you already show that there is a value difference, in your own wording. We need to be able to give you the information that will allow you to understand what we're trying to put across to you.

So, I would like to -- we're preparing to submit a written report with all the certified lab testings on it to the Commission. We ask you to look at it, and to take note of the meeting of
the Home Furnishing people on the 14th of January
when they will change their -- most likely change
their values and yours will become outdated all
over again.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, sir.

MR. FRANCISCO: Okay.

PRESIDING MEMBER PFANNENSTIEL: We'll
look at your material.

Further comments or questions on the
appendices? Please come up to the microphone and
state your name.

MR. ORCH: Lyle Orch with Cool Roof
Systems. I'm a contractor in southern California
specializing in spray foam applications.

I have the same concern that Mr. Francisco mentioned in regards to the
predetermined value of the closed cell insulation
or spray foam insulation. But I also wanted to
bring up that we spent many months on this, in
particular in the rough drafts on developing JA-7,
specifically for medium density foam.

Since we completed this back in about
June or July, now the low density foam has been
added to it. We haven't had any comment on this
or anything. As a matter of fact, this is the first I've seen the document on Friday when I got it off of the internet.

So, we've taken two totally different products, taken a guide designed specifically for one type of product and put both products into a single document.

And there's a number of problems within the document if you start going back into the application requirements. In particular where it gets into the low density application, there's a number of areas where it calls for an R-13 for two-by-four framing, and R-19 for two-by-six framing, which is fine and dandy because most low density foam manufacturers, that's where they're going to be into.

But it doesn't address the application in the ceilings where you have an R-30 requirement. There's a number of the low density manufacturers have approvals with the state for R-30 and R-38 applications. And those are applications that we do currently. We're going to continue to do those applications, but they're not addressed properly in this document.

So, if we're going to combine the two
types of insulation materials then we need to revise this document one more time to be a little bit more specific about the application.

Because the inspector and the applicators that are going to be using this, the applicators know the difference. The inspectors typically don't. You know, is it soft foam, is it hard foam.

I deal a lot with the inspectors on a building -- or on a daily basis. And they just don't have -- this was a document we felt we could work with, they could understand it. Even the contractors and the applicators could understand it. And then it got changed before it actually comes to publication.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Others? Mike Hodgson.

MR. HODGSON: Thank you, Madam Chair and Commissioners, staff. I'd like to reiterate the comment about JA-7. The industry has received quite a few comments just in the last few days about medium and low density spray foams. The medium guys not knowing low density's there. Low density's wondering why the medium guys are there.
So, I think you should anticipate a few more questions coming in and some clarifications, which I think is good. I mean we need to have a document out there because we do have QII for regular insulation. And there's some editorial comments we've already given staff about that.

But I would like to talk about four areas of the appendices very quickly. Some of it's information and others is requests.

The first is appendix JA-4 on insulated doors. We discussed this with staff last week. And our understanding is that there's going to be a table that's been put into the compliance software that will reference doors. The issue is, as previously, and actually currently, the market uses NFRC ratings for insulated doors. And we put that in our compliance documentation.

There is a section in the code, if we're paying attention, which I apologize for not paying attention for the last two and a half years, in which you have to default to a .5 value for doors. And that's just really penalizing people who are using insulated doors.

It made sense at the time, discussing with staff when you look it up and it could be in
the NFRC table, but then we started going to some
manufacturers and we found out that some of them
had 12 to 15 doors that are registered with NFRC
with a insulated or verified U value.

Assuming that there is 40 to 60 window
manufacturers out there, and many of them have
door product lines, I'm not quite sure if it's
really practical to have all of that as a default
within, you know, a compliance software.

So it may be like we do with windows,
unless the intent is also to do windows this way,
is we used the manufacturer's technical
information included in our compliance
documentation. And then move that to the building
department so it can be plan checked.

So that's the first issue. I'm not sure
what the intent of staff is, but I think it's just
kind of an information issue and we can deal with
it.

The second issue is kind of related to
mechanical sizing. We have multiple topics here
in which really I think the ultimate goal is to
reduce peak load and reduce air conditioning load.

To do that we need to make sure that we
size the system properly; we charge the system
properly; and we verify that there's adequate air flow. And two out of three of those exist in the market. And the third used to exist as a thermal static expansion valve, or what we call a TXV. And now we're trying to make it a refrigerant charge verification.

And we can do that a couple ways. The staff has recommended either we go out and test the system, after the subcontractor charges the system. And the industry, as HERS raters, typically are not certified to do that. And if they do, many of our HVAC subcontractors say, you test it, you own it.

That's a warranty issue, and it's an issue that really there's a very distinct line between the HERS inspectors and the subcontractors. So we don't think that's very workable. But those who are competent to do it should be encouraged to do it and get a credit.

The other path in which you can get credit is using a charge indicator light, which we think is a very interesting device. Unfortunately it's not on the market today. And so what we would like to do is disassociate, and we discussed this with staff just recently, we want to
encourage maximum cooling capacity and encourage
the refrigerant charge/charge indicator light.
But we want them to be disassociated so that if
you do a good design, and you're required to do
adequate air flow, you still get credit.

But in addition, there's a market pull
for these other devices to make sure the system's
working well.

So we propose that to staff. They
acknowledge the discussion. We'll continue that
discussion and hopefully come to a mutual

And that was all over in different
sections and I'm not going to reference them.
There's four sections referenced.

The next section is in compliance
documentation, which is an RA-2, section RA-2.3,
2.4 and 2.6. This section requires compliance
documentation and describes how sample groups are
done for a HERS rater.

So what we would think of today is
sample groups, we're required to test one of each
type of home in one-in-seven type of arrangement,
or not any less than 15 percent.

Two years ago when our market rate was
somewhere between six and eight homes closed per month per subdivision, this was a very workable way to do testing.

However, with the current market rate of one or two homes closed per month per subdivision, what this requires is we cannot complete our compliance documentation until we have all CF-6 R forms completed by that group of one in seven.

Well, that could be the building would be waiting somewhere between four and six months before they get a CF-4 R. Theoretically they don't close the home before they have the CF-4 R form. And we'll talk about enforcement as a separate issue later.

But we think there is a way in the compliance documentation to either not have to close the group until you've completed one in seven, or until that six-month period of time has occurred.

But the way it's written today we need better language, because it's unworkable. And what it will require us to do is to test basically every home out there in the field because the phases are so small today, they're either at one house or two houses per subdivision; we're going
to be out there at every one or two houses. And
we think that's an increased burden on the
industry and on the HERS rater. So we would like
to work with staff and propose language.

The last issue is a point of
clarification, and is something I couldn't find.
I couldn't read all the documentations over the
weekend. But we were talking about, a few weeks
ago, with staff about a glitch in water heating
for attached for sale products where they have
central furnaces.

And the issue is if you use attached for
sale products and require a third-party
inspection, the HERS providers require us to
submit as model by model instead of building by
building.

When you have a boiler that boiler's for
the building for water heating. So how do you
divide the water heating credit by model or by
unit? There was a resolution to that, and I think
half the people in this room responded to the
email trail. And thank you very much for that
rapid response.

But I couldn't find it. Charles has it
hidden somewhere in a residential appendix, and I
know it's there, I just couldn't find it. So I
thought it was in the residential ACM. Maybe it's
in the ACM and not the appendix.

But I would just like to make sure that
that clarification is there and we can see it
before it's approved.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, Mike. Other comments on the appendices, or
questions? Great.

MR. SPLITT: -- had the same question.

PRESIDING MEMBER PFANNENSTIEL: I'm
sorry, for the appendices?

MR. SPLITT: (inaudible). Pat Splitt
from APP-TECH, again. Just get to the right spot
here.

Okay, in the appendices there are very
many spots where there are instructions for either
plan checkers or field inspectors from the
building departments. And as I mentioned in the
morning, if you want these to be enforced they're
worthless where you have them now.

They have to be put under part 1 in a
specific section for building department
requirements. If you don't put them there you
might as well just not have them because it
doesn't mean anything to them to be anywhere else.
And there's a lot of them.

And I suspect that these haven't been
vetted with CALBO, because I can't see that they'd
go for having all of those very picayune
requirements put into the administrative code.
But if you do think they're needed that's where
they have to be, in part 1.

There's a section there for nonres that
requires home energy raters to do verification of
some duct requirements. Well, what makes a home
energy rater qualified to work on commercial HVAC
equipment? I don't think there's anything that
does that. And some of them may know how to do
this, but some don't. I don't think there's any
standard.

And it doesn't make sense on a
commercial building when you already have
certified air balancers out there that are paid
and are on the job, and they're measuring air
flows. Why not, if you need to have some more
requirements, just add those requirements to the
requirements of a certified air balancer, who is a
licensed professional, and is very familiar with
commercial products, and have them do the work
instead of bringing in another person on top of
this. It just doesn't make any sense.

