energy systems, and there are really tremendous
benefits for our energy system of low embedded
energy water supply options like water reuse.
So I'm pleased to see this kind of
research. Thank you.

COMMISSIONER ROSENFELD: Again, on
behalf of the R&D Committee, and with thanks to
the staff, I move the item.

COMMISSIONER DOUGLAS: I second the
item.

CHAIRPERSON PFANNENSTIEL: All in favor?

(Ayes.)

CHAIRPERSON PFANNENSTIEL: Thank you.

MR. ROGGENSACK: Thank you.

CHAIRPERSON PFANNENSTIEL: Item 10,
possible approval of an initial study and adoption
of a proposed negative declaration for the
environmental analysis for the 2008 building
energy efficiency standards. Good morning, Mr.
Hudler.

MR. HUDLER: Good morning,
Commissioners. As part of the California
Environmental Quality Act regulations developments
for adoption of regulations such as the 2008
regulations must be reviewed for potential
significant negative environmental impacts.

As part of the 2008 adoption process staff did undertake an initial study and prepared a statement of negative declaration in a draft report. And sent that report out for comments for a 30-day period, which we have not received any comments.

Basically the findings of that report were that the cumulative effects of the standards would be very positive. In fact, a significant reduction in air emissions. And, of course, there are those benefits of the energy savings in which per-year of construction there would be an estimated 549 gigawatt hours per year of electricity, 18 million therms of natural gas and 29 megawatts of electricity demand reduction.

Staff has made some minor modifications in the report to be in line with changes that were made to the standards. And staff requests the Commission's approval of the negative dec initial study.

CHAIRPERSON PFANNENSTIEL: Thank you. We do have one person who'd like to speak on this item, although the card said only if an issue arises. I'm not sure what that means. Now, okay,
does not want to speak at this time.

Given that, is there a motion to adopt
the negative declaration or are there comments?

COMMISSIONER BYRON: May I ask a
question?

CHAIRPERSON PFANNENSTIEL: Of course.

COMMISSIONER BYRON: Having not been
through this process before, of standards, perhaps
Commissioner Rosenfeld has been through it more
than once, but is it typical, or is it required of
us to do a neg dec, negative declaration on
standards?

MR. HUDLER: Yes, for anything within
the appliance regulations or the building
standards, any regulatory action requires a review
of the potential environmental impacts.

COMMISSIONER BYRON: Okay, I should
probably know that.

I also noted that in the back of the
appendix A on the neg dec, there were just a
couple of items that, you know, didn't fall in the
no-impact area, they were in the less-than
significant. And one of them was indoor air
quality.

Was there any concern raised by the Air
MR. HUDLER: No. Specific to those comments we received no comments on that at all.

COMMISSIONER BYRON: Okay. Thank you.

COMMISSIONER ROSENFELD: I'd like to make a comment and compliment the staff. It's unfortunate that this is just called a negative declaration.

(Laughter.)

COMMISSIONER ROSENFELD: You know, over the next -- Rob just said megawatts per year. I want to emphasize that that's the first year we're going to save 129 --

MR. HUDLER: Right.

COMMISSIONER ROSENFELD: -- megawatts. But, of course, we're going to have this standard in place, or a tighter standard, for decades. So I would sooner say per decade it's 1.3 gigawatts. And that's not just a negative declaration, that's darned good news.

So, with that, I'd like to move the item.

CHAIRPERSON PFANNENSTIEL: Before we get a second I'd also like to say I thought that the discussion, the analysis was very well done and
very clear.

I thought reading through the neg dec document sort of put a lot of what we've been working on in context. And so I thought it was quite well done. So, thank you.

The item has been moved. Is there a second?

COMMISSIONER BYRON: Second.

CHAIRPERSON PFANNENSTIEL: Further questions?

All in favor?

(Ayes.)

CHAIRPERSON PFANNENSTIEL: The negative dec is approved; thank you.

MR. HUDLER: Thank you.

CHAIRPERSON PFANNENSTIEL: Then we get to the main item, which is item 11, which is the 2008 building energy efficiency standards. Possible adoption of the 2008 building energy efficiency standards and supporting documents published as express terms of proposed regulations. Good morning.

MR. SHIRAKH: Good morning, Commissioners. I'm Mazi Shirakh; I'm the Project Manager for the 2008 update of the standards. To
my right is Bill Pennington; he's the Office
Manager for the building and appliances office.

I have a brief statement I'd like to
read. The 2008 update of the building energy
efficiency standards, which got underway in July
of 2005, includes dozens of new features and
improvements to the existing 2005 code.

The documents that are set for possible
adoption today include the standards document, the
residential and nonresidential ACM manuals, and
the reference appendices.

Some of the more significant highlights
of the improvements include, number one, active
coordination of the standards with New Solar Homes
Partnership, NSHP; calculation tools for field
verification protocols; recognition of the NSHP
participation as an alternative way to comply with
the standards.

New cool roof requirements for
residential and nonresidential steep sloped roofs;
new residential high-performance fenestration
requirements; upgraded swimming pool, spa and
water heating requirements.

Updated requirements for residential air
conditioning, refrigerant charge verification
procedures; proper air flow; thermostatic expansion valve treatment.

Introduction of electronic filing requirements for recordkeeping to enhance future compliance efforts; creation of referenced appendices as a support document for all standard related documents.

Improvements to the nonresidential indoor/outdoor sign and daylighting requirements; improvement to NFRC's site-built fenestration requirement; and the new compliance method approach, or CMA, which vastly simplifies compliance with the standards requirements.

And finally, the new envelope lighting and mechanical requirements for refrigerated warehouses, which is a new feature in this code.

For this cycle of standards staff conducted 16 days of public workshops and hearings. And received and responded to thousands of public comments. The results are significant improvements over the 2005 standards, with an anticipated 17 percent savings in the residential sector, and 7 percent in the nonres sector.

These savings are significant tools in meeting policy directives set by the Commission,
the Governor and the Legislature, including the
IEPR, Energy Action Plan, Green Buildings
Initiative, and Climate Action Initiative.

The 2008 standards team included the
Commission Staff and our consultants, Pacific Gas
and Electric, Southern California Edison, San
Diego Gas and Electric and their consultant teams.

We would like to acknowledge the efforts
of many organizations and individuals who have
helped us during this process, including CALBO,
which represents the building officials, CBIA and
ConSol, CABEC, which represents the energy
consultants, NRDC, organization representing the
roofing industry, tile, metal and asphalt
shingles, California Sign Association and other
individuals and organizations who provided
comments over the past three years.

Finally, the staff would like to
acknowledge the contribution of our late
colleague, Jon Leber, who passed away in February
of this year after a three-and-a-half-year battle
with leukemia. Jon was a brilliant engineer who
devoted 30 years to the building and appliance
standards. He was a major influence in the Title
24 standards being the most energy efficient
building code in the country and a model for others to follow.

For the 2008 standards Jon worked on making improvements to the technical details in the joint appendices until literally days before he passed away in February. He was the ultimate public servant; and the staff of the energy efficiency and renewables division would like to dedicate the adoption of the 2008 standards to Jon Leber.

So, with that, I'll be glad to take any questions.

CHAIRPERSON PFANNENSTIEL: Thank you, Mazi. I think there's some discussion that we could have, but let me turn to the blue cards. We have a number of parties here who would like to speak, and I think we should hear from them, and then we'll see if there's further discussion on the dais.

Start with William Callahan, Executive Director of Associated Roofing Contractors. Mr. Callahan.

MR. CALLAHAN: Good morning. Bill Callahan, Associated Roofing Contractors. I'll be brief both for the sake of my laryngitis and for
your sanity.

I would like to agree with Mazi on one thing, the proposed 2008 code is much improved over 2005. There were a lot of shortcomings, from our point of view, in that code. A lot of them have been addressed.

At the same time, the new code cuts a much wider swath through our industry. And it covers just about every type of roofing out there now, not simply low-slope nonresidential.

Now, the reach of the code has been greatly extended. Staff have been willing to work with us to craft a number of exceptions that help account for some of the conditions we actually encounter in the field.

Models are simulations of the real world. They don't account for everything that people actually encounter when they're on the wide variety of roofs that exist in the world.

So, from our point of view, the code is a lot more reasonable in 2008 than it was in 2005. At the same time, it's also a lot more complex. It's going to be very difficult for people to understand it, comprehend it and comply with it. It's going to be a big challenge to make
compliance manuals that turn this code into something that the average roofing contractor or building official or building owner can understand and work with.

We've been assured by CEC Staff that they'll continue to allow us to help them meet that challenge. And we do appreciate and thank them for that opportunity.

Thank you.

CHAIRPERSON PFANNENSTIEL: Thank you, Mr. Callahan. We thank you; we appreciate your comments. And we will also work with the staff to make sure that they have compliance manuals that meet that responsibility.

Marty Dunhill, Enterprise Roofing Service.

MS. DUNHAM: Hi, I'm Marty Dunham from Enterprise Roofing Service. I put together at midnight last night about a three-minute PowerPoint, that if you'll indulge me I would like to present in addition to my very brief comments.

First of all I wanted to thank both Mazi and Payam for including the contracting community in -- or listening to the contracting community. We asked for that in the last public hearing and
we were rewarded with some good attention. And as you know, they've been working feverishly to meet deadlines and present this modified Title 24 code.

