

## DOCKETED

<b>Docket Number:</b>	17-BSTD-02
<b>Project Title:</b>	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
<b>TN #:</b>	222753
<b>Document Title:</b>	Transcript of 02062018 Lead Commissioner Hearing 2019 Energy Code and CALGreen Code
<b>Description:</b>	*** Supersedes TN 222731 ***
<b>Filer:</b>	Adrian Ownby
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	2/27/2018 9:40:26 AM
<b>Docketed Date:</b>	2/27/2018

CALIFORNIA ENERGY COMMISSION

In the Matter of:

2019 Building Energy                    )  
Standards                                    )     Docket No. 17-BSTD-02

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Lead Commissioner Hearing  
2019 Energy Code and CALGreen Code

CALIFORNIA ENERGY COMMISSION  
FIRST FLOOR - ROSENFELD HEARING ROOM  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

TUESDAY, FEBRUARY 6, 2018

9:00 A.M.

Reported by:

Peter Petty

APPEARANCES

ENERGY COMMISSION STAFF

Payam Bozorgchami, Project Manager, 2019 Standards

Christopher Meyer, Manager, Building Standards Office

Joe Loyer, Senior Mechanical Engineer, Compliance  
Enforcement Unit

Peter Strait

Martha Brook, for Commissioner McAllister

Gabriel Taylor, Engineer, Building Standards Development  
Office

Mark Alatorre, Engineer, Building Centers Development  
Office

Simon Lee, Lighting Staff, Building Standards Office

Maziar Shirakh

William Pennington

RJ Wichert

Danny Tam

Ingrid Neumann

Ronald Balneg

Thao Chau

PUBLIC COMMENT

Richard Haring, Philips Lighting

Lynn Gomes, kW Engineering for Building Commissioning  
Associations - California Chapter

Robert Raymer, CBIA

## APPEARANCES

### PUBLIC COMMENT

Cori Jackson, California Lighting Technology Center,  
UC Davis

Mike Hodgson, ConSol for CBIA

Gary Flamm, Independent Consultant

Philip Hall, Philip Hall Images and Light

Michael Jouaneh, Lutron Electronics

Jon McHugh, McHugh Energy

Craig Ochoa, Morrow-Meadows Corp.

Tanya Hernandez, Acuity Brands

Bernie Kotlier, IBEW-NECA

Greg Ander, Architect and California Energy Alliance

Laura Petrillo-Groh, Air Conditioning, Heating and  
Refrigeration Institute

Gina Rodda, Gabel Energy

Alex Hillbrand, Natural Resources Defense Council

Chris Kuch, Southern California Edison

Joe Cain, Solar Energy Industries Association

Jim Benya, Benya Burnette Consultancy

John Martin, International Association of Lighting  
Designers

George Nesbitt (via WebEx), Independent HERS Rater

John Rose, Home Ventilating Institute

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P R O C E E D I N G S

9:01 A.M.

SACRAMENTO, CALIFORNIA, TUESDAY, FEBRUARY 6, 2018

MR. BOZORGCHAMI: If we could take our seat, we could start real quick. We've got a long day. I'm trying to see if we could beat our schedule a little bit here.

My name is Payam Bozorgchami. I'm with the Building Standards Office, Senior Civil Engineer. And I would like to welcome you guys to the Lead Commissioner Hearing for the 2019 Building Energy Efficiency Standards.

Yesterday, Commissioner McAllister had to take a redevye out of Sacramento to Washington D.C. for a meeting he had to attend. So from his office, we have Martha Brook, who is sitting up front, leading this hearing today.

So with that, I'm going to start with a quick housekeeping item. You guys have been here, you guys have seen this before. Restrooms are out the double doors to your left. The snack bar is on the second floor. And in case of an emergency, if the alarms go off, let's reconvene back at the Roosevelt Park kitty-corner from us.

1 Please, nobody go home. We need to take a  
2 headcount, or somebody has to come back in and  
3 look for you folks.

4 Today's agenda is mainly nonresidential.  
5 This is the second part of a two-day hearing.  
6 Yesterday we did most all of residential  
7 measures. Today we are combining all the  
8 nonresidential measures into to today's meeting.

9 So with that, a quick history of why  
10 we're here and why we're doing this. I'm going  
11 to go through these slides as fast as possible,  
12 because I think you guys have seen all this.  
13 It's the same slides that you've heard over and  
14 over and over again, and I apologize. It's  
15 something we have to do every time.

16 In 1974, Warren-Alquist Act was signed  
17 into law by Governor Ronald Reagan. In 1975,  
18 Government Jerry Brown funded the development and  
19 start of the California Energy Commission. The  
20 whole purpose is to reduce the unnecessary  
21 consumption of energy. There's other sections  
22 within the Energy Commission that deal with  
23 sitings, with vehicles and so forth.

24 Other goals and measures have been  
25 bestowed on us at the Energy Commission by the



1 governor. One of the ones that everybody knows  
2 about is this ZNE, meeting the ZNE for  
3 residential by 2020, and for commercial buildings  
4 by 2030.

5           When we develop the standards we depend  
6 on our utility partners to help us out with this.  
7 The utilities that have really helped out and  
8 stepped up is Pacific Gas and Electric, Southern  
9 California Edison, Southern Cal Gas, San Diego  
10 Gas and Electric, San Clemente Municipal Utility  
11 District, Los Angeles Department of Water and  
12 Power, Southern California Public Authority and  
13 their consultants, who has been working  
14 diligently with the Energy Commission staff to  
15 come up with the proposals that you're hearing  
16 today.

17           I also want to thank Kelly Cunningham  
18 with PG&E and Heidi Hallenstein with Energy  
19 Solutions. That's really kept the ball moving in  
20 providing feedback and communications between the  
21 two organizations.

22           All standards that are presented today  
23 and yesterday and in the past, we have to really  
24 go through a vigorous lifecycle cost analysis.  
25 So everything that we do has to make sense, has

1 to have a benefit to the building owner.

2           As you know, California is divided into  
3 16 climatic zones. We're a little bit different  
4 than ASHRAE and the International Energy Codes.  
5 California is predominantly Climate Zone 3. But  
6 here in California, as you know, you drive a few  
7 hours here or there, you're up in the mountains  
8 or out in the sun, so our climatic data is a  
9 little bit different than others.

10           So for -- and I don't know what's  
11 happening with this slide. There's something  
12 sticking up there, but that's supposed to be  
13 sponsor stakeholder meetings. Sorry, I don't  
14 know where "speaking" comes up from, and I'm not  
15 going to worry about it right now, so we'll move  
16 on.

17           The utilities have conducted 19 workshops  
18 or stakeholder meetings within their own  
19 organization where they've invited people from  
20 the outside, they informed everybody of the  
21 measures. They've had nine in-person meetings  
22 and ten webinars.

23           Then the Energy Commission had 14 pre-  
24 rulemakings here at the Energy Commission prior  
25 to this hearing that we're -- this two-day

1 hearing that we're having right now.

2           Where we're at right now, we're at the  
3 February 5th and 6th Lead Commissioner Hearings.  
4 We would love to get your comments, sooner than  
5 later. I'm hoping, if you guys could cooperate  
6 with us and submit your comments by February  
7 20th, that's the day after President's Day, you  
8 guys got three days right there to make comments  
9 and submit it to us.

10           We're trying to give you guys that  
11 benefit and provide reasonable responses on a  
12 timely manner. But if you want to wait until  
13 February 5th or -- oh, excuse me, March 5th, our  
14 workshop is on March 21st, it doesn't really give  
15 us enough time to interact and start a dialogue  
16 with you folks, so the sooner we get those, the  
17 better we're off.

18           Then we are, after that, we're going to  
19 the 45-day business meeting is on March 21st.  
20 That will probably be a five-minute discussion  
21 with our Commissioners. It's not the adoption  
22 date, so, folks, relax.

23           The 15-day language will be presented on  
24 April 11th, and that will be our adoption date as  
25 what we're shooting for, with an exception of

1 CALGreen. CALGreen will be delayed until the  
2 California Building Standards Commission has  
3 their workshop in July and August on the CALGreen  
4 measures. And then we will come back and go  
5 through a formal adoption after that time.

6

7       There's a two-day workshop on the ACM  
8 reference manuals. Those are the credits that  
9 you guys all want to see. Those will be presented  
10 on May 7th and 8th, here at the Energy  
11 Commission. And then after that, Staff is going  
12 to be working diligently to develop the manuals,  
13 update the software, and work on an electronic  
14 document.

15       One other thing that we're doing this  
16 year that Energy Commission staff has committed  
17 to trying to get done is to provide an index  
18 for -- an electronic index, so that it makes it  
19 easier for you folks to search sections as needed  
20 to do your work. We're trying to get all of this  
21 done by the end of this year and to give you guys  
22 about a year in advance of all this, of this  
23 package, so you guys get familiar with it,  
24 understand it, ask questions, and be ready to go  
25 on the effective day of July -- January 1st of

1 2020.

2           The topic we will be covering today are  
3 the nonresidential standards, again, and these  
4 are some of the key areas that we're going to be  
5 discussing today.

6           So the expectation of today's meeting is  
7 that everyone has already read what's been posted  
8 on the website. And we're going to -- the staff  
9 is going to be doing a high-level presentation of  
10 the section changes. We're not really going to  
11 present the nitty-gritty into it, because we're  
12 hoping that you guys have already reviewed it and  
13 you have comments and feedback for us.

14           With that, if you have any comments or  
15 concerns, please, there's two websites -- oh,  
16 excuse me, there's two links here; one is for  
17 Part 6, the Building Energy Efficiency Standards,  
18 and one is for Part 11, the second bullet there,  
19 and that is for CALGreen measures.

20           I have here with me is our Office  
21 Manager, Christopher Meyer. And I think he would  
22 like to give a quick -- take a minute of your  
23 time.

24           MR. MEYER: Great. Thank you, Payam.

25           This is Christopher Meyer, Manager of the

1 Building Standards Office.

2           Just wanted to sort of quick thank you to  
3 all the different stakeholders. We have, you  
4 know, the utilities, the organizations supporting  
5 the builders, the manufacturers, we have NGOs and  
6 local jurisdictions, who have all worked with us  
7 through all of the pre-rulemaking, all of the  
8 different workshops and, you know, numerous  
9 conversations with, you know, our staff in  
10 different meetings to help our understanding,  
11 help us sort of understand, you know, unintended  
12 consequences of different solutions, or even  
13 better ways of addressing issues. So that has  
14 our made our proposed standards a lot better and  
15 we really appreciate it, so I want to thank you  
16 all.

17           I don't think it's going to be a huge  
18 problem with time today, but just if you have  
19 very technical, involved comments, getting those  
20 in writing so we can make sure to hit all of your  
21 issues, all the details correctly. It is very  
22 helpful. And just in respect of time of other  
23 people, you know, just try to keep the -- your  
24 comments sort of clear and concise is definitely  
25 helpful.

1           And that said, I'm just going to sort of  
2 turn you over and we're going to start our  
3 presentations. But once again, just thank you  
4 everyone for your participation in this. It's  
5 what makes this a really good process.

6           MR. BOZORGCHAMI: So our first presenter  
7 is going to be Joe Loyer, and he's going to be  
8 talking about the Admin section, 10-113 -- oh,  
9 10-103 that we did not discuss yesterday.

10          (Colloquy)

11          MR. LOYER: Hi. I'm Joe Loyer, Senior  
12 Mechanical Engineer. I'm the Compliance  
13 Enforcement Unit. And I'm just going to go over  
14 the section -- or Part 1, section 10-103, 10-10-  
15 103.1 and 10-103.2.

16                 So the first one, 10-103, we only had  
17 minor edits here. Just for clarification, if  
18 there are any changes that you see that are  
19 beyond that, they were not intentional. So the  
20 edits here or the changes here are just for  
21 clarification. That was 10-103.

22                 10-103.1 and .2 are the ATTCP Program,  
23 Acceptance Testing and Certification for lighting  
24 controls and mechanical controls. Firstly, we  
25 had some minor modifications that we did to this

1 section. Primarily, the ATTCP must describe  
2 their process for decertifying an ATT or an ATE  
3 seeking recertification, including eligibility  
4 requirements if any. The ATTCP may also specific  
5 additional qualifications for participating in  
6 the programs, such as limiting the participation  
7 to person that are not currently listed as  
8 decertified by another ATTCP. This is in  
9 addition to the minimum three years' experience  
10 that they must have in order to participate in  
11 the program.

12 We standardized the use of the terms ATT,  
13 ATE and ATTCP. They were a little bit  
14 fluctuating through the code, so we just fixed  
15 that.

16 Minor modifications to reporting  
17 requirements for the ATTCPs, just annual  
18 reporting, and at the updating reporting that's  
19 required. Also, if they want to make amendments  
20 to their program, we've actually specifically  
21 made a process for that now so that it's not a  
22 guess as to what we need to do or what they need  
23 to do; it's actually spelled out.

24 Minor modifications to the application  
25 amendment process, you know, just went over that,



1 so those are the minor changes that we made.

2           Now the only substantive change we made  
3 was to the Quality Assurance Program, and this is  
4 where we have a difference between Lighting  
5 Controls ATTCPs and Mechanical ATTCPs. Lighting  
6 controls, the changes to the quality assurance  
7 requirements are intended to be minor  
8 clarifications only, so there are no significant  
9 changes to their quality assurance requirements.

10           The quality assurance requirements to the  
11 mechanical systems is a substantive change. The  
12 substantive change, essentially, is that the  
13 audit for the Mechanical ATTCPs, we'll be able to  
14 audit one percent of the ATEs projects, instead  
15 of the ATTs acceptance testing. So that's a  
16 subtle verbiage difference, but it is a  
17 significant difference in the Quality Assurance  
18 Program. It will also specifically allow for  
19 shadow auditing for the mechanicals.