MR. PENNINGTON: So, just a comment.

This is the same requirement that we've had in
2005. It's basically rooftop equipment that's
being tested, duct systems very similar. These
are single zone systems, very similar to
residential.

Knowing how to do that pressurization
and duct testing for one application is quite
transferrable to doing it for the other. And
that's the way it was done in 2005 --

MR. SPLITT: But nobody does that.

MR. PENNINGTON: So that's a different
comment. But in terms of why is that person not
skilled to do it, it's essentially what they do
for residential. So I don't want to debate it
with you, I just wanted to point that out.

MR. SPLITT: Well, it just doesn't make
sense. If we already have somebody out there
that's a professional that knows all this
equipment, and you don't have to dumb the
requirement down to just certain simple equipment
that's similar to residential. An air balancer is
familiar with all that equipment.

You're taking a lot of systems out of this check that could be checked by someone who knew what he was doing. It just seems like you're dumbing it down just so you can make it fit into something that a HERS tester might be able to do. So it just doesn't make sense. But, leave it.

There's some alternatives, and I couldn't quite figure out for HERS alternative and NSHP waivers where the building departments can decide to waive the responsibilities and let the HERS checker take responsibility for compliance with the building code for energy? I wasn't clear what that was. But it just didn't seem like it was legal. I don't think you can absolve the building official of their responsibilities. That somehow they have to, they're always responsible.

So I think there has to be something there to clarify what exactly you mean, because I couldn't figure it out.

And, again, I just think that in the nonres appendices for acceptance procedures it would be much better to have the installer do all these. And we're looking at the same method on residential work. There's an installer comes out;
he knows there's an installation certificate he has to fill out. Many times it's the same people that go out on a commercial job. Why not have the same procedure when they go on a commercial job? There's an installation certificate he has to fill out.

This could actually be handled fairly easily, for the most part, by just changing the requirements in the acceptance procedures, where now you basically allow anybody under the sun who, you know, has some sort of license. If you just change that to just require that that be by the licensed installing contractor, you can leave most of the other stuff alone.

And then just when you make your compliance form, just make it an installation/acceptance certificate. So it doesn't mean like rewriting all the acceptance procedures. It just makes someone responsible who actually might then actually learn something if he could read the stuff and learn how he was supposed to be doing this all these years.

MR. SHIRAKH: Does this take care of your earlier comments about acceptance requirements not being -- sorry -- acceptance
requirements and installation certificates being two different documents and --

MR. SPLITT: Yeah. It would. I mean my main goal is to have the installer responsible and have the Commission actually tell the installer what he has to do. Because now that doesn't happen. He's just guilty, and you know, somebody actually did the testing.

So if you just made that first little paragraph where you delineate who can fill out these acceptance forms, if you just say, well, this acceptance procedure has to be done by the installing contractor, licensed installing contractor. And then we can have one form, and we just change the title. Instead of installation certificates, installation/acceptance certificate, but it sort of comes up the same time.

I think it would be a lot better. And then to tie the two together I think you can't have -- we did the residential forms, we redid those. And the installation certificates start getting longer and longer and longer.

And I think a goal should be to not make them longer and longer and longer, to simplify the compliance statements on the certificate, and just
refer back then to the correct appendix.

    And make, you know, since it's been
clarified that that is now part of the law, then
it's just like a building code. A plumber goes
out and gets plans for a building. You don't have
the whole plumbing code listed in the plans. It
just refers to certain sections. And he signs off
and says I'm going to build this to the code.

    So, seems like it would close the
loophole. Because when you have all these
different people, everybody's going to assume that
somebody else is doing it, and it won't get done.

    MR. SHIRAKH: So these recommendations
you're making related to acceptance requirement
and installation certificate. Are these mostly
related to forms and compliance manuals, or do we
need to actually change the language in the --

    MR. SPLITT: Well, you'd have -- right
now I'm saying the only language you'd have to
change is change who's responsible in the
acceptance procedures.

    But then once you say it's like an
installing mechanical contractor, you might have
to go through there and see if there's some
problem, if there's something that they won't do.
But I don't know what they wouldn't want to do. Because if somebody's going to be coming -- if the contractor is responsible, if he knows somebody's coming in afterwards and they're going to, you know, test the ducts or whatever, the only competent thing he can do is he has to do all that stuff anyway.

But that's only the competent guys. Most of the installers won't have any idea about this. And they'll be off the job and gone before the acceptance person shows up.

So what happens when the acceptance guys says, well, it doesn't work? You know, i can be a lot better just tie them together and have the res and nonres similar; have installation certificates; and we can have the nonres installation/acceptance certificate basically refer to these same procedures. It's just now limited to the installing contractor is responsible.

MR. SHIRAKH: Again, we look forward to getting your written comments on these.

MR. SPLITT: Okay, that's it.

PRESIDING MEMBER PFANNENSTIEL: Thank you, Mr. Splitt.

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345
MR. BACHAND: I'm Mike Bachand from CalCERTS, a HERS provider. Chairperson Pfannenstiel, Commissioners and Staff, thank you for this opportunity to talk.

I just wanted to reiterate on the concerns of Mike Hodgson from ConSol had about the smallest of the groups based on the building pace these days. And closing out groups.

I have been involved in a dialogue with the Energy Commission on this issue. And I would like to continue that dialogue. And so if that dialogue continues I would like the HERS providers to be involved with that.

But I'd also like to say that it's a difficult situation, no doubt. However, if we are going to live and die by sampling, then we can't destroy the sampling process by giving out houses without a test being done on one of the group. And then realizing at the end of the group, oh, this one's going to be the one that's tested.

These licensed professionals that do this work intend to do good work, but we continually measure systems that are supposed to be built tight, but leak 20 and 30 percent. Things are left off; things happen.
And so I think it's a bit naive to just blythly say, well, you know, that doesn't work. We have to let these houses go. I think we need to dialogue some more on that and come to a consensus where the job gets done, inspected randomly and properly.

And I didn't intend to answer Patrick Splitt, but he spoke before me, so I would like to tell him, we have a one-day training program that's required for HERS raters to do commercial HERS ratings. And we feel that that training is comprehensive and gets the job done for the intent of the rules and standards that they're supposed to do. So if you'd like to come and attend that, we'd give him a free ticket.

(Laughter.)

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. BACHAND: Thank you for your time.

MA. JONES: Hi. My name's Anne Marie Jones and I work with enalasys, which is a third-party quality control program. I want to thank you for your time.

Enalasys was the first approved and is the most active third-party quality control
program operating under Title 24. We now serve
over 500 HVAC contractors in the State of
California and have received over 14,000
registered Title 24 jobs in the program's
registry.

In addition, enalasys is leading in the
state's initiative to reduce kWh and kW by
participating in the PG&E, Southern California
Edison and SDG&E HVAC verification programs.

We've received and verified more than
120,000 energy measures resulting in a reduction
of 30 megawatts of power for this year alone.
These programs and initiatives are having a great
economic impact by further reducing the inspection
costs to the homeowner, the builder, the
contractor and the building departments.

However, there's still a lot of work to
be done on a mass scale. And as such, the
Commission can help by furthering the widespread
adoption of this very important Title 24 program
by clarifying the language in paragraph 7.7 of the
Title 24 ACM manual.

The language, as is, has been confusing
for building departments since the induction of
the third-party quality control program. In the
past the building departments have been accustomed
to closing permits upon receiving a CF-4 R from
the rater, and not a CF-6 R from the third-party
quality control program. That's greatly slowing
the adoption of the newly added third-party
quality control program by building departments.

Paragraph 7.7 of the Title 24 ACM manual
states that the building official may approve
compliance based on the CF-6 R on the condition
that if sampling indicated that resampling, full
testing and corrective action is necessary, such
work shall be completed.

Enalasys respectfully recommends that
the following language change: When a third-party
quality control program is used by the HVAC
contractor, the building official shall approve
compliance based on the CF-6 R on the condition
that if sampling indicated that resampling, full
testing and corrective action is necessary, such
work shall be completed.

Thank you very much for considering this
very important language change.

MR. SHIRAKH: Again, I would like to ask
for written comments. I'm trying to take notes
but I can't keep up.
MA. JONES:  Sure. I actually can give you a copy of this. But basically changing the language to say shall instead of may is what we're asking for.

MR. SHIRAKH: Okay.

PRESIDING MEMBER PFANNENSTIEL: All right. I think we're moving off of the appendices into the ACM manuals. And so I think we're going to start with a brief overview of the residential manual by Charles.

MR. ELEY: Thank you. First of all, there's a number of reorganizational changes that we've made. In fact, I think your comments were in reference to what used to be chapter 7 of the ACM. But, in fact, is now appendix RA-2. But we can sort that out.