   Essentially what I'd like to say in addition to that is that, as Bill touched on, a model is a model. And I've been 30 years in the roofing business. I'm accused of not being green enough because I see many problems that are sometimes encountered in the field which present challenges for the roofing contractor.

   And I was concerned when I went online yesterday and saw that Carlisle had sent a letter in that stated, gosh, you know, an industry standard is eight-inch base flashing and turnup around mechanical equipment and walls. And you just should make everybody do it regardless.

   Well, I'd like to just provide this slide show, it's only eight slides, as information to kind of show people some real world conditions. The fact of the matter is that in the industrial/commercial sector where I work, building owners have to provide a watertight structure. Food and shelter are about as basic as you can get. Many of these institutions have to provide -- have zero tolerance for leakage, whether it's a
pharmaceutical manufacturing plant, a laboratory, datacenter, a medical office building other than a hospital, they cannot afford to have leakage. In some instances they also cannot afford to spend money to pay a plumber, an electrician, an insulator, and HVAC mechanic to modify all the duct work and utilities that are related to mechanical equipment that's mounted on the roof.

So, in that vein I'm going to hop to the other podium and just give you a quick overview.

(Pause.)

MS. DUNHAM: I say real world tongue-in-cheek, but this is a roof that I looked at a couple weeks ago. It's a datacenter for a large hospital institution. And you might say, where's the roof. Well, it's under all that equipment. And as you can see, it's quite a challenge to figure out how to put a roof on it.

So some of the exemptions that are so -- you know, I know there's an exemption for hospitals, per se, but that really doesn't address places like datacenters and pharmaceutical manufacturing plants, refineries and many other instances where there's a phenomenal amount of...
equipment on the roof.

So this is just the kind of roof --
certainly there's a spectrum. Some are wide open,
but this isn't your average model of a roof, of
what a roof may look like.

The top slide here shows a piece of
mechanical equipment, but what I'm really trying
to call your attention to is that behind the
mechanical equipment there's a large wall that
goes up to an upper roof level. And at the base
of that wall there's a six-inch base flashing.

If we were to add insulation then we
would have to cut the stucco and raise that
reglet. And as you see at the bottom of the
slide, there's a phenomenal amount of conduit
going into the building that would also have to be
rerouted and raised in order to increase the
elevation of the roof termination at the wall, as
needed to make it watertight. So that's one of
the situations where we have a challenge.

Down below there's an equipment screen
sleeper that's about an inch above the roof; and a
duct that's about six inches above the roof. And
if you add an inch of insulation all of a sudden
your base flashing heights are marginal. The duct
has to be completely reworked; you'd have to make
provisions to go around the braces, which are
difficult to make watertight, as they're designed.

Here in the foreground you see a conduit
which luckily has plenty of height if you were to
add an inch or two of insulation. But behind it,
you can see that there's a sleeper upon which
steam lines and 480 volt conduits run.

There's 25 of those. And they're about
six inches above the roof. They're already
marginal; very difficult to add any insulation
without having to rework all of those sleepers
beneath all the electrical lines and steam lines
there.

So the bottom photo shows a gasline.
And this gasline is about -- if you can see my
tape measure -- about three inches above the
surface of the roof. If we were to add insulation
there it really would be almost buried in the
roof.

So that gasline, you have to not just to
be a roofer, but you have to call a plumber in to
bleed the gas, you know, to turn the gas off,
bleed the line, cut the pipe, raise all of the
piping, and then reconnect it. And this is a
facility that has -- that can't be shut down.

So, what do you do in a situation like that. And I understand how difficult it is to come up with exceptions for all these situations. But there are thousands of them.

Here is another situation where I have a conduit that feeds a large HVAC unit on the roof. It's about three or four inches above the surface of the roof. So, if insulation were added here, absolutely this conduit, regardless, should be raised. However, in some instances it's possible to make it watertight without raising it. Certainly to meet all the manufacturer's requirements it should be raised.

But it's over a datacenter; and you know how computers generate heat. Those air conditioners have to stay on at all times, 24/7. So, now I have to rent temporary air conditioning to put inside the building so that I can disconnect this conduit, raise it, hire an electrician, re-pull electrical wires in some instances, and reconnect the equipment. Modify the duct work that goes to the equipment, et cetera. So you know of get an idea.

The picture at the bottom is actually
the other side of this massive unit that's about 12-feet-by-12-feet, and weighs several tons. The platform upon which it rests is about eight inches high. And, again, if we added insulation there it would be difficult. We'd have to crane the unit off the roof essentially, in addition to doing the electrical modifications that we've shown above.

Here is an electrical junction box that's six inches off the roof. A phenomenal amount of conduit going through this, and there may be some telecommunications lines, you know, also in a similar configuration on this roof.

I don't know how we're going to handle that. But we have to figure out something. And if we have to add insulation, the challenge is made even greater.

The slide at the bottom shows two conduits. One of them comes out of the roof and bends and goes toward the upper left-hand corner. It's four inches above the roof where it makes that turn. The other one is about six inches above the roof.

And if you add insulation those heights do not meet the manufacturer's eight-inch requirement to start with, so you would have to
raise, you know, hire an electrician, raise the
 electrical lines, et cetera.

And, let's see, this particular slide in
the upper area is actually behind all of that
conduit and steel I-beams upon which equipment
rests is a base flashing.

There's a wall that's about seven or
eight feet tall that has stucco on the interior
face. And at the bottom of it, in order to raise
that base flashing, which is only six inches, we'd
have to cut the stucco.

Now I can't figure out how to get behind
there to cut the stucco to raise that base
flashing if I add more insulation in this
instance.

So these are the kind of challenges that
I have faced every day for the last 30 years.

The slide at the bottom shows actually a
waterline going to a boiler that's mounted on the
roof. You can see my tape measure in the lower
right-hand corner, the yellow line there. And the
waterline's maybe, I don't know, a couple inches
off the surface of the roof. And that's got to be
disconnected, drained, raised, reconnected. I
need to hire a plumber to do that, I'm not a
plumber. So, that can get quite costly.

The other thing, too, is that disconnecting and reconnecting some of these items, since it can't be done in some instances on other facilities during the day, it has to be done on the weekend, which also gets into overtime costs for not just the roofer, but the plumber and the crane operator and everyone else. So, that's something to keep in mind.

And here, last but not least, is a insulated steam line. It's approximately six inch -- the joint on it is approximately six inches above the roof's surface. In order to raise that, if we added insulation, we would have to get a clad person to take the aluminum cladding off the pipe; the insulator to cut the insulation. We'd have to get a plumber to raise it. And then put it all back together again.

And then the last slide at the bottom is actually a duplicate. My daughter, who was helping me at midnight last night figure out how to do this, said, gee, mom, I thought you knew you had it in there twice.

I didn't, but regardless it just gives you a better overview of one of the gaslines
that's, you know, two or three inches above the
surface of the roof and that would need to be
raised.

So I really am a believer in being
green. But I also am leery of situations in
which, you know, everyone from insulation
manufacturers to the government are saying, you
know, you've got to -- you, building owner, have
to spend an extra $100,000 to address all these
utilities in a retrofit situation.

But mainly I just wanted to thank
everyone for listening and for looking at some of
the real world conditions that often the models
don't reflect, and that are very difficult to
visualize if you don't spend every day on the roof
like I do.

So, thank you.

CHAIRPERSON PFANNENSTIEL: Thank you,
Ms. Dunham. Next we have Erik Emblem, Joint
Committee on Energy and -- Environmental Policy,
sorry.

MR. EMBLEM: Good morning, Madam
Chairman, Distinguished Members of the Commission.
I appreciate your allowing me the opportunity to
address you. And I'm here to speak against the
new standards.

And I say that, and I'll talk to you about my area of interest and give you a little background.

I was here a couple months ago addressing you on a similar issue. Since that time we have formed this new Committee, and it's sponsored by the California Sheet Metal and Air Conditioning Contractors National Association, SMACNA and the California Sheet Metal Workers International Association of Local Unions. That's their employees.

There's 625 contractors, and 25,000 workers. And their payroll annually is about $3 billion in the state. And they feel that they're major stakeholders when it comes to HVAC systems.

And I appreciate the last presentation. I started my apprenticeship in 1967, so I've been around awhile. I've the grey hairs to show you. But I spent two years on roofs like that. I did architectural metals. And that was like a horror story looking at that. And I remember those instances, the flashings and all that. There's a lot to this industry. There's a lot to the building industry.
I am born and raised in Santa Fe, New Mexico. I feel myself very environmentally friendly. There's not a smoke stack in Santa Fe. There's some chimneys that, we burn pinon wood. And even that we're trying to get rid of, but I love the pinon fireplaces.

But back to the issue on the code. The issue is very simple. We feel that reasonable and cost effective alternatives to the evaluation of HVAC duct systems and HVAC systems has not been considered in the code. That's it in a nutshell.

Now, we have written comment to this, and Bill, Mr. Pennington, was very gracious and called me about it and we talked about it. So none of this is personal. It has to do with an industry that is affected by this code, and their customers, which are ratepayers.

We feel, and when I say we, we in the industry feel that the standards, as they are set, even the 2005 standards, are not effective; they're not cost effective and they will not result in an energy savings.