20           All right, so that's basically the end of  
21 the presentation. I have a set language here  
22 that I've been asked to read out, so I will go  
23 ahead and do that, before we ask for any  
24 questions.

25           We strongly encourage folks to submit any

1 comments, to use our e-filing system. This is a  
2 fully automated system that ensures each comment  
3 is docketed into our proceedings. If you need to  
4 submit further -- submit information or documents  
5 via physical mail, the mail address of our  
6 dockets office is below. Is it? Yeah, it is.  
7 Lastly, if for any reason the e-file web system  
8 is unavailable, you can submit comments to our  
9 Dockets Office via email. And if you're an ATTCP  
10 or an ATE or an ATT and you want to submit a  
11 comment and you can't use these processes, the  
12 absolute last-ditch effort that you can make, you  
13 can send it to me. I will make sure it gets into  
14 the record.

15           The final deadline for all written  
16 comments is March 5th by 5:00 p.m. And here is a  
17 joke. It is easier to remember March 5 by 5. I  
18 don't know who wrote that.

19           Oral comments can also be made to the  
20 Commissioners at the business meeting where the  
21 adoption for the 2019 Standards is considered.  
22 We're going to repeat this after each section,  
23 just in case everyone has turned in -- has tuned  
24 in just for that portion of the workshop.

25           And at this point, I'd like to open up

1 the proceedings to any comments that would --  
2 anybody would like to step up and make. If you  
3 have a blue card, we would like to have you fill  
4 out a blue card, if it's available. I don't know  
5 if we're --

6 MR. STRAIT: No, we're not doing blue  
7 cards --

8 MR. LOYER: No?

9 MR. STRAIT: -- in this.

10 MR. LOYER: We're not doing blue cards?

11 MR. STRAIT: Yeah. Right.

12 MR. LOYER: Okay. So if anybody would  
13 like to make a comment, please step up. And if  
14 you can, if you've got a card, please give a card  
15 to our court reporter.

16 MS. BROOK: Do we have to do that every  
17 time, Payam?

18 MR. BOZORGCHAMI: So, we're not going  
19 to --

20 MR. LOYER: Read the joke?

21 MS. BROOK: Yeah.

22 MR. BOZORGCHAMI: -- read this every  
23 time --

24 MS. BROOK: Okay.

25 MR. BOZORGCHAMI: -- that Joe did.

1 MS. BROOK: Thank you.

2 MR. BOZORGCHAMI: All right. But every  
3 presentation has this slide in there, because  
4 we're going to be posting these presentations on  
5 the web tomorrow. And if -- we just want  
6 everybody to have that contact information and  
7 where to mail or email their docket information.

8 MR. STRAIT: Oh, and one thing to add, if  
9 you're speaking today, if you're attending  
10 online, you'll have a raise-your-hand button that  
11 will let our folks know to dial you in after the  
12 comments in person here have concluded. You can  
13 also submit a comment using the chat box that's  
14 available there and our staff person will read it  
15 into the record.

16 MR. HARING: Hi. Good morning. Rick  
17 Haring, Philips Lighting.

18 Just noting that you removed the  
19 distinction between Mechanical and Lighting  
20 Control ATTs, we're wondering how you're going to  
21 ensure that Mechanical ATTs aren't certifying  
22 lighting controls and vice versa.

23 MR. LOYER: I can answer that. So the  
24 certification process for Lighting Controls and  
25 Mechanicals are distinctly different. The --

1 except -- the providers themselves are approved  
2 by the Energy Commission in a completely separate  
3 process. The application process of Lighting  
4 Controls and Mechanical Systems do follow very  
5 similar pathways, but the actual requirements for  
6 the training and the oversight certification  
7 process are different. So to date, there have  
8 been no Lighting Controls ATTCPs that have also  
9 gotten themselves certified as Mechanical ATTCPs,  
10 and we don't expect there to be any.

11 MR. HARING: All right. Thank you.

12 MR. LOYER: Um-hmm.

13 MR. BOZORGCHAMI: Ronald, any comments?

14 MR. GOMES: Good morning. My name is  
15 Lynn Gomes. I'm speaking on behalf of the  
16 Building Commissioning Association of California.

17 I made comments earlier and the comments  
18 weren't included in the 45-day language. I'm  
19 here to strongly recommend that those comments be  
20 included, specifically, modifying section 10-  
21 103(a)(1), second paragraph, to include a  
22 certified commissioning professional to be  
23 allowed to do commissioning activities under  
24 section 129.8.

25 MR. LOYER: So a specific request to have

1 your comments from the pre-rulemaking stage  
2 entered into record for the rulemaking stage, I'm  
3 sure we can handle that. Thank you.

4 MS. GOMES: Thank you.

5 MR. BOZORGCHAMI: Anybody else? If not,  
6 we're going to move on to Subchapter 1, section  
7 100, and Gabe Taylor will do the presentation  
8 there.

9 MR. TAYLOR: Good morning. My name is  
10 Gabriel Taylor. I'm an Engineer in the Building  
11 Standards Development Office. I am project  
12 managing two sections of this 2019 Building  
13 Energy Efficiency Standards Update. I'm project  
14 managing the Load Management Demand Response  
15 section, and also the extension of the standards  
16 to healthcare facilities.

17 The primarily mechanism that we're using  
18 to the healthcare facilities is a change in scope  
19 for the standards, so I'm also presenting a  
20 little bit of the other sections here under  
21 section 100.

22 The scope has been extended to include  
23 Occupancy Group I, with an exception for  
24 Occupancy Groups I-3 and I-4. This extends the  
25 scope of Title 24, Part 6 to include healthcare

1 facilities as they're defined in the definition  
2 for Occupancy Group I. We have also added a  
3 definition in section 100.1 for the term  
4 "healthcare facilities."

5           In addition, in the definitely section,  
6 we've added a number of new definitions. We've  
7 clarified a number of existing definitions.  
8 There's a list here of a number of areas, a  
9 partial list here of some of the areas that we've  
10 clarified and added.

11           In particular, I wanted to highlight that  
12 we've updated definitions for occupancy and  
13 habitable space, but we are aware of the use of  
14 the term habitable space in a number of other  
15 proceedings, and we're investigating how that  
16 will interact between our standards and those  
17 other regulations.

18           There may be some stakeholders here from  
19 the healthcare community. We're very interested  
20 in your comments on the specific sections where  
21 they impact the healthcare change. Because it  
22 cascades through the entire standards, we'll  
23 change -- we'll create a change in just about  
24 every section. There are a number of exceptions  
25 that are new, but there are a number of areas

1 where there's no exception. And because of the  
2 change in scope, those sections now apply to  
3 healthcare facilities as defined.

4           So if you are from the healthcare  
5 community, please get up and provide your  
6 comments at any time, or provide your comments to  
7 the written record.

8           Here, again, as Joe mentioned, we would  
9 very much like your comments in writing, but we  
10 also welcome your comments today. This is a  
11 hearing. The intent here is to give the  
12 opportunity for stakeholders to provide their  
13 comments to the record. The court reporter will  
14 be collecting that information and we'll have a  
15 transcript that the staff will use to reference  
16 during our updates later on in this code cycle.  
17 In addition, if you provide the written comments,  
18 that would be helpful.

19           If you do get up to speak at the mike,  
20 please provide a business card or your contact  
21 information to the court reporter so that we can  
22 get all the names and information correct.

23           So at this time, I'd like to open up for  
24 comments from anybody on section 100, or if you,  
25 again, are from the healthcare community, because



1 the changes are peppered throughout the code, if  
2 you'd like to get up and comment now, I think  
3 that would be welcome. Oh, this is going too  
4 fast.

5 Bob, please.

6 MR. RAYMER: Sorry. Bob Raymer with  
7 CBIA. Section 100 lower case E, large case D,  
8 double I, B -- excuse me for this, then another  
9 double I, exception number two is being deleted.  
10 This is where low-rise residential buildings that  
11 are heated with a wood heater. Could you explain  
12 why you're deleting that? I realize it's rare,  
13 but you're deleting that provision.

14 MR. ALATORRE: Hi, Bob. I can speak to  
15 that. It's because it's embedded in the  
16 definition for mechanical heating. We list wood  
17 heating as -- we're considering it mechanical.

18 MR. RAYMER: Fine. Thank you.

19 MR. ALATORRE: Yeah.

20 MR. HARING: Rick Haring, Philips  
21 Lighting.

22 In section 100.1, we would oppose the  
23 creation of a new definition for the term "solid  
24 state driver" and continue to recommend that the  
25 Commission adopt the anti-definition for driver

1 for clarity and consistency across the standards.  
2 We believe that the definitions in the code  
3 should align, whenever possible, to a national  
4 recognized standard because this alignment  
5 precludes ease of use, clarity or user  
6 (indiscernible) professionals' law.

7 MR. TAYLOR: Thank you.

8 Actually, to ask one clarifying question,  
9 right now the majority of lighting definitions we  
10 pull from RP-16. Is there -- is your  
11 recommendation that we use an ANSI document  
12 instead, or that we stick with the IES document?  
13 Rather, is there a different document you'd  
14 recommend that we reference?

15 MR. HARING: I can forward that to you.

16 MR. TAYLOR: Okay. Thank you.

17 MR. HARING: Thank you. I'll forward you  
18 the reference.

19 MR. BOZORGCHAMI: Anybody else? No?

20 So with that, I'm going to have Mark  
21 Alatorre present the Mechanical section, section  
22 120, that's Subchapter 3. It will 120 through  
23 120.9.

24 MR. ALATORRE: Hi. My name is Mark  
25 Alatorre. I'm an Engineer in the Building

1 Centers Development Office, and I'll be  
2 presenting the Subchapter 3.

3           So with the transition to regulate  
4 healthcare facilities, there was a need to revise  
5 the scope of the ventilation section, and that  
6 was to be explicit as to which building types  
7 were going to be regulated under this section.  
8 So we specifically called out high-rise  
9 residential, nonresidential and hotel/motel. And  
10 we directed any healthcare facility to comply  
11 with the OSHPD amendments of the Mechanical Code.

12           For section 120.1(b), High-rise  
13 Residential Building, this is for the dwelling  
14 unit, we brought over the air filtration  
15 requirements that are in our Low-rise Residential  
16 section, and they are applicable to ducted  
17 mechanical and space conditioning systems, as  
18 well as the supply ventilation system on the  
19 supply side of a balanced system.

20           Along with those requirements are air  
21 filter sizing, and the requirement is for there  
22 to be a minimum two-inch depth or the same  
23 allowance of a one-inch, granted that it complies  
24 with the maximum phase velocity, as well as the  
25 maximum pressure.

1           The MERV level was increased to MERV 13,  
2 as well as the air filter product labeling and  
3 the requirement for the filter itself to be  
4 labeled for its performance.

5           The ventilation rate for the dwelling  
6 unit is based on ASHRAE 62.2 with the following  
7 amendments: Window operation was not permissible  
8 for providing whole building ventilation; also,  
9 central fan integrated ventilation systems are  
10 not permissible; and there is an assumed  
11 infiltration credit would eliminate the need for  
12 a blower door test.

13           Oh, I wanted to note that there is -- we  
14 added language that would allow a central fan  
15 integrated ventilation system, as long as it was  
16 approved through our compliance option process.

17           The required ventilation rate would  
18 follow section 1.1.1 of ASHRAE 62.2. And the  
19 ventilation will need to be provided with the  
20 balanced system, or if a HERS Rater verifies  
21 envelope and closure leakage to less than 0.3 CFM  
22 per square foot, then the use of a continuously  
23 operating exhaust-only ventilation system or a  
24 continuously operating supply ventilation system  
25 is allowed.

1           In the instance that the building uses a  
2 central shaft to deliver ventilation to all  
3 dwellings, the verified air flow -- the  
4 ventilation airflow rates for each dwelling unit  
5 served are required to be balanced to the  
6 greater -- to greater than or equal to the 62.2  
7 airflow rate and not more than ten percent  
8 greater than the required rate. These systems  
9 are expected to use balanced devices to ensure  
10 the dwelling unit airflow -- airflows in each  
11 dwelling served by the building ventilation  
12 system can be adjusted to meet this balanced  
13 requirement. These system-balancing means may  
14 include constant air regulation devices, orifice  
15 plates and variable speed central fans.

16           Also, the kitchen range hood, there's a  
17 requirement for it to be HERS verified, that the  
18 hood is rated by HVI and meets the requirements  
19 of 62.2.

20           Also, there is a new acceptance test for  
21 airflow performance. And I wanted to make clear  
22 that it's not an acceptance test for the kitchen  
23 range. This is the acceptance test to verify  
24 dwelling unit ventilation. And along with the  
25 acceptance test, there's also a HERS

1 verification.

2           Okay, now for nonresidential buildings  
3 and hotel-motel building types, we added a  
4 requirement to -- for the air filtration to be at  
5 a MERV 13. Prior, there was no air filter  
6 requirements in Part 6. And we also added the  
7 minimum two-inch depth.

8           We aligned with ASHRAE 62.1, Natural  
9 Ventilation Rate Procedure. This is a transition  
10 to what the 2016 natural ventilation calculation  
11 was, and we felt that 62.1 was a bit more  
12 sophisticated in its way of determining whether a  
13 space can comply with natural ventilation.

14           The mechanical ventilation requirements,  
15 what was presented in October was the ventilation  
16 rate procedure out of 62.1. Since then, based on  
17 comments and dialogue we had with stakeholders,  
18 as well as ARB, there was a concern about reduced  
19 rates for certain occupancies. And due to that,  
20 we decided not to pursue the ventilation rate  
21 procedure anymore. So what's in the mechanical  
22 ventilation rate is what currently is required  
23 under the 2016 guidance. It may not be obvious  
24 when you're looking at the section, but Table  
25 120.1(a), which is the Ventilation Rate table, is

1 populated using the methodology of the 2016  
2 Standards. The rates there are the greater of 15  
3 CFM per person, or 0.15 CFM per square foot. And  
4 we use the Building Code assumption for occupant  
5 density.