One of the major changes is that chapters 2, 3 and 4 have been consolidated. In the 2005 ACM manual if you wanted to know about windows, for instance, you'd need to kind of flip from one part of chapter 2, another part of chapter 3, and another part of chapter 4.

So we reorganized that so there's just one chapter, and everything about windows would be presented in the same place.
And then, as I mentioned, chapter 7 now resides in the residential appendix RA-2. The material on field verification and diagnostic testing procedures in the 2005 residential ACM was scattered around in several of the appendices. These are now all consolidated into RA-3.

Next slide, Chris. The ACM manual has also incorporated a number of new modeling features. Probably the most significant one is the attic model. And this has a lot of bits and pieces to it. But there's a new section on the attic model that specifies it allows compliance authors to specify the roof pitch, attic geometry. Well, I guess those two are defaulted, but there's attic ventilation is a factor. The roof deck, and the roof deck includes the cool roof property such as thermal emittance and reflectance. And there's also reporting requirements.

In addition, there's a new slab model that's been developed. And this is documented in the ACM manual.

The modeling rules for mechanical ventilation have been specified and mechanical ventilation, as an energy component, will now show up in the reports.
And there's a procedure that's been added for prorating water heating energy among dwelling units when there's one system serving multiple dwelling units.

Is that a comment for me, John?

(Laughter.)

MR. ELEY: There's three optional capabilities that have been added to the ACM manual. These deal with evaporative coolers, evaporatively cooled condensing units and ice storage air conditioners.

These are all previously approved as compliance options. And now they've been added to the ACM manual as optional modeling capabilities.

There's also material that's been added for related to the New Solar Homes Partnership program, because we anticipate that the software that's used for residential compliance will also be used to qualify for the home energy, the New Solar Homes Partnership program.

So there's energy efficiency requirements that are added; plus there's a photovoltaic performance calculation that is specified.

Next slide. Then there's three new
appendices. One of them lays out the algorithms
and procedures for calculating photovoltaic
reduction. And this is used to calculate the
kilowatt hour production that's used in the New
Solar Homes Partnership program.

There's also a special features list.
This is a list of measures that need to be called
to the attention of the plans examiner and the
field inspector, and documented on the CF-1 R
form. These were previously scattered around in
various places in the ACM manual. Now they've
been consolidated into one spot.

And then the last of the new appendices
is a requirement that for electronic data
transfer. And the intent here is to make it
possible for the software that's used to be a
source of data for future analysis of the
standards.

And that's it for the residential ACM.

PRESIDING MEMBER PFANNENSTIEL:

Questions or comments on the residential ACM?

MR. RENOWDEN: My name is John Renowden;
I'm with Monier Lifetile. And we're also members
of the Tile Roofing Institute.

We submitted a written proposal. I
apologize, it was on Friday, so maybe people
haven't been able to read it yet.

But the subject I want to raise is in
reference to section 3.4.4. And this is looking
at the solar reflectance of cool roof.

And the proposal is that we would like
to make an addition to the 45-day language to
consider the additional energy saving of the
ventilation space between the tile and the deck by
raising the battens that the tiles are fixed upon.

And by doing this we're able to save
additional energy. And in order to be able to
offer greater consumer choice what we would like
to do is if they choose that option to be able to
reduce the reflectance requirement for that roof
structure to .1, or 10 percent. And this is for
roof structures of five pounds per square feet or
more.

The proposal is actually based on some
very recent research. There's been a lot of work
that's been done, we know, by Oak Ridge and some
further work is being done by the LeFarge
Technical Group in the UK. And they've done
experimental work both in the field, in the
laboratory and related this to a computer model,
which is able to show the considerable benefit of
the air space between the tile roof and the deck.

And basically this gives us a greater
consumer choice because we know that in certain
areas of the country people are very favorable to
light-colored tiles, and we sell actually quite a
lot of white tile in Florida.

However, in the west coast there is a
preference for darker colors. And what we want to
be able to do is to offer consumer choice such
that if they require the dark colors, then they're
able to get the performance from the roof by
actually increasing the ventilation between the
roof space and the deck.

So, this would give us really a proposal
which is based on the scientific work being done,
which already extends the work of the national
lab. We would like to share that with staff so
that we can progress that.

And it's going to maximize, really, the
color choice available to the customers whilst
maintaining the energy efficiency that we're
looking for. And basically it's an inexpensive
way of being able to get the additional
performance from the roof.
So, in our written submission we've made a proposal that an addition be made to the 45-day wording that if consumer wants to be able to go for a darker color they can still get the same performance or better by improving the ventilation space between the tile and the deck.

PRESIDING MEMBER PFANNENSTIEL: Thank you. And you have submitted that in writing to our staff?

MR. RENOWDEN: We have.

PRESIDING MEMBER PFANNENSTIEL: Thank you very much.

MR. RENOWDEN: Thank you.

PRESIDING MEMBER PFANNENSTIEL: Yes, of course.

ASSOCIATE MEMBER ROSENFELD: I guess I'm going to make the same comment I made; you may get bored with it. I understand the consumer choice is a good buzz word, but effectively what you're doing is saying Californians shall now have the liberty of going for darker colored roofs.

That doesn't help with heat islands. All you're doing is taking advantage of the fact that there is a flow of air underneath the roof. You are indeed then absorbing more heat from the
sun and pumping it out into Los Angeles.

And you will get alternative compliance credit for that if you want to. But it's sort of the same thing, to my mind, as saying, well, you can add another thousand pounds to your SUV because you make it a hybrid, therefore it's fine.

I guess I just -- I don't think that's delaying global warming.

MR. RENOWDEN: Okay, well, I mean I think it's, you know, the feeling that we got from the marketplace in terms of what was required out there. I say, as manufacturers, we're very happy to make white tile or light tile.

ASSOCIATE MEMBER ROSENFIELD: And that's the direction we should be going.

MR. RENOWDEN: Yes. And, indeed, that's what we are doing. And, you know, what we'd like to do is really offer that additional choice.

MR. SHIRAKH: Now, our standards don't preclude the darker colors. If they use the performance they can always make up for it.

ASSOCIATE MEMBER ROSENFIELD: Right. I'm just against a special exemption for roofs which will heat Los Angeles or other valley towns more than they did before.
MR. RENOWDEN: Okay, well, we will work with the staff people on the evidence that we have.

ASSOCIATE MEMBER ROSENFIELD: Okay.

MR. RENOWDEN: Thank you for your time.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. CROUCH: I'm John Crouch; I'm with the Hearth Association, the HPBA. I want to echo a concern that was raised by one of the building officials this morning that -- and I expected to see more information on how the 62.2 ventilation requirement will be worked out in detail.

I assumed that would be in a compliance manual appendix or chapter. I'm just concerned that there will be many builders and many building inspectors who will sort this process out without more guidance and atmospherically vented hearth products, be they wood or gas, may be the detriment to that. Perhaps, Bruce, you have some input? I hope you do.

MR. WILCOX: Yeah, well, we're not talking about the compliance -- about the manuals here today. And I expect --

MR. CROUCH: All right.
MR. WILCOX: -- there will be
information in the manuals that will help explain
how to comply with the standard 62.2 requirements.

There is actually a user's manual for
standard 62.2. I think we're going to work to
incorporate that material into the CEC documents.

MR. CROUCH: Thank you, we're very
concerned about this issue.

PRESIDING MEMBER PFANNENSTIEL: Thank
you, sir. Other comments on the residential ACM?

MR. SPLITT: Pat Splitt from APP-TECH.

This actually applies to both the res and nonres,
so I'll just do them both now so I don't have to
come up twice.

In order to obtain CEC approval proposed
ACMs must demonstrate that they are reliable and
accurate relative to the appropriate public domain
computer program. How is this possible when there
are no public domain programs? How do you get
around this in the ACM manuals? I mean it doesn't
seem possible.

PRESIDING MEMBER PFANNENSTIEL: Thank
you. You can either comment now or we will --

MR. SPLITT: Well, it's silence. But
I'd just like to recommend that since it is
impossible, you don't try to do it; you just take
the requirement out of the Administrative Code so
that you're not being hypocritical and requiring
other people to obey the law when you ignore it,
yourself.

PRESIDING MEMBER PFANNENSTIEL: Anything
else on the residential? Shall we move to the --

MR. DAY: Commissioner Pfaffenstiel,
Commissioner Rosenfeld, everybody else, hello. My
name is Michael Day and today I am here on behalf
of OxyCom. OxyCom is a manufacturer based in
Holland who's been making indirect evaporative
heat exchangers for 12 years and selling them
primarily in the North -- or excuse me,
exclusively in the European market, and has been
looking to come into the United States.

Specifically in the ACM there's a blurb
here that says: compliance software shall limit
direct and indirect evaporative cooling
effectiveness to the DOEII.1(e) defaults as a
maximum entry.