We say that because 90 percent of the people in the retrofit market in the residential sector have decided not to even take a permit out
on their home. So I don't know how you can
evaluate the effectiveness of your standard if 90
percent of the people say we don't even want a
permit.

And when we talk to our customers they
say they don't want to have a permit because they
don't see any value in it. In fact, what they see
is a competitor contractor that's willing to come
to them and say, look, we'll go in and we'll do an
HVAC change-out for you for $4500. But if you
want to do an inspection, call one of the HERS
raters in and all that, it's $6500. And so the
customer says, oh, well, we're not going to do
that.

And we have some other information that
kind of goes along with this in this regulation
process. And it comes from the CEO of Copeland
Compressors. Last year their manufacturing of our
22 compressors increased in the State of
California.

Now, that's kind of counter-intuitive if
we have a program that says we want to get rid of
those boogers, and we want to put in these R-410;
we want to go to a better refrigerant to reduce
CFCs, preserve the environment, and have more
But the truth is the customer has made the decision to change the compressor rather than upgrade the system, even when there's incentives and everything to go to the higher SEER units.

And it gets back down to some basic basic things. And I think that's what you're here for, and that's what I'm here for. The basic thing is what drives the industry is the consumer. And an educated consumer is going to purchase what they see value in. Energy savings, especially today, is something everybody sees value in.

We don't think that the customers are adequately served by this because you've left a big piece of the picture out of the equation.

Now, we've had a lot of input on this. Like I say, I started my apprenticeship in 1967, and so I've been around a few years. Before that my dad, after he returned from World War II, he started a sheet metal and heating and air conditioning business in Santa Fe. So when I was a little kid he had me out there cleaning the shop and sweeping floors and cleaning out the pickup trucks for the guys. So I've been around this for awhile.
What we have to do is we have to look at the people whose business it is to install, design and make sure that this equipment is running effectively. And we need to turn to them when we decide to come up with a system of evaluating to see if the evaluation is valid.

We feel strongly that the protocols that are put forth in Title 24 for the HERS rater on the evaluation of the duct pressure testing is bogus. And that comes from three practitioners in the state who have gone through the whole HERS process; who also used a SMACNA duct standards leak testing. And say, you know, when you walk away from a system and you've applied the protocol established in Title 24, that, you know, a full-grown tomcat can run through the leaks in that system. It's not valid.

The ducts are still leaking; the energy's still pouring out of the attics. We're not addressing the problem.

So it's not that we don't want to fix it. We need to fix it. But within the regulation there's holes. We had the HERS raters come to us, and when I say us I'm talking for the union side, want to become signatory. Because there's some
areas of the state where our contractors are
prohibited from using nonsignatory HERS raters.

And they came to us and wanted to sign.
When we looked into the situation we found out
that they wanted to bring this workforce in that
had gone through a two-day training class on how
to apply a duct test.

And we talked to them about, well, what
about do they actually -- they said they could do
it in two hours. I said, you mean you actually go
in the attic and you look and you test and you
look again. They said, oh, no, they say most of
the systems are inaccessible. Really? Yeah,
they're 40 percent or more inaccessible, so we
don't have to do that. So we just sign the
certificate.

A guy goes in for an hour; he does a few
things; checks this box, checks that box; and
we're out.

And the sheet metal workers they didn't
want to sign with an employer like that. Now,
they want more members, and they'd like to have
more dues. That's what they're granted with. But
they don't want something that's bogus.

So, we'd like to work with you on
improving this. I think that part of what's
happened, it was brought up here before us, is I
think your building standards division is just out
working their tail off. They're hard-working,
dedicated people. Again, this is not personal.

But I think it was one of Coby's books;
he talks about going up on top of the tree and
make sure you're cutting in the right forest. We
might be just cutting in the wrong forest and we
need to come back and evaluate.

Now, I sat on a bank board for many
years. And they had what they called the
compliance audit. Two audits you went through in
a bank; you had your safety and soundness audit,
and you had your compliance audit. Your safety
and soundness made sure you had enough money in
the bank to fund the loans you have and to manage
the deposits.

But then you had this compliance audit,
and that's the one that made all of us crawl
underneath our desks, when they came in and made
sure you were doing everything the way you're
supposed to do it, in accordance with regulations.

And maybe we need to look at that.
Maybe it's something to consider here, is a
compliance audit. To make sure that we're
addressing the needs of the people that we're
serving. And that the ultimate goal is energy
savings in a cost effective manner.

And that we bring in the stakeholders in
the industry who have the customer base, who are
putting these systems in, to work with you in
coming up with a system to adequately test and
make sure these systems are operating properly.

Now, the reason I say we're against the
code, and that's probably kind of a big blank X,
and that's probably not fair, because there's
probably some good parts to the code. But I used
to go to this mutual gains bargaining back in my
collective bargaining days with a guy named Bernie
Flaherty from Purdue University.

Now, Bernie Flaherty, he actually went
to Ireland and tried to negotiate peace between
northern and southern Ireland. This guy was a
dynamic negotiator. And he said, you know, Eric,
he says, sometimes in negotiations he says you
reach what you call a batinum (phonetic), you got
to have a batinum. And he says that's your best
alternative to a negotiated agreement. He said
that's the point where you just have to say, you
know what, we can't have an agreement, there's just nothing here.

And that's where we think we are with HERS today. We need to come back, and not the whole HERS process, but where they're evaluating HVAC systems, we need to look at that. We need to rework that.

And we stand here today saying we're willing to work with you. We appreciate Bill; I mean, Bill has reached out to us and it's nothing personal. But to my contractors and to the people I'm representing, they feel very strongly that this code, as it's written today and as it was written in 2005, left them out. They weren't considered, and their customers are not being handled with the way it is today.

Thank you for letting me talk, appreciate it.

COMMISSIONER BYRON: One quick question, if I may, --

MR. EMBLEM: Yes.

COMMISSIONER BYRON: -- Mr. Emblem?

Earlier in your comments you made a remark along the lines that most customers are not going to pull a permit. I wanted to understand what you
MR. EMBLEM: I worked with the HVAC reshaping group. I sat on a lot of these committees with the PUC and CEC. And the standard number they use out here is that 90 percent of the retrofit projects in the State of California residential and light commercial are not permitted.

COMMISSIONER BYRON: Aren't they required to pull a permit?

MR. EMBLEM: Yes, they are.

COMMISSIONER BYRON: So are you suggesting they should not pull permits?

MR. EMBLEM: No, absolutely not. We support permits. In fact, our contractor base, we've done some surveys, they're pulling permits. I mean it's a deep-rooted problem.

The problem is, is that it's getting by. And the regulatory and the compliance on the regulatory side is extremely deficient. And there needs to be some problem solving on that.

But it gets back to, when I talk to the contractors, they say the problem is the end user, the person's home, the person's building that's being inspected, they don't see value.
We have horror stories where somebody
would go in and an inspector would come in to
inspect the HVAC system, and he found that they
put a swimming pool heater in or something without
a licensed electrician. Or that they'd modified
the garage for their mother-in-law to stay there
and hadn't pulled a permit.

So they went in there and found numerous
other problems. And when a $6000 air conditioner
change-out turned into a $20,000 or $30,000 permit
problem. And those kind of horror stories. And,
of course, I've talked to people in Napa and they
say, well, the next thing when you pull a permit
is you have the tax assessor come down. And my
taxes go up.

So there's perception problems. And I
think it's an industry problem, it's more at the
Building Standards Commission and the Licensing
Board, but it needs to be fixed. And we support
pulling permits.

COMMISSIONER BYRON: Yeah, good. I'm
glad to hear that.

MR. EMBLEM: Yes.

COMMISSIONER BYRON: Thank you.

CHAIRPERSON PFANNENSTIEL: Thank you.
COMMISSIONER ROSENFELD: Well, just a minute. Sir, I'm the first to admit -- I'm the first to admit that the permitting problem is very serious. And the Committee is working on that. Ninety percent seems a little high, but when you've heard numbers like 70 or 80 percent, so you're on the right track.

But what I can't quite get is we think the compliance on new buildings is, compliance is maybe 70 percent. I don't think we can have different codes for new and retrofit.

It seems to me as if we have to stick with what we think is the right thing for new buildings, and work very hard on better compliance. But I don't hear you saying that we have to change the roofing rules for new. I hear you saying we have to have much better coordination for the next cycle, working on cooperation.

MR. EMBLEM: Madam Chair, Commissioner Rosenfeld, I agree with basically what you're saying. I agree with you that codes and standards have to be for buildings. You can't differentiate between retrofit and new. And I do agree with you that on new construction, your building permit
vis-a-vis the building contractors, by and large, are the ones pulling the permits on the new construction project. And those are being put in and being inspected.

But the problem that we're having with energy and peak load use has to do with the residences and the existing buildings. So when we get back to energy, I think we have to look at existing residences. And we have to look at the testing methodology that we're using to test these systems.

I think it was the Procter Report that came out a few years ago that said, in his report, 100 percent of the HVAC duct work in the State of California doesn't meet standards, new and retrofit. I'm not an absolute. We're bound to have a few good systems out there, but --

(Laughter.)

MR. EMBLEM: -- but I am going to say that by and large your inspection departments are under-staffed, under-capitalized, and can't do an effective job whether it's new or retrofit. And that's part of your systemic problem.