6           We thought it was important to keep the  
7 table, one, because it had an expanded list of  
8 occupancy types, but also because it gave air  
9 classifications for each of those occupancy types  
10 which we use later in section 120.1(g).

11           Also, another thing that we took from  
12 62.1 was their exhaust ventilation procedure, and  
13 that is found in Table 120.1(b). And Table  
14 120.1(c) is guidance for determining air class  
15 for spaces that are not listed in 120.1(a).

16           So 120.1(d)(3), Demand Control  
17 Ventilation, this section was revised to -- by  
18 deleting the Exception 1, which made demand  
19 control ventilation applicable to classrooms,  
20 call centers and office spaces. And also, we  
21 amended the triggers to be any one of the three  
22 listed prior. It was an all-inclusive yet it fit  
23 all three in order for DCV to get triggered, and  
24 now it's any one of those conditions and you have  
25 to comply with demand control.

1           120.1(d)(5), Occupant Sensor Ventilation  
2 Control Devices, we deleted subsections c, d and  
3 e. Those sections describe the occupant sensor  
4 control requirements. But with our new occupant  
5 sensing ventilation control requirements in  
6 120.2(e)(3), these subsections were no longer  
7 needed.

8           So here in 1201.(g), the air  
9 classification and recirculation limitation, this  
10 was taken from 62.1, and this gives guidance  
11 on -- or limits on air recirculation and  
12 transfer. In essence, you can't take air from a  
13 Class 3 space and use it as transfer air for a  
14 Class 2 or a Class 1 space. We thought that was  
15 a good part of 62.1 that we wanted to align with.  
16 It also gives direction on classifying air that  
17 may not be listed in the tables

18           120.2(e)(3), Occupant Sensing Zone  
19 Controls, this is a control technique called  
20 occupied standby. And it is for spaces that  
21 already have an occupancy sensor because of the  
22 lighting control. And it's a space identified in  
23 120.1(a) as eligible to be in occupied standby.  
24 And what that means is when the room is not  
25 occupied, the cooling and heating set points are



1 reset and the ventilation is reduced. Any time  
2 that space drifts outside the set point, the  
3 heating and ventilation or the cooling and  
4 ventilation does kick on.

5           120.2(h), Automatic Demand Shed Controls,  
6 all of this section was moved to 110.12. And the  
7 FDD requirements were expanded to now include not  
8 just package rooftop units, but all cooling  
9 systems with an air economizer that are over  
10 four-and-a-half tons.

11           There were small changes in these  
12 sections in 120.3 and 120.4. In 120.3 we added  
13 refrigerant lines as also needing pipe  
14 insulation. We also clarified in 120.3 that the  
15 pipe insulation requirement was a minimum. And  
16 in all three sections there were exceptions added  
17 for healthcare facilities, as appropriate.

18           120.6(a), the Mandatory Requirements for  
19 Refrigerated Warehouses, we added adiabatic  
20 condensers to the type of systems that are now  
21 regulated, not just air cooled or evaporative  
22 cooled. And there were performance specs added  
23 for these type of systems. This is a  
24 continuation of the same topic. These are more  
25 of the requirements that were added to this

1 section.

2           120.6(b), Commercial Refrigeration of  
3 Supermarket Refrigeration, also was expanded to  
4 include hybrid condensers and, essentially,  
5 requiring the same thing as we do for  
6 refrigerated warehouses.

7           And lastly, 120.7, the Mandatory  
8 Insulation Requirements, there were minor edits  
9 here. Under floor and soffit insulation, this  
10 section -- the section related to heated slabs  
11 was revised to say "heated slabs on grade," and  
12 then that was the extent of that.

13           And that ends the presentation. I will  
14 now open it up for comments.

15           MS. GOMES: Good morning. Lynn Gomes on  
16 behalf of the California Chapter of the Building  
17 Commissioning Association.

18           Although it wasn't discussed, section 128 --  
19 120.8 is in Subchapter 3. We previously  
20 submitted comments, as I alluded to earlier, on  
21 this section, and I'd like to speak to those.

22           Like our membership, I make commissioning  
23 my career to make a difference in the quality and  
24 efficiency of buildings. And making a difference  
25 in energy efficiency is why we have Title 24 and

1 why we have commissioning in section 120.8.

2           Right now as written, code allows almost  
3 anyone to do commissioning, and this lack of  
4 standard decreases the quality of that effort.  
5 Just requiring certification does not help  
6 quality. There are almost 14 commissioning  
7 certifications out there requiring ANSI  
8 accreditation, where a commissioning provider  
9 meets -- means that they meet a rigid federal  
10 requirement for experience and qualifications.

11           Furthermore, an independent third party  
12 is only required for design review for large or  
13 complex systems. Anyone can functionally test  
14 their systems. Because code allows anyone from  
15 the design team or the contractor to test their  
16 own systems, this presents not only a conflict of  
17 interest but reduces the quality by allowing  
18 those without the specialized experience required  
19 to properly test complex systems.

20           In summary, we, the California Chapter of  
21 the Building Commissioning Association, strongly  
22 recommend third-party commissioning providers for  
23 large or complex systems and that party be  
24 certified by an ANSI-accredited body.

25           Thank you.

1 MR. BOZORGCHAMI: Thank you.

2 Any more comments to this subchapter?

3 None? Wow. Okay.

4 So thanks, Mark.

5 So we're going to go into the Lighting  
6 section, Subchapter 4. And Simon Lee will be  
7 presenting.

8 The way we're going forward we may move  
9 some of the stuff, the measures that we have in  
10 the afternoon, we may move them up to the  
11 morning, mostly likely Subchapter 5 and  
12 Subchapter 6. We may have time to do that right  
13 before lunch. So just, folks on the line, please  
14 be aware.

15 MR. LEE: This is Simon Lee. I'm one of  
16 the Lighting Staff for the Building Standards  
17 Office.

18 Subchapter 4 in section 130 include the  
19 requirements for lighting system and electrical  
20 power distribution systems.

21 Section 130.0, for 2019, two new  
22 subsections are proposed for LED lighting  
23 (indiscernible) for the determination of  
24 luminaire wattage. Every day, lightings are  
25 designed with many form factors. The convention

1 is luminaire and lamps, but there are also many  
2 new factors, such as LED tape lighting. We added  
3 a new subsection 130.0(c)(4) for (indiscernible)  
4 lighting, and that includes LED luminaires and  
5 OLED luminaires.

6 We added another new section, 130.0(c)(5)  
7 for everyday table lighting.

8 130.0(c)(2)(B) for recessed luminaires  
9 with medium screw (phonetic) base. We added a  
10 new method which is based on the wattage of the  
11 installed JA lamps.

12 130.0(c)(6) for marginal lighting  
13 systems. These are lighting systems with  
14 luminaires that can be added without altering the  
15 wiring of the system, such as tract lighting. We  
16 proposed three methods to determine the wattage  
17 of a marginal lighting systems.

18 The first method is based on the length  
19 of a check or busway, or based on an account of  
20 all of the luminaires in the system.

21 The second method is based on the current  
22 limiter or the supplementary overcurrent  
23 protection panel.

24 The third method is based on the  
25 wattage -- is based on the weighting of the

1 driver power supply or transformer.

2 Section 130.1, Indoor Lighting Controls.

3 Some portions of this section, I'll clarify.

4 Section 130.1(a), Manual Air

5 (indiscernible) Controls, we clarify and

6 harmonize the requirements of egress lighting

7 with the California Building Code section

8 1000(a).

9 In section 130.1(b), Multilevel Lighting

10 Controls, we moved some of the requirements to

11 Table 130.1(a). We also make some editorial

12 changes.

13 130.1(c), Automatic Shutoff Controls, we

14 added requirements for (indiscernible) all

15 sensing controls for restrooms. And for

16 healthcare facilities, we added an exception to

17 the automatic shutoff control requirements.

18 One more.

19 130.1(f), Control Interactions. We added

20 this new subsection to clarify control

21 interactions between two indoor lighting control

22 types, such as the interaction between a manual

23 control and an automatic shutoff control.

24 130.1(d), Automatic Daylighting Controls.

25 In this subsection we moved the data zone

1 (phonetic) definitions to section 100.1. We also  
2 clarified the data zone requirements for atrium  
3 space in large buildings and buildings with large  
4 overhangs.

5           Section 130.2, Outdoor Lighting Controls  
6 and Equipment. We added two changes for outdoor  
7 luminaires. Number one, the luminaire cutoff  
8 requirements, also known as the (indiscernible)  
9 weighting, is changed to be based on luminaire  
10 output. Number two, since both Energy Code and  
11 CALGreen Code have (indiscernible) requirements,  
12 we propose to refer to the CALGreen Code for  
13 (indiscernible) requirements.

14           Outdoor Lighting Controls, section  
15 130.2(c), I'm going to highlight several changes  
16 proposed here. Doing an occupied -- an  
17 unoccupied period an outdoor lighting control  
18 shall reduce outdoor lighting power by at least  
19 50 to 100 percent, and this can be achieved by  
20 using automatic scheduling controls or motion-  
21 sensing controls. We also have some specific  
22 requirements for automatic scheduling controls to  
23 provide an override capability with an override  
24 period of no longer than two hours. And for  
25 motion sensors, set a timer period to be no

1 greater than 15 minutes.

2           Section 130.4, Lighting Control  
3 Acceptance and Installation Certificate. The  
4 main changes are about tract lighting, current  
5 limiter, and supplementary over current  
6 protection panels. We propose to remove the  
7 installation certificate requirements.

8           Section 130.5, Electrical Power  
9 Distribution Systems. For healthcare facilities,  
10 we added exceptions to the requirement of service  
11 metering, separation of electrical circuits, and  
12 circuit controls for 120-volt receptacles  
13 (indiscernible) control receptacles.

14           And that's all my highlights to the  
15 changes in Subchapter 4.

16           MR. BOZORGCHAMI: Thanks, Simon.

17           Any comments? Gary?

18           Anybody? Anybody on the phone? Oh, we  
19 got one commenter. Good. Martha was getting  
20 tired up there.

21           MS. JACKSON: Hi. Good morning. Cori  
22 Jackson from the California Lighting Technology  
23 Center.

24           We didn't really touch on it, but there  
25 have been a couple of significant changes to the



1 demand response requirements for lighting  
2 controls. And so at this point, looking at the  
3 acceptance test -- the acceptance tests that go  
4 along with those demand responsive controls, I'd  
5 like to state that I think those tests need to be  
6 aligned with the changes for demand response,  
7 specifically with respect to the requirement to  
8 include an open ADR 2.0A or higher VEN, which is  
9 a virtual N node that's now part of the  
10 requirements, but the acceptance test  
11 requirements don't really speak to that; the  
12 language isn't consistent.

13           And so I'd like to encourage that that  
14 language be reviewed and made consistent with the  
15 change in the actual code so that those test  
16 technicians really know exactly what they need to  
17 be doing.

18           MR. BOZORGCHAMI: Very well. We will do  
19 that.

20           MS. JACKSON: Thank you.

21           MR. BOZORGCHAMI: Thank you.

22           MR. HODGSON: Mike Hodgson, ConSol,  
23 representing CBIA.

24           Kind of two sections that say the same  
25 thing. Section 130.1(a)(2), talking about manual

1 controls. And the comment we put in about a  
2 month or two ago to Staff was we wanted to make  
3 sure that manual controls were not in areas for  
4 safety, such as garages or common space. And I'm  
5 not sure if aligning that, which I think we  
6 already checked Building Code section 1008 for  
7 egress, whether that covers that or not. We need  
8 to look into that. But that's an issue that we  
9 have a concern about, and we don't see new  
10 language.

11           Similarly, on section 130.2(c), which is  
12 control for outdoor lighting, it's the same  
13 concern. There's, in multifamily, a fair amount  
14 of common space, which we have for safety  
15 lighting. And we want to make sure that there is  
16 not a requirement to have that light off, even if  
17 it's turned on with an occupancy or a sensor,  
18 okay, so it's really a safety concern, not  
19 necessarily an energy concern.

20           So the same issue, two different  
21 sections.

22           MR. STRAIT: I can confirm, we've heard  
23 one other commenter about making sure that this  
24 specifies that it's partial-off behavior that's  
25 being required here, so that it's not simply an

1 on-off, all the way on versus completely dark.

2 And we can look at what language would be

3 appropriate to add to specify that.

4 MR. HODGSON: Okay. That would be great.

5 I'm sure the language exists in the California

6 Building Code, and I just want to make sure it's

7 listed.

8 Thank you.

9 MR. LEE: Yeah. Similarly, for the -- I

10 just want to add a supplement to Peter's

11 response.

12 So for outdoor controls the requirement

13 is to dim the lights in the range of 50 to 100

14 percent, and so that's the range. And so the

15 intent is to provide as much visibility to the

16 building (indiscernible) as possible, so, yeah.

17 MR. FLAMM: Gary Flamm, independent

18 consultant.

19 Thank you, Payam, for calling out my

20 name.

21 This language is far improved over what

22 was earlier, so a lot of things have been

23 corrected.

24 One concern I have is in your allowing

25 JA8 lamps for downlights. I think the language

1 is fine, but I think it could be confusing in  
2 that the traditional way of understanding  
3 downlights for residential is that they're not  
4 allowed to have screw-base sockets. And I  
5 imagine that there's going to need to be some  
6 clarification in the manuals to make that  
7 distinction, because there's a significant  
8 distinction between the way the standards treat  
9 residential lighting and nonresidential lighting.

10           So I think the language is fine, but  
11 because of the traditional way of understanding  
12 JA8, I think that there could be some confusion.