For three-phase systems that would be
8.9 EER, while for single-phase systems the
DOEII.1 default is 11 EER. Understanding that
three phase isn't very common in residential.
But both of these represent a hard cap that is a maximum value that the technology can claim under Title 24.

So why is this a problem? Well, for indirect evaporative coolers in particular, the hard cap is a huge problem. During peak hours true IEC EERs are regularly above 30. And in the very hot climate zones, if used on outside air precooling, can be in the 40 to 50 EER range.

This value is obviously increased when one takes into account the TDV curves, as well. Because IEC EER is completely coincident with time-dependent valuation curves.

In the end what we are looking at is a Title 24 degrade that can approach an entire order of magnitude.

The Commission's responsibility in this proceeding is to balance two forces that are at play, accuracy and dependability. Accuracy is the easier of the two concepts to analyze. It's basically going against the DOEII.01(e) default. And dependability has been voiced by staff as preventing envelope degradation via excessive tradeoffs.

However, extra care must be exercised by
the Commission in the dependability area because to the extent that it unduly limits tradeoffs, it can undermine the basis of the success of Title 24 overall.

And as has been noted in the past, the standard is a neutral playing field that lets multiple technologies compete in the marketplace, thereby encouraging cost effective innovation over time.

Now, that's not to say that there haven't been some accepted modifications of accuracy to promote dependability. For example, source SEER. We adjusted the SEER ratings to account for local climatic conditions. Insulation installation quality. We adjusted the effectiveness of installed insulation in the code to account for inconsistencies found in typical installations. Tight ducts, same thing.

But in all three of the cases noted above although the Title 24 value was degraded, there were three notable differences, as well. In every one of these cases the degrade that was applied in the compliance software was based upon sound, peer-reviewed research.

Number two. In every one of the cases
that was there the effect was really to increase
the accuracy of the software and of the compliance
method together. And in none of the cases was the
degradation anywhere near the penalty that's being
applied to indirect evaporative coolers.

This proposal represents a huge
departure for this code, and in no way can these
actions be seen as being in harmony with previous
degradation actions in compliance software.

The beauty has always been that it
encouraged innovation by providing the ability for
different technologies to compete in a neutral
playing field. It's this cost effective
innovation that has allowed the Rosenfeld line to
remain flat when the rest of the country's been
going up.

But cost effectiveness requires
tradeoffs. It's just a fact of life. Otherwise
it's not cost effective, it's just a cost. Other
technologies get to play in this game by claiming
their energy efficiency-derived Title 24 benefit
that can be traded against one another. If one
technology is allowed to claim 100 percent of
their value or very near it, and another
technology is then limited to 10 to 15 percent of
their true value, there may be a substantial problem. It restricts both trade and innovation. When a degradation of this magnitude is applied to one technology but is not applied to others, and this degradation is based upon feeling as opposed to research, the only phrase that comes to my mind is arbitrary and capricious.

It is clearly and demonstrably impedes the ability of high efficiency, indirect evaporative cooling manufacturers to compete with other energy efficiency measures in the marketplace.

And this is not a small amount of energy. And here are few things that are going to make this more important over time. As the IEPR says, we're failing to meet our greenhouse gas goals overall.

AB-32 says that we're supposed to achieve, to do all achievable energy savings. I mean this goes back to Warren Alquist about incentivizing the development of energy efficiency, and energy conservation.

ASSOCIATE MEMBER ROSENFELD: John, John. I think you've got the idea. I would spend a minute or so hearing from staff how it got set up.
this way.

MR. SHIRAKH: Michael brings up this points --

ASSOCIATE MEMBER ROSENFIELD: Michael;

I'm sorry.

MR. SHIRAKH: Michael Day. In early November, right about when we were ready to release the 45-day language. I guess he got a new job at the time. So, he became interested in this topic.

And we've been talking to him, and what we're recommending that he did pursue a compliance option. And, you know, Michael's becoming an authority on --

(Laughter.)

MR. SHIRAKH: -- compliance options, so that's what we're recommending that, you know, his industry, if they're interested further, they can pursue this through a compliance option.

PRESIDING MEMBER PFANNENSTIEL: Does that make sense?

MR. DAY: It does. I just wanted to bring up and say thank you to the staff that we have talked about this. We've recognized this.

But I wanted to flag it as a pretty
important item, and it's something that we'll be
taking up after the language has been adopted as a
compliance method.

Thank you.

ASSOCIATE MEMBER ROSENFIELD: Okay, I
think you got your idea across. But there's no
problem. I mean I'm a little puzzled. Seems like
you're basically bashing your way through an open
door.

MR. DAY: Well, there is a problem,
Commissioner Rosenfeld, with all due respect. If
my machine, on a peak day, is actually performing
at 40 EER, but under the code it's only allowed to
claim 8.9 EER --

ASSOCIATE MEMBER ROSENFIELD: But you get
the compliance options, don't you?

MR. DAY: We'll be working on it.

PRESIDING MEMBER PFANNENSTIEL: Bruce.

MR. MAEDA: Bruce Maeda, CEC Staff. I
want to point out that the reason we ended up with
these particular results had more to do with water
consumption than with the energy impacts of
evaporative coolers, and also comfort concerns.
So, those issues will also need to be addressed in
the compliance option, as well.
PRESIDING MEMBER PFANNENSTIEL: Thank you, Bruce.

MR. SHIRAKH: The water agency, they're very critical of us for trying to increase water usage.

PRESIDING MEMBER PFANNENSTIEL: That normally is an issue.

MR. DAY: And there's certainly a way that you can handle that with a maximum in terms of gallons per ton per hour. But putting a hard cap on energy efficiency which restricts the performance of something to a minimal fraction of what it really does is probably not the best way to do it. But we'll be talking in the coming months.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. DAY: Thank you for your time.

MR. PRICE: Good afternoon. My name is David Price and I'm with Quality Verification Services. We're a California company who works with over 115 heating and air conditioning contractors statewide in helping them comply with Title 24, mostly residential.

And in echoing what Anne Marie talked
about from enalasys in some of the wording, the contractors that we are working with have found it quite frustrating, not only that a lot of the contractors are not complying, but the ease of compliance for Title 24 is quite frustrating.

And as a result of that the issue between the CF6R and the CF4R forms has been a very major frustration for the contractors in being able to utilize the 1-in-30 program that's out there. And as a result and the way that the forms are written are mainly for new construction anyway, it's quite confusing.

And so we echo that. We would like to see the language be changed from may allow to shall, which would help alleviate a lot of that problem so that the building departments will recognize that program.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thanks.

Other comments on the res?

Brief summary, Charles, of the nonres.

MR. ELEY: Okay, thank you. Like the residential manual there's been some reorganizational changes. What used to be chapter 7 is now relocated to NA-1, and this deals with
HERS verification for this limited case of ducts for single packaged units where there's an attic.

The field verification and diagnostic testing for those ducts has been moved to NA-2. And the acceptance tests have been moved to NA-7.

Next slide. There have been a number of changes to the way buildings will be modeled. The first one is a revised model for slabs on grade and below grade walls. This is essentially the same modeling procedure as is used for residences, which we talked about earlier.

The second thing is that we have a new way to model lighting controls. And this makes our assessment of lighting controls more accurate when time-dependent valued energy is considered. Previously lighting controls were modeled by reducing the installed lighting power. Now they're modeled by using the separate schedule.

Now, in the case of daylighting and some other measures this will have a larger impact during periods when TDV costs are higher. And so this is felt to be a more accurate way to model lighting controls. It's neutral, pretty much neutral in its impact. We're not offering more credit now or less credit now than we did before.
There's also a procedure to explicitly model daylighting under skylights. Previously we had to -- we used the power adjustment factors for daylighting under skylights. Now the DOEII modeling routines may be used for that purpose.

We have procedures added to model tubular skylights which are becoming more popular in some building types. We have clarified the modeling assumptions and modified them somewhat for cool roofs. And this is to specify the standard design as having a thermal -- .85 instead of .70, which is what the prescriptive requirement is, and a few other things.

A credit is added for fault detection diagnostic systems for packaged rooftop equipment. And language is added so that ballasted roofs or pavers that add mass to the top of the membrane can be explicitly modeled.

When we went to joint appendix 4 in 2005 everyone's required to choose a construction from joint appendix 4. And you can't modify the layers that come out of that. This allows you to do that in the case of ballasted roofs or pavers.

Next slide. We have -- the ACM now recognizes several new optional capabilities or
features that can get credit. The first one are multiple hydronic circulation loops. And DOEII.1(e) which is a reference program doesn't allow this. But EnergyPlus and DOEII.2 and some of the more advanced programs have a way to model multiple hydronic circulation loops. And this could be used to more accurately approximate the benefit for a number of HVAC systems.