CHAIRPERSON PFANNENSTIEL: Thank you,

Mr. Emblem, we agree with that.
MR. PENNINGTON: Could I make one comment here? I think there's some good news here related to these comments. There will be a report in front of you at the next business meeting related to addressing how to improve the energy efficiency of HVAC systems in existing buildings that was the result of a lot of industry effort to work together to come up with recommendations for how to make improvements on these issues, including the unlawful practice that's happening out there of failing to pull permits.

And I think there was a lot of good work associated with that report. And there's a lot of good ideas that are coming from the industry about how to kind of self-police, and how to, as an industry, recognize there's a problem and to try to address it.

And that's something that the Energy Commission tried to facilitate in the forum to develop that report. And we've been working with the PUC related to a big bold strategy that they have for trying to get after that problem. And it was actually the Energy Commission who advised the PUC that that should be one of their three big bold strategies.
So, you know, we appreciate the input. There's a lot of work that we can do on this. So, appreciate the comment.


MR. RAYMER: Thank you, Madam Chair and Commissioners. I'm Bob Raymer, Technical Director and Staff Engineer for the California Building Industry Association.

And before I get into my comments I'd just like to say for the record that we support adoption today of the 2008 update. As we supported the 2002 and the 2005 update, we understand that California is trying to move forward in a very aggressive posture. And we've worked long and hard with staff to make sure that our concerns get addressed.

And so, with that, before I get into our comments, we are very supportive of today's adoption.

With that, in response to a comment made by Commissioner Byron, the fact of the matter is you absolutely have to get a permit for that change-out of the HVAC system. You've got some...
significant electric hookups, as well as some plumbing hookups. Both of these would prompt the need for a permit.

The fact that it's not happening is something that we can address down the road, and will have to be addressed. But it should in no way influence today's adoption. And we'll look forward to working with CALBO and the Energy Commission Staff on the ways that we can seek to do that properly.

We would like to make some comments that kind of ring similar to what we've said at the 2002 and 2005. We want to try and do our best to implement these new regulations as early as possible. That helps with the transition so that we, you know, we don't get to July of 2009 and all of a sudden everybody wants to start redesigning.

As a matter of fact, if we can, there are many builders that would be interested in complying today. What we need is the computer software needed to show compliance with the building departments, and for our own analytical tools.

For years we have been asking the CEC and the software manufacturers to provide us with
at least a 12-month lead in terms of availability.
So, in essence, if these standards take effect in
July of 2009, it would be great to have them prior
to July of 2008.

And in addition to that, the CEC
standards are directly referenced by HCD in their
green building standards. So we're going to be
moving forward with early application of all the
provisions in HCD's green building standards,
including the CEC regs.

So the sooner we can get those
compliance tools the better that we can make the
change, and the easier it's going to be on the
local building departments who are very stressed
right now.

And that leads into my second comment,
once again we'd like to raise the cry for a very
strenuous approach towards supporting training and
education. We did a great job of that in the end
of the 1990s and early 2000s. We've been very
busy with lots of competing endeavors in the last
three to four years, and training and education is
beginning to take sort of a backseat. That's
going to be very problematic over the next two to
three years.
Obviously, as has been mentioned by several other speakers, these standards are complex. So have the last sets of standards been complex. That's really nothing new.

What is new is that we've had an economic downturn. And of the people that we have trained to comply with the existing standards, I have to tell you, about 70 percent of them, and that's a very accurate number, about 70 percent of the people we've trained will not be in that same capacity when the new standards take effect.

This is a huge problem. It's going to create sort of a snowball effect with the poor building officials trying to cover for this, as well. So the extent that we can put a full-court press on getting our subcontractors, the manufacturers, the product purchasers, the site superintendents, the building officials up to speed and knowledgeable about compliance with these regulations, the better.

It's a huge push that we're going to need to do over the next couple years. And like I said, most, the lion's share of the people who were trained to comply with the 2005 standards, they're not going to be in those capacities when
the 2009 standards roll around.

We do have some issues with some low infiltration credits, but these are things that we can work out with staff in terms of a realistic applications out in the field down the road. It's nothing that should hold up adoption by you today.

And lastly, once again, we support looking at the existing housing stock. The Energy Commission did a great report in response to AB-549. And to the extent we can assist with those efforts, we would love to do that.

So, thank you very much.

CHAIRPERSON PFANNENSTIEL: Thank you, Bob. And we are continuing to work on those efforts, I know you're aware.

MR. RAYMER: Thank you.


MR. HITCHCOCK: Good morning, Madam Chair and Commissioners. My name is Reed Hitchcock; I'm the Executive Director of the Asphalt Roofing Manufacturers Association. We represent manufacturers of both steep-slope and low-slope asphalt roofing products.
First off I would just like to on the record express our sincere thanks to the CEC and recognize key staff and consultants for their substantial time and effort that's gone into this process, as well as the increased cooperative efforts with the stakeholders, like our organization.

Particularly Bill Pennington, Mazi Shirakh, Payam Bozorgchami, as well as Charles Eley and Jon McHugh. There's a lot of other folks, I know, that have been involved, but that's the team we've been working very closely with for this process.

Our organization is especially appreciative of the inclusion of quote-unquote "real world" exceptions, as well as compliance options in the 2008 code that achieved the same energy goals as the prescriptive requirements, but do result ultimately in more choice for the consumer, which is obviously all the more important as citizens -- I'm sorry, as attention turns to the residential application and impacts citizens in their homes.

Overall our organization sees the substantial reductions in energy use that will
result from the 2008 code as a very positive step. And we're committed to continuing to work with the staff on both the compliance manuals, as well as to achieve greater reductions in the future through cost effective new technologies, as well as sound application of products and measures that are available today.

So, thank you very much.

CHAIRPERSON PFANNENSTIEL: Thank you for your comments. Patrick Splitt, App-Tech, Incorporated.

MR. SPLITT: Hi, it's Pat Splitt from App-Tech. I'm an energy consultant from Santa Cruz. And I've been filing a lot of comments and concerns about these regulations.

And it turns out a lot of what I've filed for the 15-day language is identical to what I did on the 45-day. And that's because they seem to have been ignored, and I can't see how. So I'm just going to try to go through these quickly.

Starting with the Administrative Procedure Act, there's a section there, 10103(d) where all the responsibilities for building officials are supposed to be. And in all the other codes that they handle, they are used to
just looking in the administrative section to find out what their responsibilities are. And that's a section that we call out as where their responsibilities are.

But then if you look into the appendixes, and I've listed just one that I saw, NA-1.3.4, there's paragraphs of requirements for building officials. Well, it means nothing to them. Those are meaningless words unless you put them up into the administrative code, because they're administrating and you have to tell them what to administrate or forget it.

The next thing I'm commenting on is the calculation methods. I keep harping on this, that both the state administrative code for the Commission, and the Warren Alquist Act, require public domain computer programs for both res and nonres. There are none. Are none. Breaking the law.

I've been recommending that we remove the term public domain because it's obsolete. And I've started to rewrite that section of the administrative code to sort of go along with my ideas, but still in the current code the nonresidential program, even though it's not
public domain for the computer compliance, the
Commission didn't come out until six months after
the code went into effect.

Well I, or no one else that needs
computer programs to do their work, can wait for
six months after the code goes into effect. So we
all had to go and spend $1000 for the
nonresidential program or whatever, to purchase a
program. When we supposedly could have gotten one
for cost from the Commission.

Well, once I'd purchased the program for
$1000, I'm not going to throw it away six months
later when the Commission comes out with a
program. So it was a complete waste of effort to
do that.

And as far as I know for the residential
program it still doesn't exist. It hasn't been
approved yet as far as I know. I haven't seen
that. And how long has it been since the code has
gone into effect. That program's required by law.
And the staff just routinely ignores the laws that
they don't like to deal with, but they come down
on people out trying to make a living because they
don't obey their laws.

Well, I think they ought to meet their
laws first before they come down on us. That's hypocrisy.

So, I won't go over everything here, but there are a couple of points in here that I wanted to point out. One for 10109(a), I'm stating that these programs shall be certified. These are the programs that the Commission is supposed to be providing and made available to the general public at least 120 days before the effective date of 2008 standards.

That's so people have them and have a chance to learn how to use them, be trained on them. And also these programs are supposed to be the reference programs for all the other compliance programs.

Well, if the reference program doesn't exist, how did these other programs get approved? When your law requires that they show that they come up with equivalent compliances to the reference program. So, got to change that.

Another thing I'm adding in section (b) is that the Commission shall also develop a procedure for assuring the ongoing quality and accuracy of these certified programs. And a timely correction of any reported calculation
errors. Correction of errors will not normally require recertification. If a vendor refuses to correct a program error, then the program shouldn't be certified.

Right now there's absolutely no method for keeping these programs up to date and fixing bugs. If I find an error in a program, I call up the hotline. They say, well, we don't deal with that; call up the vendor. Call up the vendor. He says, thank you very much, and does nothing. Nothing. They never correct them. Why? Because it's more work. Why should they? It's a certified program from the Energy Commission. The Commission has decreed that it's okay.

If they were to correct their program now they'd have to go and get it recertified. That's a big hassle. I mean, no one has thought about this, so it just doesn't happen. There are tons of bugs and people are aware of these bugs, can work them to make just about anything comply if you want to.