13           Okay. Thank you.

14           MR. BOZORGCHAMI: Thanks, Gary.

15           The one thing that Commissioner  
16 McAllister had asked us to do for this code cycle  
17 is to really streamline the manuals and make it  
18 simpler to understand. So this is one area that  
19 we'll probably need your assistance in getting it  
20 in there properly.

21           MR. HALL: Philip Hall, Philip Hall  
22 Images and Light.

23           About 130.1(e), Demand Responsive  
24 Controls, it's still listed that you're looking  
25 for lighting to be reduced by 15 percent below

1 the total installed lighting. I think that  
2 really needs to be clarified because if a  
3 building has -- is using either top trimming or  
4 some other method and it's currently below that  
5 level, this could result in a rise of power being  
6 used, rather than a reduction.

7 MR. STRAIT: Just as one clarifying note  
8 for the demand responsive lighting controls, when  
9 we moved the language to 110.12, we also  
10 clarified that the requirement that it be -- the  
11 system be capable of reducing the lighting power  
12 by a minimum of 15 percent is a demonstration  
13 that the system is connected correctly and that  
14 the -- and is able to control lighting in an  
15 appropriate fashion. We're not intending to  
16 dictate the actual behavior of that control. We  
17 expected it be configured according to what best  
18 serves the utility in the Demand Responsive  
19 Agreement or is good for the person on site.

20 So that 15 percent reduction is not  
21 intended to be a requirement that that be the  
22 sole and specific behavior that those controls  
23 engage in.

24 MR. HARING: Good morning, Rick Haring,  
25 Philips Lighting. Just a few comments.

1           In regard to section 130.0(c) regarding  
2 the rating of modular lighting systems powered by  
3 a triber (phonetic) power supply, we feel that  
4 this language really does not address the smart  
5 cooling technologies and internet of things,  
6 considerations, for the conditions that will  
7 likely be mainstream by 2020 when this code  
8 becomes effective. We don't feel that it's  
9 accurate or appropriate that modular lighting  
10 systems, such as power or Ethernet, be charged  
11 the full input lighting wattage for -- if, in  
12 many cases, will power much more than lighting,  
13 such as surveillance cameras, gunshot (phonetic)  
14 (indiscernible) and so on.

15           We would prefer that the rated  
16 lighting -- the rated input wattage, so the POE  
17 switch for lighting, be less the wattage of any  
18 non-lighting related equipment connected to it,  
19 and we would look for that clarification in the  
20 code.

21           MR. LEE: Yeah. We appreciate your  
22 comments and please docket it.

23           And Staff realized that the POE lighting  
24 technologies has a lot of development. And as  
25 part of -- in a recent DOE study, passing

1 (phonetic) components of the system is on the  
2 market is not quite standardized. And so it's --  
3 yeah, we are watching those developments closely,  
4 and we certainly consider any suggestions in how  
5 to improve our language.

6 MR. HARING: Well, thank you. Just a  
7 couple more comments.

8 In section 130.1 for Controls  
9 Interactions, the functionality proposed in Item  
10 6 appears to contradict that of three, and feel  
11 that this can be clarified a little bit further.  
12 This is in regard to the interaction between  
13 multi-level lighting controls and day-lighting  
14 controls.

15 MR. STRAIT: I can provide a small amount  
16 of clarification. I know that we get, very  
17 commonly, a question of if there's a dimmer  
18 control and a daylight control, whether the  
19 dimmer control can be used to turn the lighting  
20 up if there's a need for more lighting after the  
21 day-lighting controls turn the lighting down.  
22 And we have specified that our regulations aren't  
23 intended to prevent or prohibit that labor  
24 because, again, it's about serving the occupant,  
25 if occupants want to behave that way. So

1 we're -- but we can -- but we would be introduced  
2 in any improving phrasing you might want to  
3 suggest.

4 MR. HARING: Okay. Thank you. We will  
5 be providing comments.

6 Finally, in section 130.2, we oppose the  
7 change, the luminaire cutoff requirements from  
8 150 watts to 5500 lumens, from reading the BUG  
9 requirements. Given the wide range of lumen per  
10 watt specifications, we feel that this might  
11 impact a number of decorative and specialty  
12 luminaires that can't meet these requirements,  
13 and this would limit the choices of designers and  
14 owners to specify and install these types of  
15 outdoor lighting. We would encourage further  
16 evaluation of this requirement.

17 MR. STRAIT: One question on that.  
18 Currently for the cutoff requirements there are  
19 exceptions for lighting for building facades,  
20 public monument statues, vertical surfaces or  
21 bridges. Are there other items that you would  
22 suggest adding to that list to make it about the  
23 application of the lighting, rather than about  
24 the technology used? Just given that 5500 lumens  
25 is a significant amount of output.



1           MR. HARING: Yes, it is. We will be  
2 providing written comments to the docket.

3           MR. STRAIT: Thank you.

4           MR. HARING: Thank you.

5           MR. JOUANEH: Michael Jouaneh, Lutron  
6 Electronics.

7           Most of the changes, I think, are  
8 excellent and provide a lot of clarifications and  
9 increase energy efficiency.

10           One concern I have is the new Control  
11 Interaction section, Item number 4 in particular,  
12 that says,

13           "The multi-level lighting control shall  
14 permit the demand responsive control to  
15 increase or decrease the lighting during a  
16 demand response event."

17           The part that concerns me is the  
18 increase. That's counter to the mission of the  
19 standard and seems very wasteful, and it's also  
20 counter to the new Demand Response section which  
21 says to demonstrate compliance you have to show  
22 15 percent reduction. So that's one concern that  
23 we'd like addressed.

24           Thank you.

25           MR. STRAIT: Thank you. I can provide --

1 part of the reason for mentioning an increase is  
2 to look at more sophisticated demand management-  
3 types of circumstances. We are seeing situations  
4 where being able to adjust load up and down  
5 provides grid benefits, so as not to get in the  
6 way of those devices as they're developed. That  
7 is the reason for the inclusion of that term.

8 MR. JOUANEH: Understood. I think  
9 permitting an increase is acceptable, but  
10 actually requiring the ability to increase or  
11 decrease is the concern.

12 MR. STRAIT: And that's why we use the  
13 term "permit." It's simply to allow, if the  
14 control does that, we are not requiring that a  
15 demand response control be able to increase  
16 lighting.

17 MR. JOUANEH: Okay. Thank you.

18 MS. BROOK: Can I ask a question on this  
19 section? I'm sorry, I didn't get a handy handout  
20 for this.

21 Simon, can you tell me again where you  
22 are referencing CALGreen? I couldn't find it in  
23 the language.

24 MR. LEE: Oh, it's in section 130.2(b).

25 MS. BROOK: 130.2(b). Got it.

1           MR. LEE: Yeah, it's in (b)(1). It's  
2 after the -- yeah, so --

3           MR. MCHUGH: Good morning. This is Jon  
4 McHugh, talking to section 130 -- well, okay.

5           (Colloquy)

6           MR. MCHUGH: For section 132, what is  
7 this, 132.(c)(3) where areas where motion-sensing  
8 controls are required, right now the control  
9 requirements are described by exclusion rather  
10 than by inclusion. So where these controls are  
11 required is for luminaires that are mounted 24  
12 feet or less, but then says "not for building  
13 facade, hardscape, sales frontage or outdoor  
14 lighting," rather than describing what is it  
15 exactly that you - which light you want to  
16 control.

17           And then in addition, the second part,  
18 you know, indicates that this also applies to  
19 facades. So it first says you're not -- these  
20 controls aren't for building facade, and then the  
21 very next section says they are for facade. So I  
22 guess the question is, is which one is right?  
23 And so that's sort of inconsistent.

24           But I think it would be -- and there's a  
25 number of other outdoor lighting applications

1 that probably are unintentionally included in  
2 this standard being written as an exclusionary as  
3 opposed to -- you know, what exactly do you want  
4 to control?

5           When the case reports were written on  
6 requirements for bi-level motion controls, it  
7 really focused on some very -- a narrow scope.  
8 It was essentially parking lot lighting, retail  
9 sales lot lighting, gas station canopies. And it  
10 would probably just make it -- make more sense  
11 that this be written in terms of a positive  
12 requirement, just saying, you know, where are  
13 these things required.

14           Additionally, the Codes and Standards  
15 Team has submitted a letter to the Commission  
16 earlier in response to the draft Standards, which  
17 propose that the state could save an additional  
18 six gigawatt hours per year or 18 gigawatt hours  
19 for the next code cycle associated with deeper  
20 reductions after hours. So during normally  
21 occupied hours when there's no occupancy, to  
22 reduce lighting levels by 50 percent when there's  
23 no motion for at least 15 minutes.

24           And then after hours, to reduce  
25 illumination by at least 75 percent after 60

1 minutes during the unoccupied hours. And this  
2 allows for multiple types of controls, including  
3 combination time clock and motion sensors, motion  
4 sensors that are designed to dim to one level at  
5 15 minutes and dim to a lower level at 60  
6 minutes. Two of the manufacturers that are here  
7 have submitted comments in support of this  
8 proposal. And propose that the Commission  
9 revisit this and look at the potential savings.

10 In addition to the energy savings, the  
11 additional reduction after hours has  
12 environmental benefits in terms of reducing, you  
13 know, sky glow and night glare and all those  
14 other sorts of things.

15 So that's my recommendations. Thank you.

16 MR. LEE: Response on number one to the  
17 newly-proposed section (3)(A) and (3)(B) for  
18 motion-sensing controls, it might look like it's  
19 new requirements, but actually these are existing  
20 2016 motion-sensing control requirements.

21 And also, response to comment number two,  
22 Staff found very limited supply of control  
23 products that can be (indiscernible) proposed  
24 case requirements. Therefore, Staff has to  
25 strike a balance and provide flexibility for

1 other applications for meeting the proposed  
2 outdoor controls requirements.

3 MR. FLAMM: Gary Flamm, consultant.

4 I think it's a good thing that the cutoff  
5 language was moved to Part 11, but I believe  
6 there is some residual language in Part 6 about  
7 exceptions. And I believe that really adds  
8 confusion to cross-reference the two standards.  
9 And I had suggested that all language related to  
10 cutoffs should be deleted from Part 6 and simply  
11 state that cutoff requirements are in Part 11.

12 The history of those cutoff exceptions  
13 were that utilities were having some challenges  
14 with rebates and the cutoff requirements, and I'm  
15 not confident that those challenges still exist.  
16 So I believe that moving part of the language to  
17 Part 11 and leaving the residual in Part 6 is  
18 going to create confusion.

19 MS. BROOK: Can somebody, either Gary or  
20 Simon, explain that? Why is it better to send  
21 them over to Part 11? I just don't -- I don't  
22 know anything about this. So it's not obvious to  
23 a non-lighting geek that that's a good thing to  
24 do.

25 MR. FLAMM: May I?

1 MR. BOZORGCHAMI: Go ahead.

2 MR. FLAMM: I'm not speaking for the  
3 Energy Commission.

4 Part 11 adopted cutoff requirements  
5 simultaneously with Part 6 and there were some  
6 conflicts, whereas Part 11 had more robust or  
7 more stringent cutoff standards than Part 6, so  
8 there were dueling standards. And so it was a  
9 decision on where's the best place to house this?  
10 It should not be both.

11 MS. BROOK: Yeah. I'm just -- it's not  
12 obvious that you'd send it to a Green Building  
13 Standard instead of keeping it whole with the  
14 Energy Standard. That's what I don't understand.  
15 Is it an energy benefit in Part 11, or is it a  
16 non-energy Green Building Benefit and that's why  
17 it's in Part 11?

18 MR. FLAMM: Well, there's backlight,  
19 upright and glare. The Energy Commission  
20 established that backlight and -- I mean upright  
21 and glare had an energy component, but not  
22 backlight. Part 11 had a backlight requirement.

23 MS. BROOK: Okay.

24 MR. FLAMM: So it could have resided  
25 either place --

1 MS. BROOK: Okay.

2 MR. FLAMM: -- but it would not be  
3 appropriate, in my opinion, to have backlight  
4 requirements in Part 6. So for the convenience  
5 of the citizens of California, it would be better  
6 to have it in one part.

7 MS. BROOK: Okay. I just, as a citizen  
8 of California, I don't think it's convenient to  
9 some people all around, the different parts of  
10 the Building Code.

11 MR. FLAMM: Um-hmm.

12 MS. BROOK: So at least in the manual, it  
13 has to be explained in one place where all of the  
14 lighting requirements are; you see what I mean?

15 MR. FLAMM: Yes.

16 MS. BROOK: So --

17 MR. FLAMM: And as long as there's --  
18 it's a different process of Part 11. And the  
19 Energy Commission cannot be sure where that's  
20 going to land.

21 MS. BROOK: But it's the -- it's in the  
22 mandatory section of CALGreen; right?

23 MR. FLAMM: Yes.

24 MS. BROOK: Okay. Okay. Thanks.

25 MR. FLAMM: Did I answer okay,



1 Commission? Okay. Thank you.

2 MR. STRAIT: I can also add that we do  
3 plan to include language in the manuals that will  
4 spell this out, so we're aware of that.

5 MR. OCHOA: Good morning, everyone. Greg  
6 Ochoa with Morrow-Meadows Corporation. We're a  
7 contracting engineering firm.

8 I'd like to track back, if I may, to the  
9 demand response conversation. There's a nice  
10 little Easter egg exception in here, section 112,  
11 I'm looking at (c), exception 1 to 110, 12(c).  
12 In the exception, it tells me, if I'm wearing my  
13 engineering hat, that spaces with a lighting  
14 power density of 0.5 watts per square foot or  
15 less are not required to install demand  
16 responsive controls and don't count toward the  
17 10,000 square foot threshold. So a couple pieces  
18 to that.