There's also a procedure offered to give credit for underfloor air distribution systems for conventional thermal energy storage systems where you would have a chiller that makes subcooled brine or ice. And then there's also a optional capability for direct expansion energy storage systems. So, all four of those have been added as optional capabilities.

Next slide. There's --

PRESIDING MEMBER PFANNENSTIEL: Charles, would you check and make sure your mike is on. Thanks.

MR. ELEY: Thank you. Maybe I'm speaking loud enough that it didn't matter; hopefully I was.

PRESIDING MEMBER PFANNENSTIEL: But it doesn't pick up on --
MR. ELEY: Okay. There's two miscellaneous changes. There have been some revisions made to the reference method comparison test to clean those up and make them more fair.

And then a new appendix has been added which is related to the direct expansion ice storage system. And this new appendix E contains some DOEII.1(e) code or function which is used to estimate that benefit.

And that's pretty much it. Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thanks, Charles. Comments, questions on the nonresidential ACM?

MR. SHIRAKH: I think Jon McHugh has got some.

MR. McHUGH: Hi. This is Jon McHugh with HMG on behalf of PG&E. And I came to talk about a proposal we made in June related to the default EER calculations for small air conditioners that are rated using the SEER.

Next slide. So the federal efficiency standards for single phase air conditioners that are less than 65,000 Btus per hour have a minimum efficiency requirement of SEER 13, or seasonal...
energy efficiency ratio.

And the state is preempted from actually requiring efficiency of air conditioners, but -- next slide, please -- the state can give compliance credit for air conditioners that have higher high temperature performance as represented by the energy efficiency ratio.

The SEER is rated at 82 degrees; includes cycling. And the EER is rated at 95 degrees and is at full output.

Next slide, please. And in the residential ACM you have this type of equation that looks at the SEER, strips off the fan energy so you get the SEER, no fan. And then compares that to its actual efficiency at 95 degrees. And linearly interpolates between 82 and 95 degrees.

And the current default assumes that a SEER 13 air conditioner has an EER of 10. And that's sort of represented by that red line. And as an example, showing the green line would illustrate how an EER 11, SEER 13 piece of equipment would be modeled in the residential ACM.

So you see that there's little change at 82 degrees and quite a bit of change at 95 degrees when we have not only high air conditioning loads,
but also TDV is valued at its highest.

Next slide, please. Last time in June I presented the information showing that both the CEC's database and the ARI database indicates that less than 10 percent of equipment have EERs that are less than EER 10.

Next slide. So, at that meeting I was asked by staff if I would take a look at the actual sales of product in the market, because potentially the lowest performing equipment might be the high volume sellers. Since that time we contacted distributors that represent over 100,000 SEER 13 units sold in California. From those interviews nobody was reporting sales of less than EER 10 equipment. And, you know, some people were actually selling quite a bit of the 11.5 EER equipment.

So, as a result, currently when a SEER 13, EER 11 unit is specified, and the EER is verified by a HERS rater, from our perspective unearned credit is given. That unearned credit allows someone to weaken the stringency of the rest of the standard.

And in the hottest climate zones the credit is the greatest. And, of course, in the
hottest zone, climate zone 15, there's a 7 percent, from our perspective, unearned compliance margin that can now be traded away for more windows, higher SHGC, all the various features that now affect the efficiency of the building for the life of the building.

And this is shows that in our cool climates this does not really have a huge impact on the energy consumption of buildings. But in the hotter climates, essentially the Central Valley where peak demands are the highest and the energy consumption in the summer is the highest, this has a substantial impact.

Next slide. In talking with our colleagues from CalCERTS and CHEERS, currently approximately 10 percent of HERS ratings includes the EER credit.

We always try to be very conservative so that we're erring on the side of being too low rather than over-estimating our savings, if we just assume that those ratings were evenly distributed across the state, where, you know, half of the portions of the state there's really not that much benefit to the HERS EER rating, if we take that most conservative estimate we see
that the energy savings just from making this
slight little change in the ACM would save about
1.6 gigawatt hours per year, and about 3.7
megawatts of demand.

And just to put this in perspective, all
of the measures that are proposed for the 2008
standards, all the residential measures, this
demand savings is approximately 12 percent of all
the other residential measures. Has a huge impact
on CO2 emissions. And, as I said earlier,
basically is changing a single number in the EER.

So, like this Commission to consider
change to the ACM.

PRESIDING MEMBER PFANNENSTIEL: Thank
you. Other comments from staff on that? Bill.

MR. PENNINGTON: Yeah. This matter came
up very late in our workshop process, and we felt
like it was too late to be considering. There
also are perhaps tricky preemption issues related
to the idea. And so we felt like we were not in a
position to consider it in this round of
standards.

I think it's a useful thing perhaps to
consider for the next round of standards.

PRESIDING MEMBER PFANNENSTIEL: You
don't think between now and the issuance of the 15-day language you could do some more investigation? Especially into the preemption question is always tricky. But if it is something we can do, you might want to see if there's something we could do. We can talk later, but, you know, clearly it's an interesting --

MR. SHIRAKH: There's also an interactive effect that's in this measure, it's supposed to be on -- there's an interactive effect within this measure, and the air conditioning sizing calculation credits. And so we've been negotiating with ConSol and CBIA. So this impacts all those projects, as well, too.

And we thought this was not the right time.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Pat.

MR. EILERT: Thank you. Pat Eilert with PG&E. We, of course, at PG&E are standing by ready to help if you can work it in. Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thanks, Pat. Other comments, questions on the nonresidential ACM manual?

MR. WILSON: Jackie?
PRESIDING MEMBER PFANNENSTIEL: Yes,

John.

MR. WILSON: Just want to say one thing related to this issue that Jon and PG&E raised. And that is in the energy bill this year we tried to change the preemption as it relates to Title 24. And take out or modify the clause that requires us to use NAECA minimum appliances in setting the budgets, which I think does relate pretty closely to what you're suggesting.

And I think your analysis shows the magnitude of savings can be quite large. And, of course, if we actually tried to optimize HVAC equipment, even going beyond what you are suggesting, the savings would be huge.

And so we didn't get it into the bill this year, but we actually came closer than I expect to. And so I think there will be future opportunities to get something like that into NAECA and like to call upon some friends in the room here to help with that.

PRESIDING MEMBER PFANNENSTIEL: Good information, thanks.

All right, sounds like we have finished the review of the ACM manuals. Nothing else here.
Now we're going to talk about our review of the negative declaration. Rob.

MR. HUDLER: Rob Hudler from the Energy Commission. First, I'll apologize for hiding out there, but I've got a really bad cold, so.

MR. RAYMER: Thank you.

(Laughter.)

MR. HUDLER: As part of any mandated requirement the California environmental protection requirements require that we do an analysis to determine if we have any significant environmental impact related to the legislation or regulations we propose.

And so in response to that mandate under the code of regulations, staff undertook, as the lead agency for these proposed requirements, to determine if there's any substantial evidence that we would create a significant environmental impact.

And we obviously have the option of either doing an initial study with a negative declaration or if we do determine that there is a significant impact, we would have to have done a complete EIR.

Staff's findings basically is that we
found that the energy efficiency standards concludes that there were no significant impact on the environment, and that staff did, in fact, recommend that the Energy Commission adopt a negative declaration for the 2008 building energy efficiency standards for the residential, nonresidential and outdoor lighting standards.

There's a bunch of data that we generated to that. If someone has any questions I can respond.

PRESIDING MEMBER PFANNENSTIEL:

Questions from the dais? Any other questions in the room on this?

Good job. Moving along. I'm sorry, you need to go to the microphone.

MR. SPLITT: Are we also talking now about the ISR, initial statement of reasons? Or is that later?

MR. SHIRAKH: There is a general comment period that's coming up right after this. If you wish, you can --

MR. SPLITT: Well, but -- initial study, isn't that also the initial statement of reasons? It's not? It's something different? Okay, thanks.

PETERS SHORTHAND REPORTING CORPORATION  (916) 362-2345
PRESIDING MEMBER PFANNENSTIEL: So there isn't anything else on the negative dec? Okay.

Now is the time that we are open for any other general comments --

(Laughter.)

PRESIDING MEMBER PFANNENSTIEL: -- on any part of what we've covered today, or generally the 45-day language. Okay, go ahead.

MR. SPLITT: Okay, it's Pat Splitt from APP-TECH, again. And my first comment has to do with the initial statement of reasons and HERS requirements.

I'm not against the HERS requirements, but I don't believe that they've been properly adopted right now, and I'd like to see at this stage of the game we'd finally get around to doing it right.

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. In this sense, the HERS requirements are not even mentioned in the ISR. They're just not there.

The current HERS rules in the ACM
manuals are underground regulations, in my opinion, that are totally unenforceable. They are first inserted into the ACM manuals in 1998. The summary of the changes listed in that manual 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.