I can go in the nonresidential program and if I make a mistake and put in the wrong type of energy efficiency for an air conditioner, I can have the building comply easily. But if I go and
instead of just looking at the total, the result for the compliance margin, if I look up at the numbers that were added up to come up with that total, I find out that the cooling system was actually using negative energy. It's like a nuclear power plant there.

And it actually was putting energy into the building instead of taking it out. And it was because of some calculation error. And I reported that to the vendor. It's still there. There's no way of fixing this. It's stupid.

So, nobody has looked into this stuff and tried to work this all out to today's standards. All these regulations are back from when you put punchcards into the computer to get a result. Well, that's enough of that one.

I'll just run through these quickly here. Insulation. If quality insulation procedures have been shown to be a cost effective conservation feature, why are they not mandatory for all envelope insulation? This --

COMMISSIONER ROSENFELD: I didn't hear you. Well, what are they not mandatory for --

MR. SPLITT: All building, instead of being an option where you get credit for it. In
Santa Cruz, we don't have HERS requirements, nobody does this. If I told someone that was a client of mine, well, you know what, even though we don't have to do this, we can require it and then your installer will have to meet these standards.

And they'll get two different bids. They'll get one bid from the guy to do what they always do. And they'll get double that to do quality installation, which is basically just doing what he's supposed to be doing anyway.

I mean why shouldn't everybody do that? It doesn't make any sense. I mean it should just be mandatory. This would be a more effective and less burdensome method of reducing energy consumption than many of the other proposals in this rulemaking. Definitely.

There's a section there, 118(e)(2) that says for commercial buildings that you can't have a ventilated space under an insulated roof. What about residential? I mean shouldn't it be there? It should be. That should be there for everything.

There's a section 118(g) that had to do with -- I was complaining about the definitions of
insulation for slab-on-grade floors. That got
fixed. But it was also mixed up before with some
requirements for insulating for raised residential
concrete floors. And that seemed to have just
disappeared. Once upon a time there was some
insulation requirements there, but they're gone
now. They just fell out.

There's a definition for heated slab
floor which is not correct. A radiant slab could
be heated by any means, hot water pipes, hot air
ducts, electric cables, et cetera. Right now the
only thing that is considered a heated slab floor
is one that has water tubes in it. You can put
electric cables in and you don't have to put slab-
edge insulation. Does that make any sense? No.

And these aren't the first times I've
mentioned these. I've mentioned these before and
they've just been ignored. How can they be
ignored? This is common sense.

Ventilation. The section 121(b)(1)
conflicts -- this is in the nonresidential
ventilation section, it conflicts with residential
section 150(o). Now we have mandatory mechanical
ventilation for single family residences. But
high rise and multifamily residences over three
stories are in a different section of the code, and there's no mechanical ventilation requirement.

Mechanical ventilation has to use more energy than just opening windows. So, if this is the Energy Commission, it must be that if they had a reason for requiring that, that it's some sort of health and safety requirement. That you're requiring mechanical ventilation in residential spaces because of the fear of the health and safety of the occupants.

Well, if you're doing that for a single family home that has windows all the way around, why wouldn't it be more important to do it in an apartment that only has windows on one end; that can't possibly get cross-ventilation. And is more concentrated as far as contaminants.

If any residential occupancy is going to have problems with indoor air quality, those are the ones that would have the problem. Yet, you ignore it. This doesn't make any sense. Either they all have to do it or none of them have to do it. I mean, I can't believe I'm still seeing this stuff.

There's a section on lighting controls that basically has to do with automatic lighting controls...
controls when tailored method is used. But then
it goes on to list no automatic lighting controls.
So, that just should be thrown out of there. It's
just a mistake.

There's a section that states that all
load calculation programs have to be approved by
the Commission. But as far as I know there is no
list of approved load calculation programs.
There's no place where a vendor can get certified.
And there's no requirements as far as what you
have to do to get certified. But yet it's
required that it's to be certified. Well, either
come up with a program or get that out of there.

Hydronic variable flow systems, section
144(j)(1). There's no exception for systems like
hydronic radiant or convective heating systems. A
hydronic heating system could have dozens of
fractional horsepower pumps that exceed the total
1.5 horsepower limit that's been placed in here
arbitrarily.

And also controls, score of control
valves. And they mention pumps, but they don't
say which pump has to be variable flow. Do all
the pumps in the hydronic system have to be
variable flow? Only some of them? Only one of
them? Only one, which one? None of that's in
there. It's just gibberish.

Outdoor lighting, section 147. The
overly complex section does not require plans for
outdoor lighting. It has to. If you look
through, or try to figure out the requirements,
there's many overlapping areas that you have to
define for outdoor lighting and light fixtures
don't have to be necessarily in that area to have
their light count for wattage in the area.

You come up with a list of areas that
the building official cannot possibly look at and
have any idea what was in the mind of the person
that came up with those numbers. There's no way
to check just forms. There has to be a cross-
reference between those areas, and a drawing that
actually shows where the areas are, which light
fixtures go to which area. It's the only way that
you can ever have this work. Without that you
might as well throw the whole section out.

You do require this for indoor lighting,
for daylight areas. The code does require that
the plans indicate all the daylit areas. Well, if
you do it for an indoor area where you've got
walls and roofs and it's fairly easy to see what
space you're talking about, you really need it for outdoor. Because you don't have any walls to tell you, you know, where the line stops. It doesn't make any sense.

There's mandatory measures for residential section 150(j)(1)(A) that requires insulation for gas storage water heaters and indirect heated tanks. But not electric water heaters. I mean I have to insulate a gas water heater which is much more difficult to insulate because you have to -- out the combustion air and the vent collar, but I don't have to put extra insulation on an electric tank. Does that make any sense? No.

There's section 150(m)(10) doesn't allow porous inner core flexible duct. Well, there's duct work called acoustic duct that's used for sound attenuation. And there are many manufacturers, this is just one, J.P. Lamborne. This is a product that's used a lot. And you've just made it illegal. And I'm sure these people don't know about it, and they're going to be really upset once they figure out that you kind of put them out of business.

There are also section 151(f)(8)(E),
there are several flexible preinsulated piping systems available for buried waterpipes. It's not possible to remove or replace the enclosed pipes from the sleeve as required by this section. Therefore, all these products are illegal.

And here, I have just one example here, but there's a lot of companies that make this stuff. It's flexible pipe; you just open up a trench and roll this thing out. It's cut to size; there's no joints. These are all going to be illegal. And I don't think they know about this, either.

In the appendixes, I won't get into all the appendixes, because they are very complicated, but there's one I just noticed this the other day. There's appendix RA-1 which seemed to be requirements for doing load calculations.

But they conflict almost completely with the residential requirements in section 150(h) that requires either ASHRAE or SMACNA or ACCA manual J. This section forbids using anything other than the ASHRAE system. That would make manual J calculations illegal.

It also forbids doing anything other than -- loads; it forbids room-by-room load
calculations. It's ridiculous. I mean this whole thing, I don't know where this came from. It looks like maybe it was intended to be in the residential ACM manual, but it has no business being there and has nothing to do with load calculations for a building. The whole thing has got to be deleted. Has to be.

I've mentioned about life cycle cost analysis. The manuals are not done yet. In the manuals where everything is going to be determined as how you go about doing all these things that we in our regulations. What you have to do.

If you don't know what you have to do to comply with a certain regulation, how can you know what that's going to cost? So if you don't know the cost, what worth is your life cycle cost analysis? It's either to make something show that's cost effective, you leave out half the costs.

And, again, the compliance manuals and procedures and forms. It's the same thing with the forms. The forms are basically supposed to be done with the ACM procedure. Again, you're doing the forms before you've figured out what the process is, what the procedures are going through.
this.

And all the meetings that we go to when
we're supposedly thinking about these regulations
we're just talking theory. It isn't until the 45-
day language comes out that we actually see what
the Commission had on their mind. And you still
haven't gone through, until you get the manual,
figure out what it is that you have to do.

And I'm sure for a lot of these things
once everybody sits down around the table, tries
to figure out what it is you have to do to do some
of these things, they're going to say well, this
is ridiculous. We can't do this.

But it's too late, because you've
already adopted the regulation. And that's what's
happened from the 2005 standards. Got regulations
that people say, well, this is BS, forget it.
Happens over and over again.

And one thing I forgot to mention in the
section on the code for computer programs is I
have been harping about this problem of getting
rid of the public domain requirements. And it's
going to take a change in the Warren Alquist Act.

And I've discovered that is going
through the Assembly right now, actually went
through the Assembly. And AB-1065 is now in the Senate.

And I intend to try to amend that regulation to incorporate some of these other items that I put in here, like assuring that there's somewhere up-keeping the, upgrading the programs and keeping them maintained and making sure that those programs are available before the standards go into effect.

Someone around here has been trying to make sure I didn't know this was going on. I do know it's going on. I've been talking to the staff, and I'm going to propose an amendment to AB-1065 to make it more agreeable and more compatible with what the real world is.

And finally, all of these things that I've been harping on for a long time, the main problem is nobody thinks about implementation. It's all just regulation. Nobody thinks about implementation. What happens in the field. How do you actually do this stuff; how do you actually check it.

And what I've been trying to get you to do is to stop and figure that out, and then work backwards and say, okay, this is what we want to
have happen. What do we have to put in the regulations to do it. Instead of coming up with a bunch of regulations, and then after you put them into effect, then figure out, well, can we even do it at all. Doesn't make any sense.