19 There's a sense that there's a need for  
20 an expanded ADR environment. Okay. If we're  
21 going to do that and we're going to do that via  
22 this code, that needs to be tightened up a bit.  
23 Because I can tell you from practical experience  
24 that most of the spaces that we're now lighting  
25 are under 0.5 square foot. So if that fact and

1 the other fact that I can, this gives me the  
2 ability, as I'm reading it anyway, this gives me  
3 the ability to carve out all of those 0.490 watt  
4 spaces out of the square footage total. Once I  
5 do that, if you're speaking of perhaps a typical  
6 office floor, well, if all my perimeter offices  
7 are 0.4 watts per square foot, now removing all  
8 of that real estate from my 10,000 square foot  
9 requirement, I'm going to be left with very few  
10 buildings that I'm going to be required to, under  
11 this, to install anything for demand response.

12           So this might be an unintended  
13 consequence. I'm thinking perhaps relying on  
14 incumbent technologies, we like to call them, or  
15 legacy technologies to get to this 0.5 number,  
16 and I just think that needs to be tightened up a  
17 little bit. Because, honestly, my engineers are  
18 going to drive a bus through that exception.

19           Thank you.

20           MR. SHIRAKH: Just one comment. Is that  
21 a bad outcome, actually, if, you know, people go  
22 down to that low level in exchange for not having  
23 demand responses that --

24           MR. OCHOA: Great point. Great point.  
25 So that's kind of why I phrased it, hey, if this

1 is the vehicle that we're going to use to get to  
2 a broader demand responsive landscape in the  
3 built environment, that's going to have to  
4 change. Is it a bad thing that we're already  
5 down at 0.4? Myself and others could argue, hey,  
6 we should be celebrating. We should be jumping  
7 up and down that we're able to do that. However,  
8 those numbers are only going to decrease, to a  
9 point, once we reach, I don't know, somebody  
10 throw out a number, 200 lumens per watt, whatever  
11 it's going to be. These sorts of exceptions are  
12 not going to give us the tool that we need to  
13 implement the other thing that we're trying to  
14 do.

15 MR. SHIRAKH: Okay.

16 MR. PENNINGTON: So, sir, I have a  
17 question also. Would you have any suggested  
18 changes to this language that you think would  
19 overcome this loophole?

20 MR. OCHOA: Yeah. I've been kicking  
21 around a few different ideas and I've been  
22 listening to a broad constituency of people at  
23 the California Energy Alliance, as well. We can  
24 work through this. I don't want to be flippant  
25 about it, though. I think we need to be very

1 careful how we approach it so that it addresses  
2 the concerns of the majority of Californians and  
3 the majority of the stakeholders, a lot of whom  
4 are in this room. It's very fraught. If I were,  
5 for instance, to say, well, if we're going to do  
6 the -- if we're going to accomplish the demand  
7 responsive environment, one thing we can  
8 immediately do is lower that wattage a square  
9 foot to something that's practically and  
10 economically achievable today with an eye toward  
11 where it's going to be tomorrow.

12           I feel for the Commission and I feel for  
13 anybody who works with these codes and standards  
14 because you're at an inherent disadvantage of  
15 time. You're on that technology curve that's a  
16 semiconductor product cycle, essentially, six  
17 months, six months, six months, and these codes  
18 are only at three-year intervals. We're doing  
19 the best we can, believe that, but these other  
20 little bits and pieces that we outpace, so we  
21 kind of jump the shark on, we need to kind of  
22 revisit and clean up.

23           MR. PENNINGTON: Well, I guess another  
24 way to attack it might be to lower the 1,000  
25 square foot.

1           MR. OCHOA:  Sure.  That's another idea  
2 floating out there.  Another common number would  
3 be 5,000 square feet.  That would get at a lot  
4 more spaces for sure, number one.  So there are  
5 things that can be done, it's just what's the  
6 right path if, again, if this is going to be the  
7 mechanism to move us to a broader ADR landscape?

8           MR. STRAIT:  And just to provide a little  
9 context to this current exception, this goes  
10 back, actually, to the originally adopted  
11 language and the analysis behind that which had  
12 these cutoffs as part of that analysis.  So I  
13 know that one thing we would likely need to see  
14 in order to have as much flexibility as we would  
15 like to have in dealing with this exception would  
16 be additional analysis showing cost effectiveness  
17 for smaller spaces or for lower wattage levels  
18 that would necessarily have a lower residual  
19 benefit and cost to the user.

20           MS. HERNANDEZ:  Good morning.  Tanya  
21 Hernandez with Acuity Brands.  I just wanted to  
22 comment about the 55 lumens per watt threshold  
23 for cutoff.

24           Actually, I had a chance to talk to the  
25 Case Team about this requirement and have a

1 better understanding of where it's coming from.  
2 However, I would like to caution you with the use  
3 of initial lumens as a metric for enforcement,  
4 where we're switching from 150 watts to lumens  
5 that now need to be verified. It's just not  
6 necessarily seen anywhere else in the code.  
7 We've been talking about wattage the whole time.

8           The other thing is as far as the CALGreen  
9 piece and the BUG Ratings, this is more of a  
10 question, and I just want to make sure that I'm  
11 clear. The backlight component, which was an  
12 exception, meaning that it did not -- you did not  
13 have to meet that requirement previously, now  
14 that you point to Part 11, meaning that now you  
15 do have to meet that requirement, is that -- that  
16 is the case?

17           MR. STRAIT: No. Because that was a  
18 mandatory provision in CALGreen, it was always  
19 required. But it wasn't mentioned in Part 6  
20 because, as Gary Flamm mentioned, Part 6 would  
21 not be an appropriate place for that backlight  
22 component, which is part of why in 2016 we added  
23 a note saying you also need to look at that  
24 CALGreen section in order to now that there is an  
25 additional backlight requirement. And in this

1 code cycle, we further simplified that to say  
2 simply go to CALGreen which contains all the  
3 requirements.

4 MS. HERNANDEZ: Okay. So the way it was  
5 written, you are correct, it was -- it is very  
6 confusing because it had only the upright and  
7 glare portions of it, so backlight was not  
8 necessarily considered, so thank you for making  
9 that clarification. And I do agree that the BUG  
10 Rating piece, even though, I mean, I think that  
11 holding on to BUG Ratings is probably a mistake,  
12 because the way even that standard was written,  
13 we're not using it the way it was meant to be  
14 used, but having it in one place is going to be a  
15 good idea.

16 Anyway, so those are my comments. I  
17 definitely would like you to relook at the  
18 initial lumens as a metric when we've been  
19 talking about wattage. Because do you want me to  
20 have a 200 watt fixture that has less than 55  
21 lumens -- 5500 lumens? I don't think that's the  
22 point. Thank you.

23 MR. KOTLIER: Hi. Hi, Martha.

24 I'm Bernie Kotlier with the International  
25 Brotherhood of Electrical Workers and the

1 National Electrical Contractors Association. We  
2 represent tens of thousands of electricians and  
3 thousands of contractors in California.

4 I'd like to follow up on a comment made  
5 by the gentleman from Morrow-Meadows about some  
6 maybe unintended consequences that could reduce  
7 the amount of ADR-capable devices that we'll have  
8 in buildings due to the proposed code. So I'd  
9 like to draw everybody's attention to a few  
10 things.

11 One is that the Energy Commission itself  
12 is involved in grants, as funding grants that are  
13 promoting ADR, ADR training and ADR-capable  
14 installers.

15 The other thing is that SB 350 on the  
16 renewable side specifically says that state  
17 agencies should be promoting and facilitating a  
18 greater capacity of ADR in our buildings. And we  
19 cannot and will not be able to do that if we  
20 continually are reducing or we are supporting  
21 aspects of the proposed code that will reduce  
22 ADR. So I would like to support the gentleman  
23 from Morrow-Meadows comments and say that we do  
24 need to resolve this.

25 And I, once again, I'll say, as he has



1 said, I don't know that we have the exact  
2 solution to that. It could be a number of  
3 approaches. But the idea that we are going to  
4 have aspects of the code that actually mean there  
5 will be fewer ADR-capable devices in our  
6 buildings would be a huge mistake in my  
7 estimation, and contrary to state policy, and  
8 contrary to Energy Commission grants and other  
9 things that are going on, so we need to -- we  
10 need to address this.

11 MR. BOZORGCHAMI: Any more comments?  
12 Anyone online?

13 So since we're ahead of schedule, we're  
14 going to take about a 20-minute break and come  
15 back and go right into Subchapter 5. Mark  
16 Alatorre will start that. That will be sections  
17 140 through 140.9. Twenty minutes.

18 (Off the record at 10:23 a.m.)

19 (On the record at 10:47 p.m.)

20 MR. BOZORGCHAMI: So we're going to move  
21 CALGreen measures right above Subchapter 6, so  
22 they'll be right after this presentation that  
23 Mark, Simon and RJ are going to be doing. And  
24 then we're going to move the CALGreen, both for  
25 residential and nonresidential, prior to having

1 Subchapter 6 presented. And hopefully that -- we  
2 can do that before lunch.

3 Maziar Shirakh, who's been adamantly  
4 working on the EDR scores for CALGreen, is --  
5 wants to present that and wants to be here for  
6 that discussion, but unfortunately, he has to  
7 leave right after mine.

8 So with that, I think there's one  
9 gentleman here that still wants to make a comment  
10 on Subchapter 4. And as soon as that's  
11 completed, we'll just jump into Subchapter 5.

12 MR. ANDER: Greg Ander. I'm an  
13 architect, and I'm working with California Energy  
14 Alliance, as well. Just wanted to follow up on a  
15 conversation -- or a comment that the fellow from  
16 Morrow-Meadows made, Craig Ochoa, and Bernie  
17 Kotliar, regarding ADR and demand response.

18 (Microphone check.)

19 (Colloquy)

20 MR. ANDER: Anyway, ADR demand response,  
21 Bill Pennington mentioned if there are other  
22 opportunities. And I think you or somebody had  
23 mentioned, is that a good or a bad thing to be  
24 able to, you know, control loads and so forth?  
25 And I would argue, yes, it is. We've had

1 multiple conversations with Commission Hochschild  
2 and others in terms of renewables, as well as  
3 Steve Berberich at the CalISO. There's a lot of  
4 interest in having, you know, dynamic loads,  
5 dynamic pricing, having the controls in place to  
6 be able to, you know, modulate load. We've all  
7 heard of duck curve issues and over-generation.

8           And to the extent we can, you know,  
9 control this going forward, it's always hard to  
10 match up, you know, technology, you know, with  
11 codes and policy, but I think to the extent we  
12 can leverage and get some of these embedded into  
13 the Building Code, so grid operators, whether  
14 it's at the bulk system or at distribution can,  
15 you know, use this leverage to balance load and  
16 help to better -- to saddle benefits of the grid.

17           Fair enough. Thank you.

18           MR. BOZORGCHAMI: Thank you.

19           So with that, we're going to go right  
20 into discussing the Subchapter 5, which is  
21 section 143 -- 140 through 140.9. Sorry

22           MR. ALATORRE: Okay. My name is Mark  
23 Alatorre. I'm going to be presenting several  
24 sections, as well as my colleague, Simon Lee and  
25 RJ.

1           140.3(a)(1), there was clarification in  
2 the exceptions to section 140.3(a)(1). Now the  
3 term "thermal mass" was removed from both of  
4 those exceptions.

5           The change to 140.3(a)(3) was to clarify  
6 that windows installed in demising walls shall  
7 only be required to meet the U-factor  
8 requirements of the prescriptive table.

9           A similar change to 140.3(a)(5), again  
10 where windows installed in demising walls would  
11 only have to comply with the U-factor  
12 requirements.

13           And changes to 140.3(a)(6) was to  
14 consistently use the term "glazing."

15           I'm going to hand it over to Simon now.

16           MR. LEE: 140.3, we added this new  
17 section, 140.3(d), for (indiscernible) devices,  
18 included clerestories, horizontal slacks and  
19 light shelves. There are also power adjustment  
20 factors, PAF, for the luminaires located in  
21 advanced daylighting device. And I will cover  
22 those in a later slide for section 140.6.

23           MR. ALATORRE: Okay. For the changes to  
24 the prescriptive section 140.4, the changes to  
25 section (a) and (b), this was to accommodate

1 healthcare facilities. There were changes in the  
2 heating and cooling load assumptions, the indoor  
3 design conditions and the outdoor design  
4 conditions. And these changes were made in  
5 collaboration with OSHPD staff and with the  
6 intention of not interrupting current practices  
7 when designing healthcare facilities.

8           1140.4(c), this section was amended and  
9 now it is in alignment with ASHRAE 90.1 for fan  
10 power. For silver (phonetic) fan systems over  
11 five horsepower, they'd have to comply with fan  
12 power limitation, depending on constant volume or  
13 variable air volume. We also brought in the  
14 power adjustment factors from ASHRAE 90.1.

15           I wanted to note that there are -- even  
16 though we have a MERV 13 requirement for new  
17 construction, we kept the power adjustment  
18 factors for filters that are lower than that, and  
19 that's to accommodate alterations. They would  
20 still be required to comply with fan power, and  
21 we wanted to give them those -- that pressure  
22 drop.

23           Section 140.4(d), there were changes to  
24 this section, but in a sense it had no regulatory  
25 change. What we did is there was a large

1 exception with a lot of specific criteria. And  
2 what we did is we brought that exception into the  
3 body of section 140.4(d), so it really doesn't  
4 have any regulatory change.

5           For economizers, we added -- we expanded  
6 the water economizer requirement for -- not just  
7 for air systems, but for systems that do not use  
8 forced air. Also included in this requirement  
9 was for the water economizer to not have -- to  
10 have a maximum pressure drop less than 15 feet of  
11 water, or to have a secondary loop to bypass the  
12 heat exchanger. Also, there was a requirement  
13 for the water economizer to be fully integrated  
14 to provide partial cooling.