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 CEC policy.

And since they weren't correctly adopted then, you can't avoid going through the adoption procedures now by just saying, oh, we're just moving them from here to there and assuming that everything was all right back there. It wasn't all right back there.

And I haven't said anything till now because I was assuming we were going to fix this. But it's not clear that you are. So I would just -- I'm sure the HERS people are ready to pounce on me. But I'm not against it, I'm just wanting you to do this right for a change.
And you started to do this by trying to move these regulations from the ACM into the appendices, but you have to go through the whole procedure. You can't just slip them in from some mysterious crack. You have to start from scratch.

And it's very clear that 1998 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 energy standards. And that only program vendors would ever look at that thing. And you can't say that it had any sort of public review.

So, I'd like to hear what the Commission is thinking about. Do you still have time to start this thing, little pieces, over, like mentioning it in the ISR? Is there like 45-day language for that, that you can make changes?

PRESIDING MEMBER PFANNENSTIEL: We will refer this back to our attorneys that we've been working with on this.

MR. SPLITT: Okay. I have other things. Well, just briefly, I'm sort of unhappy about all the problems I've been having over the years trying to get somebody to seriously listen to my concerns, which have a lot to do with the 2005...
standards and the procedures that I thought were
wrong then, which are the same procedures that are
being used now. And just even getting
communications publicized.

So I tried, I sent all the Commissioners
a 17-page report in January which not one of you
or anybody on your staff has even mentioned to me,
or asked me anything about, where I thought it
made some serious allegations.

One reason I made it sound serious
because I really wanted you to respond, and you
didn't. So, I made a mistake.

But, I have also tried to get paper
included into the workshops. And I sent stuff off
to the Commission on the 22nd of February to be
included in the workshop that next week. And it
didn't make it into the proceeding; it didn't make
it into the public comments mysteriously.

So, once I discovered that I bugged the
Commission again, and finally, right before the
last workshops, they, I thought, agreed to put
them onto the record for that workshop. But, they
didn't go into that workshop, they got slipped
into the public comments for the previous
workshop, which, you know, people were done
looking at months ago.

And the date that they updated that and put my documents in there wasn't updated on the cover sheet for saying when the last update was. So if you look at the last update date, it doesn't have my date in there. Someone would never know that my stuff was in there.

The actual objection I had, the protest, still isn't in there today. What I sent was a protest letter saying I wanted the process looked into and I attached the document I gave to the Commissioners. An expurgated version of the document that I did, to sort of make people around here a little bit happier, got into the public comment, but the original comment and my comments that I wanted considered didn't get in. Never did.

As a matter of fact, I even had Anthony Brunello, Deputy Secretary of Climate Change and Energy at the State Resources Agency relay those comments to the Executive Director. And they still aren't in there.

So I don't know what I have to do. Am I invisible? I mean --

PRESIDING MEMBER PFANNENSTIEL: I can't
possibly imagine why your comments submitted
presumably to the docket in this instance have not
shown up. I don't know of other cases where
information submitted to dockets, other than the
occasional administrative error, would not show up
in the record.

Certainly if it's there it should be in
the record if it was properly submitted. We
probably should offer it up again and we'll get it
into the record.

MR. SPLITT: Well, it's a little late to
have it considered at these workshops.

PRESIDING MEMBER PFANNENSTIEL: No, the
record of this workshop, the written comments are
coming in January 3rd.

MR. SPLITT: Right, but this was a year
ago. At any rate, there's one more thing I wanted
to mention that had to do with the HERS
requirements, just to put it on the record in case
people think maybe I'm imagining what the
Commission's policy was back then.

This is a cover letter from the 1998
energy efficiency standards, residential
alternative calculation method approval manual for
lowrise residential. This is a Commission
document. I'm not making this up. And there's a big note here that's in bold, I didn't embolden that, either, the Commission did. And it says: Note, the low rise residential alternative calculation method ACM approved manual is intended strictly for those persons who want to design a calculation computer program for use with the energy standards. Before such programs may be used to demonstration compliance with the standards, they must be approved by the Energy Commission through the process described in the manual. The residential ACM manual, itself, is not to be used for compliance with the energy efficiency standards."

Now, that's the Commission policy I'm speaking of. I'm not imagining this --

PRESIDING MEMBER PFANNENSTIEL: I'm sorry, what was the date on that?

MR. SPLITT: 1998, and that's when the HERS requirements were slipped into the ACM manual. The same document that has this statement on it has those HERS requirements in there. And that's where they originally came from. And they haven't been adopted.

And I guarantee you that OAL would look
at this and they'd agree with me. And that I have, in the past, brought actions of the Commission to the Office of Administrative Law, and had them declared illegal. Packages 1 through 6 back years ago, but those were declared illegal because the Commission placed them in the residential manual instead of in part 6.

So there's a precedent. I set the precedent. If it's illegal for you to try to get things enforced by putting them in the manuals, how can it be more legal to do it in a document where it's strictly prohibited?

If I go to OAL, the HERS requirements are illegal and they're thrown out like that. So I'd suggest that maybe we get together somehow and get you guys to do it right this time.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. SPLITT: Thanks.

PRESIDING MEMBER PFANNENSTIEL: Further comments, other comments? Yes, Mike.

MR. HODGSON: Commissioners and staff, I'd like to make general public comments from the California Building Industry Association. We were kind of waiting till we got through the different
residential manuals, et cetera, trying to come back and -- is Max still here? I wanted to mention ASHRAE62(2) just to frighten him. Oh, he's not. So, we made it so far without any discussion on that.

First off, I'd like to compliment staff and the consultants. The 2008 standards are probably the most organized update of the standards that I've had the pleasure of working with. And unfortunately, I can admit this is my eighth revision to the standards.

And a lot of you are laughing, but a lot of you were here --

MR. SHIRAKH: Yes.

(Laughter.)

MR. HODGSON: -- during all of those standards, right? The only one who's not are probably the people in the front of the room, right. Compliments especially to Mazi, Bill, Charles, Ken and Bruce for their work and being responsive.

A lot of dialogue going on, a lot of cooperation, state's in some type of significant issues from the 2001 electricity crisis. And now we're trying to deal with AB-32, so there's a lot
of balls in the air and a lot of people to satisfy
at the same time.

CBIA will support this revision because
the residential new construction industry will do
their part in supporting California's energy needs
and in reducing carbon emissions. The increase in
stringency, by our analysis, is approximately 20
percent. This is the largest increase ever on
record.

This costly increase occurs when the new
housing market is at its lowest rate in recorded
history since 1980. And we're warning you that
there is going to be some significant backlash
from some of our members. But Bob will keep them
under control.

(Laughter.)

PRESIDING MEMBER PFANNENSTIEL: Good to
know.

MR. HODGSON: All right. CBIA supports
these standards, as I mentioned previously,
because we think these are good for California's
future.

We have a couple concerns that we'll
have expressed, and we would actually like to go
beyond those concerns and have two global concerns
that we think have affected these standards, have
come up in conversations among ourselves, and
today by testimony.

Probably the largest concern we have is
enforcement of the standards. I mean it's a
known, I don't want to call it a fact, but there
are numerous studies out there that say that
there's very poor enforcement of the Energy Code.

This is due partly to complexity; it's
due to rapid change; it's due to a complicated
market; it's due to the construction process,
itself. The ITRON study, which was an overview of
2003 housing showed that about half the homes were
not meeting compliance in the State of California.
These are new homes.

The CEC Staff has recently testified at
hearings that potentially 30 percent energy
savings are left on the table through lack of
enforcement. And the BII field study last year on
third-party inspections reported on the CF6R and
CF4R, which is our enforcement forms in the field,
approximately 65 percent of the marketplace is in
noncompliance.

So I mean these are very alarming
statistics. And I think they point directly to we
need to all do a better job. And we're here to say that we'd like to do that, and we're willing to cooperate with staff, with especially our partners at CALBO to improve the enforcement of the standards.

The enforcement of the standards to us are very very important because they prevent potential liability to the construction industry. In addition, the CEC is predicting their energy savings from these standards. So if they're not accurate or reliable then I think we both have problems.

We understand that you're beginning to develop an enforcement team. We fully support this and their actions to level the playing field. We're also concerned that as the standards get more and more complex we think this is probably the key cause of the enforcement issue.

And so in a slow market we emphasize again it's time for training, it's time to get simple, and it's time to work well with CALBO.

The second area of concern that the building industry has is the lack of impact of this energy code on the retrofit market. There are 13 million homes in the State of California.
There are approximately 120,000 homes, and I'm talking about detached and attached, added each year. That means over a ten-year period of time less than 10 percent of the market is built.

CBIA is disappointed at the lack of input from the AB-549 process. As a simple example, if ceiling insulation were installed in homes that were built before the Energy Code, in all homes before the Energy Code, we would save 5 billion kilowatt hours a year. That's over 50 times greater than the savings from this, the 2008 Energy Code, on residential new construction.