So, some of these, sounds to me like you're planning on blowing right through this thing no matter what. And I'm not the only one that has commented on the 15-day language. There are a lot of other, I think, very good comments that should be addressed.

And if they're not addressed I think some of them are going to have to be addressed. And if the Commission goes ahead I think I will probably have to, probably along with some others, initiate an emergency rulemaking to change these, and get these items fixed.

And I think it would be a lot easier if you guys just continue this a little bit and try to get some of these items addressed now, rather than do it all over again.

CHAIRPERSON PFANNENSTIEL: Thank you, Mr. Splitt. We do have other comments.

MR. SPLITT: Very good, thanks.

CHAIRPERSON PFANNENSTIEL: Michael
MR. HINDUS: Thank you. I'm Michael Hindus; I'm a partner with Pillsbury, Winthrop, Shaw, Pittman, and today I'm representing the Tile Roofing Institute, which is the official voice of the tile manufacturers who represent over 95 percent of the tile, roofing tile, that's produced in North America. And thank you for providing the opportunity to speak today.

TRI has been active for the past two and a half years attending workshops, meeting with staff, and supplying technical studies supporting the energy efficiency of tile roofing. Tile is the leading product for roofing on new residential construction in California.

The Tile Roofing Institute respectfully requests today you delay the adoption of that part of proposed section 151 of the 2008 building efficiency standards that relate to prescriptive requirements for roofing materials in new construction, because it is based on what TRI's analysis determines are faulty engineering assumptions that will lead to significant financial losses for consumers in the building industry. And most importantly, which will not
achieve the desired energy savings.

So there are two reasons why I'm asking you to delay -- or the Tile Roofing Institute is asking to delay implementation of that part of section 151.

First, applying standards which permit dark asphalt and metal roofs to be used to meet prescribed codes only in climate zones 10 to 15, while tile roofs must conform in all climate zones is bad policy, contrary to customer demand, will never gain market acceptance, and unfairly penalizes the tile roofing industry.

And second, the staff's calculator inappropriately disregarded the air space option, which I'll describe to you, despite prior assurances that it was included.

So, first, the building standards erroneously require the tile roofs to meet prescribed standards in all climate zones while other roofing materials must meet prescribed standards only in zones 10 to 15.

Roofing material products such as asphalt shingle and metal roofing provide the greatest heating transfer to the attic area. And this results in the highest level of energy cost
However, these materials are required to meet prescribed standards only in climate zones 10 to 15. On the other hand, roofing tiles, which provide the greatest reduction in heat transfer and have the lowest energy cost are required to meet the prescribed codes in all 16 zones.

While the proposed restrictions have been unfairly placed on tile, which is the best performing roofing products for all zones, asphalt shingle and metal roofing are free to provide any color product in climate zones 1 through 9.

So, in climate zones 1 through 9 the darkest of colored asphalt shingle or metal would not be precluded by your new code provisions. While in contrast only lightly colored roofing tiles meeting a 15 percent reflectivity standard would be allowed.

And climate zones 1 through 9, of course, represent the largest population proportion of the California population. And if the shift by consumers to darker colored asphalt shingle or metal occurs, the result will be a significant increase in energy consumption and peak demand.
So we believe that the requirement that the standards apply to all 16 zones for roofing tile, but only to zones 10 through 15 for other forms of roofing has no logical or engineering basis.

And now I want to address the energy calculator that the staff has described to us. While the CEC has focused only on color reflectance of roofing materials for possible energy savings, the extensive research that the Tile Roofing Institute has submitted to the staff demonstrates that roofing tiles, by design, provide a natural thermal mass and ventilation principle called above sheathing ventilation, ASV, that will significantly reduce heat transfer regardless of the color of the tile.

In fact, research submitted by TRI in this docket has shown that ASV, alone, will outperform other roofing materials in all 16 climate zones.

The Tile Roofing Institute was assured in discussions with CEC Staff and consultants that the air space option, that is ASV, was being included. However, the original prescriptive code language did not include such reference.
Then we also dug into the question of
the calculator that the staff had used. And
finally, on April 3, 2008, TRI was finally able to
talk to CEC Staff about the specifics of the
revised calculator.

We had previously been assured that
staff believed that the air space was included in
the calculator. When TRI actually talked to the
developer of the calculator, discovered for the
first time that the air space was not properly
included, and that the tile roofing industry was
being penalized for any roofing tile that does not
meet color reflectance of at least 15 percent.

The calculator obviously is a vital tool
to determine the actual cost saving alternatives
for 98 percent of new construction. And it
appears that no one outside of the consultant
knows precisely what it includes.

And we think it's inconceivable that the
CEC can make a decision based on such a flawed
calculation.

TRI has offered its full assistance to
CEC Staff and consultants to help complete the
proper analysis of the research and development of
the computer modeling.
In the interim we request that the CEC
not adopt the standards relating to steep-pitched
roofs based on an imperfect and potentially
shifting model.

If the CEC keeps the prescriptive
standards for tile roofing in all climate zones,
then we believe it must also recognize the energy
savings attributable to ASV.

So, in conclusion, we request that the
CEC hold for further review the portions of
section 151 pertaining specifically to steep-
sloped pitch roofing sections for new residential
construction until the staff can provide further
details with respect to the above issues.

Thank you for your consideration.

CHAIRPERSON PFANNENSTIEL: Thank you,
Mr. Hindus. Could we get the staff commenting
both on the comment on the roofing that we just
heard, and -- the TRI, their acronym, as well as
other comments we've heard later -- or earlier
today?

MR. SHIRAKH: Okay, on the tile
questions the above sheathing ventilation is a
topic that they have brought up repeatedly, and
they want some credit for it, the ventilation that
takes place when you mount the tiles above a backing or a cross-backing.

And the industry proposed a certain credit that was based on an experiment done at Oak Ridge National Lab, and also some simulation models.

Unfortunately, in California when we tested it in a real house we could not verify or get the same results.

So what we have offered the industry to work with us even after the adoption to determine what the actual value is in a real house in California. And we're happy to work with them to determine that, and then incorporate it at some later time.

Related to requirements for different climate zones, what I need to mention is that for asphalt shingles the reflectance is .20, which is significantly higher than what the typical shingle is out in the market. On the other hand, the reflectance for tile is .15, instead of .20.

These requirements have been out there for over a year. And we've had several workshops, stakeholder meetings. I remember over a year ago in Hearing Room B, you know, we had this. And
this proposals have been out there and there was
no objections until, you know, we released the 15-
day language.

The data that we had at the time showed
that a significant number of tile products, by
their own admission about half of them, meet the
.15 requirement. There are some very dark tiles
that may have a problem meeting that .15
requirement, you know, for new construction. If
that's a problem they can use the performance
approach and there's usually a very rather modest
tradeoff they need to do in order to get those
tiles installed. Again, we're talking about the
hottest climate zones.

And the other point is that when we
started this process, you know, we were hoping for
really much higher, much more aggressive cool roof
requirements. We started out with values for
reflectance in the neighborhood of .35 or .30.

And through the years the negotiations
with the industry we've compromised down to .15.
And there's many, including Commissioner
Rosenfeld, probably who feel we've gone as far as
we can.

And so any further dilution of the
requirements would really, I think it would be not warranted at the time.

Related to the earlier comments by Mr. Splitt, he did provide the comments at the 45-day language. Mr. Splitt and CABEC, as an organization, they worked with the staff; they provided hundreds of comments over the past year and a half. We've worked with them. None of the comments have been ignored.

Many of their suggestions we accepted, they have found their way into the standards, the 15-day language.

For the ones that we disagreed we have a prepared statement for every single one of them. And so, that would be part of the final statement of reason they asked for. Which, you know, would explain. We have to respond to every comment we receive, so we can't really ignore them, even if we wanted to.

So, we have, in this document, you know, kind of a point-by-point response to this and every other comment that will be addressed in it.

On the question of many of the points that he's bringing up related to the compliance software, these are related to the 2005 standards.
You know, we'll probably have to do a better job, you know, getting the compliance software programs in place. But I don't see why that should hold up the adoption today.

On the more specific questions he has on various chapters, you know, we have -- staff has gone over all of these comments with our contractors. I don't know if you want a point-by-point rebuttal, we could do that. Or we can discuss it in the FSOR when it comes up. But there is a reason for everything that we've done.

CHAIRPERSON PFANNENSTIEL: Thank you, Mazi. Commissioner Rosenfeld.

COMMISSIONER ROSENFELD: I have a question for Mazi and some friendly remarks about the tile roofing.

The one thing, Mazi, that Pat Splitt said that seemed like it could be fixed easily was he said that contractors need to be able to look for a checklist in one place in the document. And that there's still some requirements littered around in the appendices.

Will it be hard to put in a cross-reference, just adding a few words to the main list?
MR. SHIRAKH: If I understand the
comment correctly he was referring to section 10-103, the administrative section of the standards.
And he had made this comment previously at the 45-
day language.

And what he is saying is that all the
building enforcement requirement must be all in
one section, 10-103.

If you look at that section it's been
almost completely revamped. And we have done many
of the things that he's suggesting. But there are
always other building enforcement requirement that
are going to be in other parts of the code, in the
reference appendices. And we provide cross-
reference as to NA-1 or RA-2 or RA-3. And we have
to use cross-references. We can't just put
everything all in one section.