15           Section 140.4(h)(5), this is a  
16 requirement for cooling towers. So when the  
17 cooling tower serves a water loop that is greater  
18 than 900 gallons per minute, the minimum  
19 efficiency of the tower -- of the tower will be  
20 60 gallons per minute per horsepower. There was  
21 an exception -- or two exceptions added, one for  
22 replacement of building-mounted towers, and also  
23 for towers serving buildings in Climate Zones 1  
24 and 16.

25           140.4(i), the Duct Leakage Requirements,

1 we added, again, now that we're regulating  
2 healthcare facilities, we added a reference for  
3 duct systems serving healthcare facilities to  
4 comply with the OSHPD amendments to the  
5 California Mechanical Code.

6           Section 140.4(o), this is -- this section  
7 limits the amount of conditioned air delivered to  
8 any space that's exhaust driven. The limitation  
9 is for the conditioner to not exceed the greater  
10 of any of these three, the supply flow required  
11 for the heating or cooling, or the ventilation  
12 rate or the mechanical exhaust, minus the  
13 available transfer air. And we defined what is  
14 available transfer air as the portion of total  
15 outdoor ventilation air that is not required to  
16 satisfy other exhaust needs or to maintain  
17 pressurization of other spaces and is  
18 transferrable, according to the new section  
19 120.1(g).

20           Moving on to water heating, we added an  
21 exception for high-rise, residential and hotel-  
22 motel occupancies to not have to comply with the  
23 solar thermal requirements when the building is  
24 eight stories or higher, and that was due to  
25 limited roof space.

1           And I will hand it back to Simon.

2           MR. LEE: In this code update, area  
3 lighting is used as the baseline lighting  
4 technology in the development of both indoor and  
5 outdoor lighting power allowance. And changes to  
6 section 140.6 includes some updates to the  
7 lighting power density weight used for the three  
8 approaches or methods, (indiscernible) method,  
9 area category method and tailored (phonetic)  
10 method. We also made changes to definitions of  
11 building types and functional areas for these  
12 lighting power allowance.

13           For an area type not defined in Table  
14 140.6(c), for area category method we included a  
15 provision to allow a reasonably equivalent type  
16 to be chosen. And for trimmable lighting, which  
17 is very -- which is a fairly new solar state  
18 (phonetic) lighting technology, we added a  
19 luminaire power adjustment in the form of  
20 multiplier.

21           And this is the second part about the  
22 advanced daylighting device that I mentioned  
23 earlier is in section 140.6(a)(2)(L), and these  
24 are power adjustment factors for clerestories,  
25 light shelves and horizontal slacks.



1           Section 140.7, Outdoor Lighting Power  
2 Allowance, we revised the lighting power  
3 allowance for general hardscape lighting and  
4 specific application lighting. We also added a  
5 new lighting power allowance for narrow band  
6 spectrum lighting which may be required by local  
7 or state law to minimize the impact of outdoor  
8 lighting to astronomy or nocturnal habitat.

9           And with that, I turn it back to Mark.

10           MR. ALATORRE: Okay. Section 140.9 is  
11 the Covered Process Prescriptive Requirements.  
12 And the changes to section (a) for computer  
13 rooms, we align with the fault detection and  
14 diagnostic requirements of 120.2(i), so computer  
15 rooms with an air economizer that's over four-  
16 and-a-half tons would have to comply with the FDD  
17 requirements.

18           Also added an exception to the air and  
19 water economizer to computer rooms that  
20 incorporated fluid economizer. This was in  
21 response to a compliance option that was approved  
22 under the 2013 Standards. We've gotten several  
23 comments already on this added exception and its  
24 validity, and it will be a subject of ongoing  
25 discussions with stakeholders.

1           Also added an exception for healthcare  
2 facilities, and that was working with OSHPD.

3           Section 140.96, Commercial Kitchens,  
4 again added an exception for healthcare  
5 facilities. There was an exception added to most  
6 of the mechanical sections and, again, that was  
7 being sensitive to OSHPD's needs and their  
8 interest in the indoor environments of hospitals.

9           Section 140.9(c), here, this is for  
10 laboratory and factory exhaust systems. We  
11 aligned with the -- with section 140.4(o), the  
12 exhaust system transfer. And this is, again,  
13 setting limitations on the amount of conditioned  
14 air supplied to these spaces.

15           Okay, I'm going to hand it over to RJ to  
16 discuss the remainder of 140.9.

17           MR. WICHERT: All right. For  
18 140.9(c)(3), we're proposing to add new process  
19 space requirements for exhaust systems. Process  
20 exhaust systems will now be prescriptively  
21 required to comply with ANSI Z9.5 discharge  
22 requirements and one of three compliance paths.  
23 The primary prescriptive path is meeting a 0.65  
24 watts per CFM exhaust system power limit.  
25 Alternative compliance paths are met through

1 exhaust system flow control directed by either  
2 local wind conditions from a rooftop anemometer  
3 or contaminant concentration measured in the  
4 exhaust plume.

5           This section is substantially the same as  
6 it was during our pre-rulemaking October  
7 workshop, except for a few changes driven by  
8 stakeholder feedback. The most significant  
9 change from the language presented during the  
10 pre-rulemaking workshop is the relaxing of the  
11 exhaust system fan efficacy from 0.45 to 0.65  
12 watts per CFM.

13           For 140.9(c)(4), we're proposing to add  
14 new requirements for laboratory fume hoods. Fume  
15 hood-intensive laboratories with variable air  
16 volume fume hoods will now be prescriptively  
17 required to install automatic sash closure  
18 systems. Fume hood-intense spaces have supply  
19 air requirements that are driven by the fume hood  
20 and exhaust. Volume spaces that meet the  
21 threshold for being fume-hood intense are defined  
22 in Table 140.96(b).

23           Like 140.9(c)(3), there are a few major  
24 changes to this section since October -- the  
25 October workshop. The most significant change is

1 the simplification of Table 140.9(b). This table  
2 is now clear on what fume hood density triggers  
3 this section. Less significant changes include a  
4 new requirement for obstruction sensors that  
5 detect glassware (phonetic) and other minor  
6 clarifications and simplifications.

7           And this is the same slide you've been  
8 seeing, how to submit written comments. If you  
9 have any questions, let us know. And at this  
10 time we'll be taking comments on this Chapter 5.

11           MR. BOZORGCHAMI: Any comments? Anybody?

12           MS. PETRILLO-GROH: Good morning. This  
13 is Laura Petrillo-Groh with Air Conditioning,  
14 Heating and Refrigeration Institute.

15           I just want to thank, first, thank CEC  
16 staff for, you know, taking careful  
17 consideration, harmonizing many proposals with  
18 90.1. That's very important to industry and the  
19 90.1 staff do a really good job with their  
20 analysis, and we appreciate that harmonization  
21 very much, and for addressing some of the  
22 pressure -- pressurization and indoor air quality  
23 concerns in the exhaust system air transfer.

24           A quick question about section 140.5.  
25 Can anyone speak to why the building height

1 requirement was changed from four stories to  
2 eight -- or eight stories to four stories -- four  
3 stories to eight stories?

4 MR. BOZORGCHAMI: Danny, could you speak  
5 to that?

6 MR. TAM: We have to pick a number;  
7 right? So for taller buildings, there's just  
8 less roof space to install, you know, a solar  
9 thermal system. So at first we had four, but we  
10 had comments that, you know, that's too low. So  
11 we thought eight is a good natural breakpoint  
12 because, I guess, the construction technique is a  
13 little different. That number is -- so it's a  
14 little arbitrary, but we thought that's a good  
15 number.

16 MS. PETRILLO-GROH: Okay. Thank you.

17 And just wanted to make a quick comment  
18 on section 120.1(c)(2), backing up. This has to  
19 do with the natural ventilation procedure. I'm a  
20 member of 62 -- ASHRAE 62.1, and there is  
21 currently a draft addenda going through the  
22 approval process that the letter -- the  
23 continuation letter ballot is closing today. So  
24 I will contact ASHRAE staff to see if we can get  
25 you all a copy before it officially goes out for

1 public review, but the draft addenda limits the  
2 location to places -- to buildings that are in  
3 areas that meet national outdoor air standards.  
4 And the prescriptive path was improved by  
5 removing the openable area requirement of four  
6 percent net occupiable floor area, which is  
7 currently in the draft Title 24. Frankly, no one  
8 on the committee knew where that number came  
9 from.

10           So rather than keep, you know, an  
11 arbitrary number in the standard the draft  
12 addenda proposes to add two tables for minimum  
13 openable area based on program type, opening  
14 geometry and spacing of vertical opening. The  
15 calcs do not consider wind and rely solely on  
16 buoyancy-driven flow resulting from a one degree  
17 Celsius temperature difference between indoors  
18 and outdoors. And this draft addenda also  
19 includes definitions of a naturally -- natural  
20 ventilation system and documentation for  
21 designers to provide with their calculations.

22           So I hope to be able to get you that  
23 because I don't expect to see ASHRAE publish that  
24 draft addenda in enough time for you to be able  
25 to consider it or to docket that official public

1 review.

2 MR. BOZORGCHAMI: Quick questions. What  
3 section? What ASHRAE is that, that's being  
4 noted, so --

5 MS. PETRILLO-GROH: 62.1.

6 MR. BOZORGCHAMI: 62.1. And do you know  
7 when that's going to be done? When is it going  
8 to be finalized?

9 MS. PETRILLO-GROH: Well, I mean, they'll  
10 release it. If -- the committee has approved the  
11 draft addenda for public review, but negative  
12 comments were received among voting members, so  
13 it was recirculated for letter ballot so members  
14 could change their votes. That recirculation  
15 ballot closes today, so I would expect to see a  
16 public review on that in late March or early  
17 April. So I will contact ASHRAE staff to see if  
18 we can get California a first look at that.

19 MR. STRAIT: So the version that will be  
20 out in, presumably, early April, will that still  
21 be subject to change?

22 MS. PETRILLO-GROH: Yes. I mean, that's  
23 a public review draft. However, I think it might  
24 be beneficial for California to at least look at  
25 a calculation-based procedure for natural

1 ventilation.

2 MR. BOZORGCHAMI: Thank you.

3 MS. RODDA: Gina Rodda, Gabel Energy.

4 Section 140.3(a); why was there  
5 consistent crossing out of fenestration and the  
6 use of window? Because window then implies that  
7 glass doors are no longer subject to these  
8 requirements.

9 So just my comment is review if that's  
10 what you really meant to do.

11 MR. BOZORGCHAMI: I think -- let me  
12 review that, but I think if you look at the  
13 definitions that we have in section 100, there's  
14 been -- I've got to double check that real quick.

15 MS. RODDA: I did already and windows do  
16 not cover glass doors. So you are excluding a  
17 window or a glass type that you might not be  
18 meaning to --

19 MR. BOZORGCHAMI: Okay.

20 MS. RODDA: -- whereas fenestration  
21 includes windows --

22 MR. BOZORGCHAMI: Sure.

23 MS. RODDA: -- and glass doors.

24 MR. BOZORGCHAMI: Yeah, over 25 percent.

25 MS. RODDA: Thanks.



1 MR. BOZORGCHAMI: Thank you.

2 MR. STRAIT: The issue was that the  
3 definition of the term fenestration was actually  
4 too broad. I remember that being one of the  
5 drivers for this one.

6 Anything online, Ron?

7 MR. BALNEG: No.

8 MR. STRAIT: No?

9 MR. BOZORGCHAMI: Anybody online?

10 So if no more comments, I think we're  
11 going to go right into CALGreen and let Ingrid  
12 present.

13 MS. NEUMANN: All right. My name is -  
14 oopsy-daisy. This is more challenging than it  
15 appears to be. Okay.

16 So my name is Ingrid Neumann.

17 (Colloquy)

18 MS. NEUMANN: So my name is Ingrid  
19 Neumann, and I'm presenting on the Voluntary  
20 Standards in Part 11. These are also known as  
21 CALGreen. Let's go ahead and look at what we're  
22 doing for residential.

23 So as you've heard, we are using a new  
24 metric here for the residential compliance.

25 We're using the Energy Design Rating in Part 6,

1 and we'll be using that same metric here for the  
2 voluntary portions in Part 11, so both the Tier I  
3 and the Tier II targets.

4           So for Tier I, there is an EDR target  
5 that needs to be met, or you could, of course, be  
6 less than that target. And it's going to be  
7 based on climate zone. I'll also show you that  
8 chart on the next page. Measures that may be  
9 considered for reaching those EDR scores are  
10 additional energy efficiency measures, demand  
11 management, onsite battery or thermal storage and  
12 so on.

13           So to get these values here on this  
14 chart, based on climate zone, we actually didn't  
15 use any additional efficiency measures, but we  
16 did use time-of-use battery controls for all  
17 models. Then for the mixed-fuel homes, we  
18 oversized at a factor of 1.0, so essentially we  
19 did not oversize. And for mixed-fuel homes, we  
20 oversized at a very, very modest rate of 1.1.  
21 I'm sorry, did I say mixed fuels again? I meant  
22 all electric, right, so for that second column.

23           So those are the EDR targets that would  
24 need to be met to call it Tier I. Of course,  
25 below that would also be Tier I, unless, of

1 course, you want to meet me at Tier II. So  
2 again, you're meeting or being below that value.

3 Paths that may be considered for meeting  
4 that more stringent Tier II requirement would be  
5 electrifying space and water heating, using  
6 advanced electric battery controls or a more --  
7 or an additional but also modest oversizing of  
8 the photovoltaic system.

9 So these are the values that we came up  
10 very recently with. Again, we did not use  
11 additional efficiency measures, other than those  
12 that are mandatory in Part 6, for these models.  
13 We did use time-of-use battery controls for all  
14 of them. And for the mixed-fuel homes, we -- the  
15 goal was to get to an EDR of zero, but didn't  
16 allow the PV oversizing to go beyond 1.4, so  
17 that's why some of the climate zones don't meet  
18 zero, and EDR of zero for a Tier II because we  
19 figured oversizing more than 1.4 wasn't a good  
20 idea with interconnection and other rules.