CBIA would like the Energy Commission to focus on improving energy efficiency in the existing market and we have two requests. The first is at the adoption of the 2005 standards—

MR. HODGSON: --CBIA asked that the HERS rulemaking for existing housing be reinstated and completed. That was three years ago. We received affirmation from the Commissioners at that time that this would be done. It's never been completed.
Having HERS systems available to homeowners allows them to make educated choices for energy efficiency. CBIA repeats our request for the HERS process to be completed for existing housing. This is a very useful tool and it's nonexistent in the market.

The second request is CBIA would like to work with the Energy Commission on the impact of energy efficiency in existing housing. This effort will center on HERS ratings of homes at the time of sale, and possibly requiring improvements in their efficiency at time of sale.

CBIA will ask for the CEC's assistance, both technically and politically, and their expertise in developing possible legislation in 2008.

We look forward to working with staff. We would like to resolve our maximum cooling capacity issues and our compliance documentation issues. And we thank you for the opportunity to comment.

PRESIDING MEMBER PFANNENSTIEL: Thank you, Mike. You may have noticed in our Integrated Energy Policy Report that the Commission adopted a week or so ago, we did point out that time-of-sale
retrofit was essential. And we proposed that legislation be sought to make this happen as soon as possible. So we look forward to working with CBIA and others on that legislation.

MR. HODGSON: Great, thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Yes, please.

MR. BACHAND: Mike Bachand from CalCERTS, Commissioners. I just want to remind maybe the Commissioners and other people here a little bit about the HERS industry. Because I was a newcomer to the industry about five years ago in 2003.

At that time there were about 300 HERS raters statewide. Now there's close to 2000. The industry has evolved from a niche industry to a strong, revenue-based, productive, competitive, growing-pains-type of industry.

Yeah, there are some problems out there. There's HERS ratings that are not being done correctly, and there's other issues.

But I urge the Commission to think about the strength of the HERS tool that they have now compared to what many of you have, you know, grown up with, so to speak. And so I want to reiterate
that there's a lot of competition out there.

Prices have come down. That affects cost
effectiveness of HERS rating and sampling.

And it's a tool that should not be
weakened in the middle of its growth. It's at a
time right now when strengthening its capabilities
and its influence could be a very good thing, and
can demonstrate kilowatts of energy savings.

Thank you.

PRESIDING MEMBER PFANNENSTIEL: Do you
market that service? Do you promote it? Are
there advertisements around promoting the fact
that individual residential consumers can contact
a HERS provider? How does that work?

MR. BACHAND: There's a couple of people
in our organization -- staying in my organization,
arms length from us, we're just an oversight
agency -- but some of our raters do that. They
have a consumer program that they market,

themselves. We don't personally market that. I'm
not sure that that would be an appropriate thing.
I'd have to examine whether that's an appropriate
relationship between me and raters. It probably
would be okay.

But there are a few people out there
doing it. It's very fledgling right now. And it's not well marketed from our standpoint.

PRESIDING MEMBER PFANNENSTIEL: Because I don't think I've seen ads for this. I don't think that --

MR. BACHAND: I'd certainly be willing --

PRESIDING MEMBER PFANNENSTIEL: -- as a regular homeowner that I would know where to call or I don't know that there are ads like this in the yellow pages, or other things that normal consumers would go and look for.

MR. BACHAND: Certainly. I'd be willing to entertain dialogue on that, too.

MR. PENNINGTON: Seems like maybe you're talking about two different things here. And the use of HERS raters for different purposes maybe as the core to the two different things.

I think you're talking about home energy ratings for doing an energy audit and identifying cost effective measures that you might do as a homeowner.

And I think you're talking about HERS raters being used for field verification for Title

24.
MR. BACHAND: Yes, that's true. I don't think those things necessarily need to be completely separated, but at the time they basically are.

PRESIDING MEMBER PFANNENSTIEL: Yeah, that's right. It's the same sort of skills was kind of what I'm thinking.

MR. PENNINGTON: It is.

MR. BACHAND: Same people and the same --

PRESIDING MEMBER PFANNENSTIEL: Same people, the same network, --

MR. BACHAND: The capacity out there for HERS raters right now, there's a lot of them standing around with their duct blasters ready to go to work, you know. There's lots of framers doing the same thing.

PRESIDING MEMBER PFANNENSTIEL: Right.

I think there's probably a lot of need for them, also.

MR. BACHAND: Certainly, certainly.

PRESIDING MEMBER PFANNENSTIEL: Thanks.

MR. BACHAND: Thank you very much.

Thanks, Bill.

PRESIDING MEMBER PFANNENSTIEL: Wait a
minute, Bob -- yes.

MR. SCOTT: Good afternoon,

Commissioners. My name's Robert Scott. I'm the
Executive Director of California Home Energy
Efficiency Rating Services, or CHEERS.

I was with CHEERS back in 1993 when we
were in this room and there was almost a
regulation for HERS, for home energy rating
systems, that was adopted. That kind of did not
happen.

Our focus had been on, for CHEERS, was
in existing housing because Title 24 was there for
new construction. I can assure you that one of
the targets that CHEERS is moving towards is
really looking at those 13 million existing homes
to make sure that we can address that.

And we're wholly supporting that and
will be working in that area. I think it's been
great for the HERS industry to have had the
ability to have HERS raters doing things, getting
a role, being recognized in the building process.
And it's been very helpful.

And I think it will only be, having done
that, that it will help the existing home programs
develop in the same way that this has.
So, thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you very much. Bob Raymer.

MR. RAYMER: Thank you, Madam Chair.

Bob Raymer with California Building Industry Association.

And to follow up on some comments that you were making, I think that's a very attractive move that industry would embrace.

You may or may not be aware the Building Standards Commission and several other agencies are about halfway through the drafting of the first set of green building standards for the state. These are going to go into part 11 of Title 24. And industry, particularly the building officials, are going to need some assistance in getting these things verified.

The indoor air quality and the ventilation, the water conservation measures with at least on the inside of the house, and a number of the other provisions that are going into the first set of guidelines.

It would be very useful since the building officials are going to have a lot of their time taken up in other areas, unrelated to
any of this, it would be good if there was an
industry that could move in to help us verify all
this.

I'm not saying that, you know, energy
raters should automatically do this, but it
certainly would be a way to increase the
marketing. And obviously, there's going to be a
market for this in the existing housing stock. I
know for a fact that there's going to be a bill
introduced regarding energy audits at time of
sale.

And so there's probably, given what the
PUC and what you have been doing, in terms of, you
know, long-term policy, I suspect we're going to
see dozens of bills in this area. That's just one
of them. And this could help fill that void.

And to go on what the building officials
were saying this morning, yeah, they are spread
thin. The market is going down, but so is their
staff. And at the same time their staff is going
down, the state is making the first transition
from an old type of national building code as our
basis to a new one.

That transition will get made. It
starts on January 1st. But it's going to take
them about a year to two years to kind of get the bugs worked out of that.

At the same time there's another of other peripheral issues such as disabled access, where the former Attorney General has done a few things. It's increased their desire to do a better job of enforcing those provisions. They're just spread really thin.

And if there's some way that perhaps the home energy rating service can kind of move into this area to assist them at a level that they find comfortable with, that would be wonderful.

So, I like the direction you are heading with that, and we would support that. Thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Further comments.

MR. SPLITT: I have an Irish and Polish background, and a bit of a temper, so I decided I should sit down for awhile, but I still had a couple more things to say.

Basically I'd just like to recommend that I think there must be some slop time that you fit into your schedule to allow for things to go wrong until the final date when you have to approve the standards.
And I'd like to see if you'd move that
slop time forward to give us a little bit more
time now to go over a lot of these concerns that
people have, to try to, as much as we can, in the
time that's allowed, try to fix things now.

I don't think it would be a problem to
put it off -- I don't know, could we put it off
six months? I don't know how much -- I know
there's got to be some time in there. But I don't
want to, you know, monkey up the whole thing by
blowing it out of the water, but I'm sure there's
time that we could use to look at this thing more
closely, the items that people are concerned
about.

In particular I think some of the
procedures and regulations are just totally
unclear right now. Without knowing what the
ultimate procedure that we come up in the
compliance manuals are going to be, what the
process is going to be. Then we can look back and
see if the regulations actually match up with
that.

Because right now I know people that go
to all these workshops, they're working these
little details and they're into the detail, but in
their mind they imagine how it's all going to
work. And in everyone's mind it works fine. But
everyone's imagining something different.

So, I think it would be good if we could
delay this as long as we can. And for those
sections that really have a lot of questions,
maybe the contractor who's working on the manuals
could just concentrate on trying to get the
procedures for those pieces close enough to
reality so people could review them in context
with the regulations.