And there's really no legal prohibition,
and there's actually a lot of precedence for using
cross-references within various standard
documents.

But all of those, or most of those
requirements are largely in 10-103 in the revised
version. And there are cross-references where,
you know, we have to provide them.
COMMISSIONER ROSEN Feld: Okay, thank you. And just a remark. Mr. Hindus, if I've got your name right, can you come back up for just a second?

Let me make a couple of remarks about roofing tiles. Let me say first that I'm a little bothered; this discussion sounds like it's a few years out of date. That is, you mentioned the tiles are superior to asphalt shingles or to tin roofs because of their thermal mass. And that's absolutely true. And that's one reason that the reflectance value has only got to be greater than .15 instead of .2.

But, there is a global warming problem. And it's a little bit ironic. I just came back from a trip to China where I went to the trouble of visiting the Ministry of Construction to talk with them about requiring white tiles or cool color tiles throughout this huge Chinese market which is half the world's construction.

And they're pretty interested in doing that to avoid CO2. And they didn't bring up the issue that, oh, well, tiles are better than shingles and so they should have some exemptions.

So I just want to make the point that as
far as reducing air conditioning loads, it's
certainly true that thermal mass is an advantage.
It's certainly true that the gap effect, the stack
effect of the tiles is an advantage.

But in terms of global warming the fact
that there's a stack effect under the tiles and
the tiles don't run quite as hot as an asphalt
roof just means you're getting better heat
transfer to heat the world. It doesn't help with
global warming at all.

So your problem with the modeling is --
I didn't get around to reading your comments until
late last night, but I did talk to Dr. Hashem
Akbari at Lawrence Berkeley Lab. He thinks that
the difference that Mazi talked about between Oak
Ridge modeling and California modeling where the
air is much drier in California, and there's more
greenhouse effect is significant.

And I want to point out that that
modeling should and can be done. And it doesn't
depend on the adoption of the standards today.
You should get good modeling, get an alternative
compliance credit for that. And that can be put
in at anytime that the modelers are happy that the
good data are accurate.
So, I would definitely encourage your
interest to do some experiments in California;
well document each -- to the literature, and they
should certainly be put into the alternative
compliance.

MR. HINDUS: Thank you, Commissioner. I
appreciate those comments and that encouragement
because as you've noted, at the end of my remarks
I said if we could get the modeling done properly
then we could live with the climate zone
restriction.

Thank you.

COMMISSIONER ROSENFELD: That's the end
of the public comments?

CHAIRPERSON PFANNENSTIEL: That's all
the blue cards I have on this subject. Okay.
Anybody else have a comment?

COMMISSIONER ROSENFELD: I'm -- did I --

CHAIRPERSON PFANNENSTIEL: Yeah, there's
somebody -- one other comment?

MR. FERRELL: Yes, ma'am.

CHAIRPERSON PFANNENSTIEL: Please come
to the mike and identify yourself.

MR. FERRELL: My name's Jeff Ferrell. I
work for the Division of Occupational Safety and
Health, that's Cal-OSHA. We've been working with staff over the last couple of years.

From the standpoint of worker health and safety and based on available research literature, the Division believes that demand control ventilation systems are still unproven. They're susceptible to component and control system failures that may result in inadequate ventilation.

We also continue to have concerns about how we will enforce the proposed language. One of our greater concerns is that there's not a good method for determining the outside air flow, what the outside air flow should be at any point, given point, in a multizone system, and what it actually is.

This is particularly a problem because it is our understanding that multizone systems, the DCV will be controlling the total air supply to the zone rather than controlling the amount of outside air directly.

During the 1970s in response to the energy crisis at that time engineers rushed to improve the energy efficiency of building HVAC systems. One of the simplest tactics adopted was
to dramatically reduce the amount of fresh air
supply to building occupants.

This resulted in widespread instances of
sick buildings syndrome; and moved indoor air
quality issues to the forefront of worker health
concerns.

The Division's goal has been to work
with the Commission to help avoid any repetition
of these unintended consequences.

The Division appreciates the efforts the
Commission Staff has made to accommodate our
concerns and look forward to working with them on
the adoption of our current comments.

The changes that we're suggesting would
help mitigate some of the negative effects that we
expect will result from the increased use of
demand control ventilation, particularly where
this use is in more complex, multizone systems.

However, we continue to believe that it is unwise
to mandate the expansion of demand control
ventilation to any workplace in a multizone
building.

In order to protect employee health, as
well as the health of the public, ventilation
should not be reduced in occupancies in which
there is an increased risk of communicable disease transmission. It is also inappropriate to apply demand control ventilation to continuously occupied, dense office spaces. Therefore, again we suggest modifying exception 1 to section 121(c)(3) as follows:

Classrooms, call centers, office spaces served by multizone system and that are continuously occupied during normal business hours with occupant density greater than 25 per 1000 foot square; or 121(b)(2)(B), health care facilities and medical buildings and public areas of social services buildings are not required to have demand control ventilation, and shall not, at any time, reduce ventilation rates below what is required in section 121(b)(2).

If the Commission fails to make the changes we have proposed for exception 1, then at a minimum exception 3, which prohibits DCV ventilation reductions in spaces where there are sources of contaminants should be modified to acknowledge that biological contaminants, such as bacteria and viruses, must also be controlled with adequate ventilation.

Therefore, we again suggest modifying
exception 3 to section 121(c)(3) to read: Spaces that have processes or operations that generate dust, fumes, mist vapors or gases, and are not provided with local exhaust ventilation, such as indoor operation of internal combustion engines, or areas designated for unvented food service preparation, health care facilities and medical buildings, and public areas of social services buildings and beauty salons shall not install demand control ventilation.

Failure in CO2 sensors are a significant problem with demand control ventilation. DCV control systems must have the capability of determining when a sensor has failed or is in the process of failing.

Further, in the event of a component malfunction the system should default to supply the minimum outside air required in section 121(b)(2). Therefore, section 121(c)(4)(F) should be changed to read:

CO2 sensors shall be certified by the manufacturer to be accurate within plus or minus 75 ppm at 601,000 ppm concentration when measured at sea level and 25 degrees C. Factory calibrated, and calibrated at startup, and
certified by the manufacturer to require
calibration no more frequently than once every
five years.

Systems shall have self-diagnostic
capabilities so that upon detection of sensor
failure the system shall reset to supply the
minimum quantity of outside air required by
section 121(b)(2) to the zones services by the
sensors at all times that the zone is occupied.

CO2-based DCV systems must respond
before the level in 121(c)(4)(C) reach -- as the
level in 121(c)(4)(C) should be the maximum
average concentration in any occupany.

Therefore, NA-7.551 should be changed to
read, and this relates to bullet three of NA-
7.551: DCV-control setpoint is sufficiently below
the CO2 concentration by section 121(c)(4)(C) to
insure that CO2 concentrations are maintained
below the maximum permitted level at all times
when the space is occupied.

Thank you.

CHAIRPERSON PFANNENSTIEL: Sir, have you
submitted these comments in writing previously?

MR. FERRELL: Have I?

CHAIRPERSON PFANNENSTIEL: Yes. Or is
this the first time that staff is hearing them?

MR. FERRELL: No, I think we've been batting these issues back and forth for a long time.

CHAIRPERSON PFANNENSTIEL: These are not new issues? These are the same ones we've been working -- staff has been working on?

MR. FERRELL: Yes, ma'am.

CHAIRPERSON PFANNENSTIEL: Thank you. Then, Mazi, would you comment?

MR. SHIRAKH: Yes. On the issue of differences in semantics in a lot of -- for so many of the occupancies where, you know, OSHA finds them objectionable.

What we have is we have provided exceptions for those occupancies, like call centers, health care facilities, medical offices, clinics and so forth, what we say in exception 1 that these spaces are not required to meet the demand control ventilation requirements.

What OSHA wants us to do is go actually beyond that and ban demand control ventilation from those ever being installed in those occupancies.

So, you know, we feel in Title 24 we've
done our job by exempting those spaces. And the other problem is many of the spaces like health care facilities, clinics, parts of medical buildings may not even be under our jurisdiction.

So by imposing any kind of requirements on it, even, you know, his suggested language, that they shall meet such-and-such ventilation rates at all times, you know, we're probably getting into an area where we don't have jurisdiction. Again, as far as Title 24 is concerned, we've exempted.

The exception 3 that he's mentioning, you know, that's a little bit of different exception. Those are buildings that we definitely have jurisdiction over, and we have included certain occupancies like beauty salons, automotive repair shops, and we say you shall not install in those occupancies. So we've done that.

And when it comes to some of the other suggestions like sensors being capable of self-calibration or self-diagnostics, you know, we've talked to building engineers and manufacturers, and they're telling us -- and we've talked to folks who are leading our PIER research, with
Martha Brook.

And they're saying that we're not ready for these sensors yet. It may be possible. I mean, one of the things that they have done, to their credit, is really to put people on notice that they need to do a better job, both researchers and manufacturers. And they are responding.

So, you know, we are putting a very comprehensive PIER research together for the next round of standards. Again, Martha Brook is leading that. You know, we have researchers from LBNL and Iowa Energy Center. So a lot of these will be answered probably in the near future. And manufacturers are responding.

So we may be ready for some of these in the next round of standards, but the best information that we have today tells us that either the systems are not available, or they're going to have additional cost which we hadn't presented to the public through a public process.