21 So for the all-electric models, we used  
22 the -- we sized the PV to offset the annual  
23 kilowatt hours, and that's how we attained these  
24 charts.

25 The prerequisites, the one that remains

1 is the quality insulation installation, so that  
2 remains unchanged. In addition, we are asking  
3 that you choose one of the following  
4 prerequisites, so one could choose roof deck  
5 insulation or ducts and conditioned space, or  
6 high performance walls. Both of these are  
7 prescriptive requirements, so they -- that can be  
8 triggered off again in Part 6, so they are not  
9 new, so one of those could be chosen. Or  
10 something that's also found in Part 6 as a  
11 compliance option is the HERS-Verified Compact  
12 Hot Water Distribution System and the drain water  
13 heat recovery systems. So those, in combination,  
14 would also be one of the additional options one  
15 would choose.

16           Now what we want to remember here is that  
17 any EDR improvements that we get from choosing  
18 these options go towards meeting that lower EDR  
19 requirement for either Tier I or Tier II.

20           This slide is very simple. We struck the  
21 performance approach for additions, so that's no  
22 longer there for residential.

23           Then we'll move on to nonresidential. We  
24 retain the percent better than the compliance  
25 value, so we're retaining that performance

1 approach. The target percentages continue to be  
2 the same and they vary depending on whether  
3 lighting and/or mechanical systems are included,  
4 same percentage as 5 percent if you have one of  
5 them, 10 percent if you have both them for Tier  
6 I, 10 percent for one in Tier II, and 15 percent  
7 if you have both of them for Tier II, so there's  
8 no change -- there are no changes there.

9           What we did do is add some prerequisites  
10 here, and we changed the structure of the  
11 prerequisites. So you're choosing one of these  
12 prerequisites on the list for Tier I, and you're  
13 choosing two of them for Tier II. Again, any  
14 improvements, right, would go to your percentage  
15 improvement, so you could pick any of that and  
16 apply it, right, but this is a minimum amount  
17 that you're asked to choose.

18           So the outdoor lighting is one that's  
19 existing. It was slightly modified to not allow  
20 unintended consequences. The service water  
21 heating in restaurants is unchanged. The other  
22 four are new measures that we can choose from, so  
23 warehouse dock seal doors, daylight redirecting  
24 devices, and exhaust air heat recovery. So those  
25 might not apply to all building types, but we do

1 have the triple bottom-line analysis that would  
2 apply to all building types, so that's a new  
3 option for the 2019 cycle, as well.

4           So that concludes my brief overview of  
5 the changes for CALGreen for the 2019 update. We  
6 have the length to the website there. We are  
7 asking to have comments in by 5:00 p.m. on March  
8 5th, so those are the written comments. But, of  
9 course, we're happy to take comments in person  
10 now.

11           Thank you.

12           MR. RAYMER: Thank you. Bob Raymer with  
13 the California Building Industry Association.

14           And the short story is most of our major  
15 comments have been taken care of, so we  
16 appreciate that.

17           Just going over them sort of one by one,  
18 the formatting of the tier packages, moving into  
19 the two sets of tier packages, we strongly  
20 support, which you've done.

21           Moving from a percentage to an EDR and a  
22 total EDR is done, and so we definitely  
23 appreciate that. We would have preferred that  
24 you not specify which efficiency items are in  
25 addition to QII (phonetic) as a prerequisite, but

1 the bottom line here is you're probably going to  
2 be high-performance attics anyway, so we're not  
3 going to object to that.

4           Let's see, okay, on the -- first off, on  
5 Climate Zone 16, since you're no longer requiring  
6 that they meet an EDR of zero, that takes care of  
7 the Climate Zone 16 problem which we had; right?  
8 I think you had like six or something above that.

9           MR. SHIRAKH: It just was not possible  
10 in --

11           MR. RAYMER: Yeah.

12           MR. SHIRAKH: -- either (indiscernible).

13           MR. RAYMER: I here you.

14           In terms of, if I heard you right, for  
15 Tier II the photovoltaic array will not be  
16 allowed to exceed 1.4 times the electric budget;  
17 is that how I heard that?

18           MR. SHIRAKH: That for mixed-fuel homes,  
19 it will be up to 1.4. In most climate zones, we  
20 were actually able to get there with less than  
21 1.4, and this was without any additional energy  
22 efficiency measures. So they should go to better  
23 windows and better equipment. You can actually  
24 take that oversizing even further.

25           MR. RAYMER: I guess sort of a process

1 issue here then. If you do go to 1.4, is that a  
2 violation in M-2?

3 MR. SHIRAKH: You know, we recommend, you  
4 know, if a local government wants to adopt that,  
5 they need to consult their local utility.

6 MR. RAYMER: And that's where we get to  
7 the -- to my final comment.

8 We requested that you put in a note under  
9 the scoping session where you strongly urge the  
10 local utilities to be involved, in essence, the  
11 city or county basically drags them to one or  
12 more of the hearings and, you know, effectively  
13 have them participating.

14 I've been familiar with a number of the  
15 local adoptions and rarely is the local utility  
16 brought into it. I know you can't mandate that  
17 they show up at the hearings and discuss this  
18 with the local staff, but at least make a note so  
19 that our local BIAs can basically show the city  
20 council staff or the county staff, we really need  
21 these guys here from the onset.

22 MR. SHIRAKH: We were planning to add a  
23 note to the software, ACM, and the compliance  
24 documentation.

25 MR. RAYMER: Okay. That will be fine.



1 That will be fine. Okay. Thank you very much.

2 MR. SHIRAKH: Thank you, Bob.

3 MS. BROOK: Thank you.

4 MR. MEYER: Yeah. Bob, this is  
5 Christopher. I agree with you. And we'll look  
6 at, in addition to having it in the software, if  
7 there's an appropriate place to put it in the  
8 standards, as well.

9 MR. RAYMER: Yeah.

10 MR. MEYER: Because that is a really  
11 valuable tool to have the local jurisdictions  
12 understand the value of coordinating with the  
13 utilities on this issue.

14 MR. RAYMER: And I know this gets sort of  
15 away from CALGreen as it is right now, but over  
16 the last couple of weeks there's been at least  
17 instances where local BIAs have contacted me,  
18 including this morning, where the local  
19 jurisdiction is thinking about doing a partial  
20 ZNE mandate because they're afraid the Energy  
21 Commission isn't going to adopt the standards  
22 that you're talking about in April.

23 Is there any idea why that rumor seems to  
24 be bouncing around Southern California? I see no  
25 basis in it, but --

1           MR. MEYER: No, we're not. I mean, there  
2 have been certain articles that have talked  
3 about, you know, not meeting ZNE, you know, full  
4 ZNE goals, even though we've been talking about  
5 this for a couple years now of, you know,  
6 offsetting the electrical use, rather than  
7 creating overgeneration issues and cost in our  
8 participants.

9           So it might be people just who are not  
10 understanding what we're doing and not  
11 understanding the difference between offsetting  
12 electrical load, versus trying to oversize  
13 systems to offset gas and mixed fuel, as well.

14           So we're not sure where this  
15 misunderstanding is coming from, but we still  
16 sort of encourage local jurisdictions to talk to  
17 us before they start adopting mitigation for  
18 impacts that don't exist.

19           MR. RAYMER: I hear you and --

20           MS. BROOK: Why wouldn't they just be  
21 wanting to adopt that level of energy efficiency  
22 and clean energy in their local ordinances early?

23           MR. RAYMER: Okay. I don't know. This  
24 latest one where there are two jurisdictions, and  
25 it's more the Riverside area, I don't know the

1 exact jurisdictions, I can get that for you,  
2 they're looking at adopting a modest solar  
3 requirement for January of 2020, which -- why?

4 MS. BROOK: Um-hmm.

5 MR. RAYMER: So anyway, just food for  
6 thought. I'll be in touch with you guys.

7 Thanks.

8 MR. STRAIT: I can say that the lack of  
9 adversarial comments we saw on the solar  
10 requirements yesterday was very encouraging.

11 MR. HILLBRAND: Good morning. Alex  
12 Hillbrand with National Resources Defense  
13 Council.

14 We appreciate the effort you all are  
15 putting into CALGreen. We think it's a very  
16 important part of the code and will provide some  
17 good opportunity for local jurisdictions to  
18 require a bit more than the Part 6, among other  
19 things. I see a lot of encouraging EDR numbers  
20 here, especially in Tier number 2, so that looks  
21 great.

22 We are hoping that CALGreen can provide  
23 those local jurisdictions that want to go more in  
24 the direction of focusing on greenhouse gas  
25 emissions, we're hoping that CALGreen can provide

1 some guidance towards bringing those down  
2 directly, rather than going through EDR.  
3 Obviously, even an EDR zero full ZNE home as  
4 defined still may have some carbon impacts that  
5 are, you know, basically not mitigated by this  
6 metric.

7           So we did hear that the latest compliance  
8 software has GHG emissions numbers which is a  
9 really good step, but it obviously matters where  
10 those are coming from, what type of emissions  
11 factor schedule those are emerging from. So  
12 we're hoping that as this code develops and the  
13 software continues to develop, we can have a  
14 discussion about how to map these EDR scores and  
15 hourly performance to GHG emissions overall. I  
16 think that would be great.

17           We're also hoping that CALGreen has some  
18 electrification-ready provisions, such as  
19 including the physical and electrical panel  
20 space, for example, for heat pump water heaters,  
21 EV chargers, and the rest.

22           All right. Thanks.

23           MR. BOZORGCHAMI: Thank you.

24           MS. NEUMANN: Thank you.

25           MS. BROOK: Can I ask a quick question?

1 Not of you, Alex, just of the CALGreen process.

2           So correct me if I'm wrong, but isn't  
3 there something in the research version of the  
4 CBEC revs that includes different versions of TDV  
5 with different valuations of carbon, and how does  
6 that integrate or not integrate with CALGreen?

7           MR. SHIRAKH: Yes, there is. When the  
8 user actually uses the CALGreen option, there's a  
9 checkbox; three options appear to capture the  
10 societal cost of carbon from a relatively modest  
11 cost to an aggressive cost. And, you know, the  
12 user can choose one of those three options, and  
13 those costs will get added to the cost of TVD  
14 and --

15           MS. BROOK: But we're not explaining that  
16 or describing that in our CALGreen regulations?

17           MR. SHIRAKH: I think we should.

18           MS. BROOK: Okay. That was my question.

19           MR. SHIRAKH: Yeah, we really should.  
20 And that has a net effect of making all-electric  
21 option modestly more attractive than otherwise.

22           MS. BROOK: Okay.

23           MR. SHIRAKH: So that is already in there  
24 and it can be used. When somebody is trying to  
25 pick measures, they can have that and choose

1 measure that -- it will get them a little bit  
2 more additional EDR credit --

3 MR. HILLBRAND: Right.

4 MR. SHIRAKH: -- for certain measures.

5 MR. HILLBRAND: Great. Thanks, Martha  
6 and Mazi.

7 MR. HODGSON: Mike Hodgson, ConSol,  
8 representing CBIA. This is kind of a question, a  
9 theme that came from yesterday, and it has to do  
10 with -- louder? Normally I'm quiet.

11 This has to do with the oversizing  
12 question that we brought up yesterday. And  
13 yesterday's discussion was, at one point, six  
14 times oversizing and whether that would be  
15 allowed by the utility.

16 So assuming a jurisdiction now adopts  
17 Tier II at 1.4 and makes the cost effective  
18 analysis to the Commission, which is also  
19 interesting in itself which we will not comment  
20 on, what happens if the utility says, no, we  
21 won't hook up to oversized units? Does that then  
22 approach the Commission and the Commission says,  
23 no, you cannot adopt Tier II because that  
24 prevents building permits from occurring, or is  
25 that an automatic way for the local jurisdiction

1 to produce, basically, a barrier for new  
2 construction?

3 MR. STRAIT: So one clarification is that  
4 the 1.4 oversizing factor was used in our  
5 calculations to find that the zero for Tier II  
6 was achievable, but there are other ways to get  
7 there. We're not mandating or requiring that an  
8 oversizing of the PV system be used. As Mazi had  
9 mentioned, if you incorporate additional  
10 efficiency features, you may not need to oversize  
11 the system at all to achieve that zero.

12 MS. BROOK: Right. But I think the point  
13 is that our EDR calculations coming out of our  
14 compliance software will still keep going down  
15 with higher PV system; right? And that's where  
16 it sort of makes us complicit in some way because  
17 we're -- right? Isn't --

18 MR. SHIRAKH: Yeah. So these are  
19 recommendations for local governments. And  
20 again, we are recommending that, you know, if  
21 they do go to an EDR score of zero with a 1.3  
22 oversizing factor, they need to check with their  
23 local utility and see if they will support that.  
24 If they don't, if they're comfortable with going  
25 with only 1.1, then they need to go back to the

1 software and oversize with 1.1 and other features  
2 and see what EDR score they'll get to.

3           So we're not compelling people to  
4 oversize by any factor, unless it is permissible  
5 to do so.

6           MS. BROOK: Maybe it's a yesterday issue  
7 that we're talking about.

8           MR. SHIRAKH: So yesterday's issue was --  
9 we were talking about Part 6, and there was no  
10 oversizing involved or any --

11           MS. BROOK: Well, where did the 1.6 come  
12 up yesterday? I don't remember.

13           MR. SHIRAKH: I don't remember because,  
14 you know, we're talking about Part 6 compliance  
15 for both prescriptive and performance. There was  
16 no oversizing.

17           MS. BROOK: Well, what about EDR step  
18 two, does the EDR keep going down if you have  
19 over one in your PV sizing?