Like right on top of my mind I'm
thinking of all the acceptance stuff for
daylighting for skylights. I can't make any -- I
don't know what they're talking about. And
whoever wrote that probably it all makes sense to
him because he's seeing what happens. But it's
not in the words. And it's not possible for
people to really say yea or nay because it's just
words, it doesn't mean anything.

So I'd like to propose that we delay
things as much as possible. This would be in
light with what the building officials want. They
want more time to discuss this.

Try to finish or at least put together
as much as you can in whatever period of time we
have, the procedures that we imagine people would
use to implement the standards that we'd be
putting into the manual. So we can then look back
and see whether that works.

I'm assuming we're going to do that, and
all of a sudden we'll have our procedure. Then we
look at the regulations and say, well, wait, they
don't match.

So we will have a chance then to change
the regulation to make it something that actually
is do-able.

So I think that's one of the big
problems now is this procedure we have where we
adopt the regulations and then we do the manuals
later. And anybody has a problem, we'll fix it in
the manual. And what we've just heard, that the
manuals aren't regulations. No matter what you
put in the regulations it's not -- in the manual,
it's not going to fix a problem in the regulation.

So, if you identify a problem if you can
see a conflict between what you come up in the
manual and the regulation, you got to still have
time to fix the regulation. Or else you're going
to be waiting till 2011.
And along with all AB-32 or whatever all
of those things were, there's SB- was it 109?
That by 2010 requires a 20 percent reduction in
electricity use. Was it Simitian 2006?

PRESIDING MEMBER PFANNENSTIEL: That's
an increase in the renewable portfolio standard?

MR. SPLITT: I think so. Well, at any
rate, it mainly had to do with photovoltaics. But
it's based on 20 percent of the total electric
use. So they want 20 percent relative to the
electric use. So if the electric use is going up,
it's going to be harder to get that 20 percent.
And if the electricity use goes down because of
conservation, it'll be easier to get that goal.
And this is in 2010. So you can't wait till 2011
to fix these problems.

So I think you really should try to put
off as much as you can. I'm not trying to screw
everything up. I'm just trying to get these
problems fixed that I've been living with for
years.

So, anyway, that's my suggestion. Put
things off and try to get that done now instead of
waiting till 2011.

And then I just want to make one final
comment about the City of Santa Cruz, my hometown, where I work. That they have adopted green building ordinances. For last year, to get a building permit, either residential or nonresidential, on top of the Energy Code, you have to meet green building requirements, get so many points depending on whether you just want a permit or you want accelerated permit approval, or get a green building award.

Well, they're going to revise those programs in January. And one thing they're going to do is the chief building official will be adding a requirement for mandatory compliance with a quality insulation installation requirements. And that'll be a requirement to get a building permit. And they're not doing this because the CEC said they have to do it. They're doing it because their own constituents want it. And they developed a citizens group that went to the city council and said we want tougher standards. And they're going to make this mandatory, quality insulation. Because it makes sense.

So, I don't think where the Commission is right now is leading. They're trailing, and
people are just leaving you behind. So I think you've got to do something to fix this thing, it's just way too complicated.

Anyway, I'm done now, for sure. Promise.

PRESIDING MEMBER PFANNENSTIEL: Thank you. Sir.

MR. ACKER: Commissioners and Staff, it's a pleasure being here. Thank you for the invitation. Name is Larry Acker. I represent Advanced Conservation Technology, Inc.

And I've got a couple of issues that I'd like to bring to the table if I might. In regards to the efficiency standard on the water heating side, one thing becomes very apparent to me and it was brought out earlier today, that insulating hot water lines is a slam-dunk; it's a no-brainer. I think all water lines that are hot water lines should be insulated. I'll just carry that through from the previous comment that was made. It's the cheapest way to save energy in your home.

In regards to the hot water distribution side, I think it's been agreed upon by the staff that if you have hot water distribution that is controlled, or electronically controlled, it's
definitely the best way to supply hot water in the house.

In regards to the motion sensors that was part of the issue that was brought up, everybody seems to believe that motion sensors require a little more energy than activating the system by a button or some other form. And I've expressed this in a letter dated June 16th to the staff, to try to explain how a motion sensor that we use actually works.

So what I did is I actually brought one. If I could demonstrate this. Motion sensors, as we know them, send out signals constantly. That is not efficient for what we need to use.

There's two things that make electronic activations work effectively. Number one, a motion sensor that only sends out a signal when there's a demand for it. This particular motion sensor is not a privilege motion sensor. You can buy these, they're just a little more expensive.

Basically what this one does, it sends out a curtain, goes out about a foot wide and about 20 feet deep. And it can be adjusted down to four feet, which means that my curtain stops four feet from wherever that motion sensor is.
This also sends out only one signal.
That one signal is picked up by electronics in a pumping system that moves water on demand. This goes into a lockout until someone actually steps out of that room, and it has to reset itself two to three minutes later.

That means that sensor will not activate or keeps constant motion going towards the pumping system.

Now, the key to all electronic pumping systems are the electronics in the pump. They work on a delta T, which means that if your water in the line is already established at a 60 degree temperature, when hot water moves towards that line, the pump shuts off about 6 to 8 degrees above that ambient temperature. So it will shut down about 68 degrees. Why? Because within two feet you have 120 degrees.

If somebody reactivates the system, or that motion sensor sends another signal, the pump and electronics won't go on because it already indicates hot water is there.

There's two times a demand -- or two times a circulating pump should never run. One, when there is no demand for hot water. The other
one when there's already hot water in the line. That takes care of about 98 percent of the time a pump should pump water through a system. This should allow as much credit as a button-activated system. Now, the study that was done by NREL with Building America in Florida this last year, they were studying homes and the energy load factors on those homes. They found out they had a much higher load factor than they should have, couldn't isolate the case. They finally isolated it that they had a recirculating system that was running constantly. They put in a electronic pumping system with three motion sensors.

I'll read you the results. From before 525 therms a year, .06 therms for 8760 hours. It went from 528 therms to between 5 to 10 therms per year. On a motion sensor. The point that I'm trying to bring up is that on looking at your controls for circulation of hot water, you need to take into consideration electronic pump systems and also consider motion sensors as part of your buttons, as far as controls. There should be any less or any more. It probably would represent less than $1 a month,
top rated difference between a motion sensor and a button. It's negligible.

I'd like to thank everybody for allowing me to come. Thank you.

PRESIDING MEMBER PFANNENSTIEL: We'd like to thank you for your comments. Thank you.

Further? Any final comments from staff?

MR. PENNINGTON: Just like to reiterate the desire to have written comments by January 3rd. And that would be very helpful for us to get prepared for 15-day language.

PRESIDING MEMBER PFANNENSTIEL: Let me close with a comment on timing. We have heard today some pleas for extending the timing and taking a little longer, some months, six months, something, to give more people more time on this.

I have to say, and staff knows this, that I've been one of the ones who have really been pushing us to get going on this. I feel very strongly. I think Commissioner Rosenfeld said it earlier very well, that we do face climate change, and we do face issues that more efficient buildings can really help, can really address.

We're all part of the solution to what we can do on climate change. And putting if off
until we get it perfectly designed is not going to save the planet. We need to keep moving on this.

To the extent we can make some of the changes people have asked for, some of the clarifications, some procedural changes, to the extent we can do that concurrently, we certainly will.

To the extent we are able to take the information today that people raised and in the written comments and improve what we have for the 15-day language, we intend to do that. That's what we're going to do.

And then even after the 15-day language goes forward, there'll be some processes that can continue while that language is going through OAL.

So, there will be improvements. And when we finally have adopted language fully implemented in California, it will be better than it is today. That's the nature of this process. That's why we're all here.

And we appreciate the comments. Certainly the technical advice, and the changes, and all the information. That's how we make our products better.

But at the end of the day we really do
need to keep pushing to have better building
standards in California. We need to incorporate
what is cost effective and technically feasible
into Title 24. We need to be ahead of what we
can.

We need to move faster than people might
be otherwise comfortable, because we are the most
cost effective way of fighting global warming.
People represented here have the ability to make
that happen.

So, I'm going to keep pushing the staff.
I want to do so wisely, so I do want to be
informed, and sitting here today helped me a great
deal. I learned a lot, and I know perhaps better
what to look for in the standards.

But having heard a whole day's worth, I
still want us to move these standards forward, get
them adopted by the Commission, and then approved
by OAL so they can be implemented as soon as
possible.

Commissioner Rosenfeld, final comments?
ASSOCIATE MEMBER ROSEN Feld: Back you
up.

PRESIDING MEMBER PFANNENSTIEL: With
that, we'll be adjourned.
(Whereupon, at 3:32 p.m., the hearing was adjourned.)
CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Hearing; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said hearing, nor in any way interested in outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of January, 2008.

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