So, we are where we are with this.

Related to the acceptance requirement in 7.5.5, we've gone back and forth with OSHA. I think the language we have is very similar to what
they have. Again, you know, we have to fine tune it. So just sitting here without going back through I can't remember actually what the difference is between what we have. But we have responded to many of their comments and it is in there. We have expanded it greatly. And we do checking.

Some of the things they want is to test ventilation level at zone level. It's something that is very costly; it's very -- and we have presented that to the industry.

So we can monitor the ventilation air at the system level. But, you know, so many cfm is coming through the system. But how each molecule ends up in each space, that is something that requires a lot of instrumentation and monitoring.

So that's probably one thing we could not do, and we didn't include it in the acceptance requirements or in the standards. But we do have other requirements in the acceptance requirements that would monitor total ventilation air. And it monitors and records all that.

On the sensor failure, what we heard from the industry is that the current energy management systems, they can detect sensor
failure. So that's something they suggested and we've added to our code. So, if a sensor fails
the energy management system can actually detect that and alert someone. And they can go take
corrective action.

So, in --

CHAIRPERSON PFANNENSTIEL:

Commissioner -- oh, I'm sorry, go ahead.

MR. SHIRAKH: So we have, I think, done everything we can related to this.

CHAIRPERSON PFANNENSTIEL: Commissioner Rosenfeld, you had a comment on this?

COMMISSIONER ROSENFELD: One more question about sensor failure. I think OSHA used the words fail safe. That is if a sensor doesn't calibrate right, and fresh air -- you just used the word alarm. Is that okay with OSHA?

If an alarm goes off, is that -- or is there a difference of opinion there?

MR. SHIRAKH: Well, there is no such thing as a fail safe sensor. The sensors would fail, but our language would alert someone that, you know, someone --

COMMISSIONER ROSENFELD: Alert sounds pretty good to me.
MR. SHIRAKH: -- that there is a failure and they can take corrective action.

MR. FERRELL: Well, and our concern is that in the event of a failure that the default of the system would be to return back to the minimum air supply required.

MR. SHIRAKH: And we have that provision in there.

COMMISSIONER ROSENFELD: That's what I wanted to know.

CHAIRPERSON PFANNENSTIEL: Thank you.

MR. SHIRAKH: Yes. So if there's a sensor failure, the system will go to minimum outside air. That's the requirement.

MR. FERRELL: And if I may, the language that we've suggested in exception 1, really we're not trying to expand the jurisdiction of CEC. What we're trying to do is make sure that we're dealing with medical occupancies, medical office spaces, places like that where in the event of pandemic flu or similar event, there would be a dramatically increased risk of disease transmission. That under those circumstances the maximum amount of fresh air as required under the standard would be supplied.
We're not interested in banning DCV in those occupancies. What we're concerned about is down the line, after a building has gone through commissioning, and the occupancy changes.

Because what may be a retail space now may be a medical office space in ten years. And as the field enforcement people that are going to have to look into complaints related to these issues, we want to make sure that it's clear what the ventilation rates would be in those kind of occupancies.

COMMISSIONER ROSENFELD: I want to make a positive statement, I hope. Certainly I've been dealing with indoor air quality problems since 1973 when we realized we had to tighten up leaky houses. And then we discovered radon and we discovered indescribable amounts of out-gassing of noxious things.

It seems to me, I've had long discussions with Mazi about, that we've done pretty well for this time. In three years there will be a revision of Title 24.

I strongly support PIER doing some experiments not only on the reliability of sensors and self-calibrating sensors and -- triple
sensors, but the idea of increasing fresh air in highly populated spaces.

A tiny remark. I think the present standard of having just so many cfm per person in occupied space, independent of the outside weather, is old fashioned. I think most of the time in California the outside temperature is mild. You can have lots and lots of outside air at no cost. You should have minimum outside air on a very cold day in Chicago, or on a very hot day in Bakersfield. But I don't think we run into -- at all. And I would hope that PIER will feed into much, PIER experiments will feed into much better use three years from now.

So, I thank you both very much. I'm --

other comments from the Commissioners? Jeff?

COMMISSIONER BYRON: I do, Commissioner, have a brief comment. But if you're going to move the item, go right ahead.

COMMISSIONER ROSENFELD: Let me move the item, and then I encourage comments.

COMMISSIONER BYRON: If I may? I'd like to thank those that came today and provided comments. Those were very helpful and appreciated. Obviously demonstrate that
demonstration of doing these standards is extremely complicated.

In fact, I'm reminded that it takes even longer than the three years that we try and do these standards in oftentimes. And I think that's a statement about the effort of the staff to work through all these comments and the process that's involved here.

I had the benefit of a briefing on these standards by Mr. Shirakh and Pennington. And I understand that we are going to be also working more forcefully on increased compliance with our standards. And I'm really glad to hear that.

It's my belief that the staff has done a very good job here in addressing, a very thorough job in addressing comments. They've thoroughly briefed me and reviewed with me all the issues that would be raised today. And I'm satisfied that the comments have been addressed.

I think it's important that we move ahead with these standards, knowing full well they will be revised again. So I encourage all the stakeholders to participate in this process, continue to participate in this process in a meaningful way.
My accolades to the staff. I think you've done an excellent job. And I think your tribute to the late Jon Leber is also very fitting, and I congratulate you on that.

So, I would like to second Commissioner Rosenfeld's motion to approve these standards.

COMMISSIONER ROSENFELD: And I wanted to make one other comment to Pat -- forgotten your last name -- Splitt, sorry, Pat.

I got around to reading this about 11:00 last night, and by 2:00 in the morning I was sort of bleary-eyed. I appreciate your comments, but I wish they didn't come in at sort of two minutes before the deadline, the night before the meetings. Can we try to be a little more prompt next time?

MR. SPLITT: But they're essentially the same comments I gave at that 45-day language that I thought were important.

CHAIRPERSON PFANNENSTIEL: Let me just say that this item has been moved and seconded. And then I got a last blue card from somebody who would like to speak. So, may I ask you to speak, and that you respect where we are in this process.

MR. LEASE: Yes, hi. My name is Craig

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345
Lease. I represent L&L Suppliers in Stockton, California.

Concerning the roof coatings of the gentleman whose samples were lost, and the SRI was added solar reflectance index was added. And it is all through the rulings at 64 where the initial reflective -- or after three year age reflectivity is supposed to be 55. At 64 that is the equivalent of 84 on reflectivity, initial reflectivity being 84.

One of my products is an 85 reflective. My gravel system that's lasted up to 48 years, is reflective at 81.

So in the formula you subtract essentially 20 points. So 85 minus 20 is 65, which would pass. And for my gravel system, being that it's up and down and multiple reflections, it comes in at 81. 81 minus 20 would be 61. And therefore, that would not be allowed at a SRI of 64.

So I was going to ask the council or the Commission if it was possible to switch that to 60. If it's too late at this point, at least I tried to --

CHAIRPERSON PFANNENSTIEL: I think you
need to work with staff, sir, and see what we can
work on with that.

MR. LEASE: That'd be fine.

CHAIRPERSON PFANNENSTIEL: Thank you.

MR. LEASE: Thank you so much.

MR. SHIRAKH: Again, they can use the
compliance -- the performance approach, and he'll
actually get credit for the thermal mass of the
rocks.

CHAIRPERSON PFANNENSTIEL: Thank you,

Mazi.

COMMISSIONER ROSENFELD: Yeah, I think
you're okay.

MR. LEASE: Thank you.

CHAIRPERSON PFANNENSTIEL: Before we
vote on this let me just comment that I really do
appreciate the incredible work that the staff puts
into these updates. There's a reason it takes as
long as it does. It's both very complicated and
very comprehensive.

And I know that I've been pushing,
pushing, pushing trying to get the standards
adopted so that we can start capturing the savings
that they're all about.

And I know that there are questions
about how much savings we really capture and it
has a lot to do with the enforcement that we try
to impose. And we need to do better on that. We
need to make sure we are capturing every kilowatt
hour and every therm that we say we're going to
capture.

But having said that, I think that the
process of working with the many stakeholders, and
those many people who bothered to come here today
and talk to us, is really important. I think
that's how the process works. We need to make
sure that it is something that the stakeholders
have had some input in; we're not always going to
agree.

But we need to make sure that we're
using a valid professional technical base for the
decisions we make.

Two points that were made earlier today
I just want to stress. And one is about the need
for training and education. I think that this is
the really big place to look for green jobs in the
future. We need to be doing this. We need to
have the people out there who are able to work
with us on compliance, on enforcement, on
technical input, on installation. And this is a
very big part of what we're going to do.

And the last thing I would say is that there's a lot of, I think, very valid discussion about how consumers will be affected. And we know, because it's a requirement, that the standards must be cost effective.

But on the other hand we want to make sure customers understand what's happening; that they understand the choice; that they understand the value of this. And I think we all need to do a better job of that, to make sure that the efficiency that we're building into the new homes and the new buildings in California are ones that do make sense from the public. And we need to communicate that better.

With that, any further discussion or questions? No.

Moved and seconded.

All in favor?

(Ayes.)

CHAIRPERSON PFANNENSTIEL: Thank you, all.

Moving on --

(Applause.)

CHAIRPERSON PFANNENSTIEL: -- the