20           MR. STRAIT: So actually, I remember that  
21 yesterday the issue was when you have a battery  
22 system installed, then you are allowed to  
23 oversize your system in the CBEC software.

24           MR. SHIRAKH: That's all for Part 11.  
25 That's not for Part --



1           MR. PENNINGTON: This was heat pump water  
2 heater specification for a couple of climate  
3 zones. I think that's where we maybe got there.

4           MS. BROOK: Oh.

5           MR. PENNINGTON: And in particular, in  
6 Climate Zone 16, you have to have a substantial  
7 oversizing. And I think that might be the only  
8 area that's really at issue here. I don't really  
9 remember my --

10          MR. SHIRAKH: There is -- for Part 6,  
11 there is no oversizing required.

12          MS. BROOK: Not required. Allowed.

13          MR. SHIRAKH: Or even allowed, unless --  
14 because you can get to all of our prescriptive PV  
15 requirements without any battery, without any  
16 oversizing. So the discussion got a little bit  
17 muddied when we started talking about heat pump  
18 water heaters in some climate zones. You would  
19 need a modest amount of PVs, we're talking about  
20 300 watts --

21          MS. BROOK: Uh-huh.

22          MR. SHIRAKH: -- but one panel --

23          MS. BROOK: Uh-huh.

24          MR. SHIRAKH: -- sometimes less to make  
25 up the difference between a heat pump water

1 heater with a 2.0 COP and kind of bring it in  
2 line with a Tier 3 water heater. So, I mean,  
3 we're talking about a very small amount of PV,  
4 except in Climate Zone 16. But that's  
5 prescriptive measures. And --

6 MS. BROOK: Um-hmm.

7 MR. SHIRAKH: -- you know, there is an  
8 alternative to comply with those requirements  
9 without putting any additional PVs if you put a  
10 Tier 3 --

11 MS. BROOK: Um-hmm.

12 MR. SHIRAKH: -- compliant heat pump  
13 water heater. So let's not --

14 MS. BROOK: Okay. So it sounds to me  
15 like --

16 MR. SHIRAKH: -- try not to get confused.

17 MS. BROOK: -- this is maybe an ACM issue  
18 that we'll --

19 MR. SHIRAKH: Right.

20 MS. BROOK: -- discuss in the spring.

21 And I would ask stakeholders to say -- to do  
22 the -- look at the software, do the calcs. And  
23 if our EDRs go down in either step one or step  
24 two, if you have over a 1.0 sizing, that's when  
25 we have to have that discussion about, you know,

1 is that a good thing or not; right?

2 MR. HODGSON: Yeah. Yesterday's  
3 discussion was based on the battery and the  
4 ability of the software allowing you to increase  
5 the size of the PV system if you checked the box  
6 that you have a battery.

7 MS. BROOK: Um-hmm.

8 MR. HODGSON: We'll cover that in that  
9 discussion.

10 MS. BROOK: Okay.

11 MR. HODGSON: This discussion is if we  
12 oversize based on Tier II and the utility says  
13 I'm not going to hook up those building permits,  
14 is there an off ramp to them reconsider either  
15 Tier II is not acceptable to that jurisdiction  
16 and thus not acceptable to the Energy Commission  
17 and not approve it.

18 MS. BROOK: Um-hmm. Okay.

19 MR. HODGSON: So I think there could be  
20 language that's added to say where permissible,  
21 these are the scores, where not, you need to  
22 recalculate to whatever permissible is --

23 MR. SHIRAKH: I think that was our  
24 intention.

25 MR. HODGSON: Okay. So --

1           MR. SHIRAKH: That's we have -- we're  
2 going to have that warning and that conversation  
3 in the local government utility to determine what  
4 level is acceptable, and then recalculate the  
5 target EDR based on that.

6           MS. BROOK: Well, I mean --

7           MR. HODGSON: So I think that's great to  
8 say it's permissible, but it needs to be in code.  
9 Because if it's not in the statute --

10          MS. BROOK: Um-hmm.

11          MR. HODGSON: -- that says that if it's  
12 not allowed, then you must recalculate, then they  
13 can have a discussion with you and go, no, we  
14 disagree --

15          MS. BROOK: That's right.

16          MR. HODGSON: -- and we're no longer  
17 going to --

18          MR. SHIRAKH: Okay.

19          MS. BROOK: Well, and the other thing,  
20 too, is that -- I don't have the CALGreen  
21 language in front of me -- I understood that this  
22 is just the easiest way for you to model lower  
23 EDR numbers, but that I would hope that the code  
24 language actually doesn't say to oversize PV, but  
25 to do additional --

1 MS. NEUMANN: It does not.

2 MS. BROOK: -- energy efficiency.

3 MS. NEUMANN: It does not. No. This is  
4 simply one way that we found it to be possible.

5 MS. BROOK: Right. But that's not --  
6 it's really our proceeding that has that  
7 discussion in it, it's not the CALGreen --

8 MS. NEUMANN: Correct.

9 MS. BROOK: -- proposed language that --

10 MS. NEUMANN: Correct.

11 MR. HODGSON: Right. But the reality is  
12 if you try to do this number on efficiency alone  
13 or just with normal PV sizing, it's impossible.

14 MS. BROOK: Okay.

15 MR. HODGSON: I mean -- and if you want  
16 to do compliance runs and document what the  
17 actually energy efficiency is by climate zone,  
18 it's a lot of work, I'm sure we can all agree.

19 MS. BROOK: Well, no, I think that's what  
20 I would hope that you could put the comments into  
21 a docket about. If you don't think that these  
22 are realistic recommendations for CALGreen,  
23 they're not -- you can't get there with cost  
24 effective efficiency. You have to oversize your  
25 PV system beyond where you're comfortable with

1 interconnection rules, those are comments we need  
2 to hear.

3 MR. HODGSON: Well, by definitely,  
4 CALGreen is not cost effective.

5 But ignoring that, the issue really is,  
6 is are we giving the local jurisdiction an  
7 ability to adopt something that has the remote  
8 possibility --

9 MS. BROOK: Um-hmm.

10 MR. HODGSON: -- of not being accepted  
11 by -- I should say remote -- has the possibility  
12 of not being accepted by the electric utilities.

13 MS. BROOK: Right. Right. Okay.

14 MR. HODGSON: And if that's true, then we  
15 need an off ramp.

16 MS. BROOK: Okay.

17 MR. HODGSON: That's all.

18 MR. MEYER: Okay. Yeah, Mike, you know,  
19 we'll discuss that and see if -- the best way to  
20 do it. Because we are cognizant and we want to  
21 make sure that we don't put something into CBEC.  
22 And we also were very careful not to say, you  
23 know, use CBEC to get to this and then have the  
24 ability of CBEC to cause conflict with  
25 interconnection rules, so --

1 MR. HODGSON: Yeah.

2 MR. MEYER: -- we'll take a look at that.

3 And as you know, it's sort of the same  
4 thing with sort of the cost effectiveness. You  
5 know, we make a finding on CALGreen that's a  
6 diminishment of energy consumption and we just  
7 check to see if they did a cost effectiveness  
8 analysis. We don't actually have the authority  
9 to tell them, you're cost effective analysis was  
10 wrong and we're, therefore, denying your  
11 application. And it's a weird piece in there,  
12 but our authority doesn't go to the point of  
13 saying that their CEQA analysis was wrong. It's  
14 just we make a finding that what they're  
15 proposing represents diminishment in energy  
16 consumption compared to our Part 6.

17 MR. HODGSON: Well, and as my comments  
18 were yesterday, we strongly recommend that you  
19 give them some guidance on how to do cost  
20 effectiveness.

21 MR. PENNINGTON: So, Mike, the regulatory  
22 language related to locally-adopted ordinances  
23 are almost a statutory echo or slightly -- worded  
24 slightly differently, but the statute is really  
25 clear about what the Commission's authority is,

1 and it doesn't give us the authority to direct  
2 them on how to do cost effectiveness analysis.

3           So, I mean, you might want to look at  
4 that statute. And if you disagree with that, you  
5 know, tell us with your argument.

6           MR. HODGSON: Okay. Will do.

7           MR. SHIRAKH: Also, I think we should  
8 talk about this next week offline, but I just  
9 wanted to reiterate that for Part 6 compliance,  
10 you do not need any oversizing or batteries to  
11 comply --

12          MR. HODGSON: I understand that.

13          MR. SHIRAKH: -- I mean, all-electric or  
14 mixed-fuel homes.

15          MR. HODGSON: Got it. I understand that.

16          MR. SHIRAKH: Thank you.

17          MR. TAM: I just want it as something for  
18 clarification. So when you do a heat pump water  
19 heater option in Part 6, that doesn't require you  
20 to oversize, so the PV requirement space on the  
21 mixed-fuel electricity use. So when you go to  
22 heat pump, then we add the extra PV requirement.  
23 It's just offsetting the extra electricity load,  
24 so you're not oversizing when you do -- when you  
25 do a heat pump.



1                   MR. KUCH: Chris Kuch, Southern  
2 California Edison.

3                   Just to follow up on these comments, so  
4 part of the  
5 Codes and Standards Team and one of the  
6 subprograms that we have is the Reach Code  
7 Subprogram, so we work really closely with Ingrid  
8 in development of the cost effectiveness studies  
9 that local jurisdictions lean upon as part of  
10 their adoption of the local ordinance.

11

12                  So at Edison, we're keenly aware of the  
13 impacts a lot of these new things going into code  
14 may have on the grid. So as part of our ongoing  
15 effort to support local jurisdictions in their  
16 adoption of, you know, CALGreen and things like  
17 that in their local ordinance, we will be taking  
18 into account potential grid impacts. So  
19 hopefully, you know, in this partnership that we  
20 have we'll be able to mitigate any potential  
21 obstacles that a jurisdiction might have with  
22 interconnecting with the grid and making sure  
23 that grid harmonization is there.

24                  So I just wanted to put that out there.  
25 Thank you.

1 MS. NEUMANN: Thank you.

2 MR. CAIN: Joe Cain with the Solar Energy  
3 Industries Association.

4 It is a very interesting and important  
5 discussion about the oversizing, and so I realize  
6 the sensitivities there and I think that's  
7 something that we definitely need to work  
8 through. And in particular, you know, more  
9 dialogue between the Commission and the solar  
10 industry and utilities may be helpful, if we  
11 could put together some kind of subgroup to  
12 explore those issues, and the builders, of  
13 course.

14 But -- and I don't -- it also makes me  
15 thing that in addition to the actual writing of  
16 the standards, that this is going to be one area  
17 that needs a lot of education and one area that  
18 may need some commentary, some white papers, some  
19 other forms of communication to specifically  
20 resolve stuff that actually doesn't end up in the  
21 code.

22 But that said, and, you know, willingness  
23 to work on those communication issues, I do want  
24 to express that SEIA is very supportive of the  
25 approach taken in the CALGreen with the two

1 tiers, with the getting local communities the  
2 option to get to zero or near zero. So I just  
3 wanted to express that general support and thank  
4 the Commission for the efforts that have gone  
5 into that, creating those strategies.

6 Thank you.

7 MR. BOZORGCHAMI: Joe, that's a good  
8 point. One thing Mazi doesn't know yet, but he  
9 will be working on developing a whole new chapter  
10 in the residential manual dedicated to PVs and  
11 storage and the whole grid authorization.

12 MR. CAIN: Yay. I would be very  
13 interested in being a reviewer on that.

14 MR. BOZORGCHAMI: He doesn't know about  
15 that.

16 MR. SHIRAKH: He volunteers you to be a  
17 reviewer already.

18 MR. CAIN: I volunteer.

19 MR. BOZORGCHAMI: You can be a reviewer.

20 MR. CAIN: Reviewer. Thank you very  
21 much.

22 MR. SHIRAKH: One other point that I was  
23 going to make related to oversizing, as the slide  
24 shows, the oversizing is only an issue for mixed-  
25 fuel homes. For all-electric homes, as you can

1 see, the PV is sized to offset the annual  
2 kilowatt hours. And we can get to an EDR score  
3 of zero in 14 climate zones without oversizing or  
4 violating NEM (phonetic) rules or all-electric  
5 homes.

6 So that's something to keep in mind, that  
7 when we're talking about oversizing being an  
8 issue, it's only for mixed-fuel homes.

9 MR. MEYER: This is Christopher just  
10 following up. I understand a lot of people have  
11 some sort of concerns as far as signals that are  
12 being sent to local jurisdictions. And, you  
13 know, we greatly appreciate, you know, PG&E,  
14 Edison, other utilities that are working with the  
15 locals to support them in their efforts to do  
16 reach codes. And it just sort of sends some good  
17 signals.

18 Also, people might be aware of the  
19 local -- the model solar ordinance that went out  
20 as sort of guidance for local jurisdictions on  
21 how to -- for the current cycle -- how to do a  
22 solar ordinance that doesn't create unnecessary  
23 impacts and makes it easier for locals to put  
24 together a solar ordinance, solar reach code that  
25 makes sense.

1           Our thought in putting forward that solar  
2 model ordinance was -- the PV model ordinance was  
3 that there would be other ones in the future.  
4 That one would be updated for the 2019 cycle and  
5 that, you know, other areas, you know, there  
6 would be increases. And it could be one where,  
7 if local jurisdictions wanted to get to a lower  
8 EDR score, that there could be model ordinances  
9 that were put together, you know, if, you know,  
10 resources could be brought together and, you  
11 know, sort of the brain trust brought together to  
12 give local ordinances -- excuse me, local  
13 jurisdictions a way of meeting these goals, you  
14 know, these, you know, lower EDRs without  
15 creating unintended consequences or without  
16 increases their risk that the utilities would not  
17 connect to them.

18           So, you know, I appreciate Mike's  
19 comments on that. And I think that some sort of  
20 best management practices that are put out as  
21 education to local jurisdictions could be very  
22 beneficial. So that's something that I think  
23 we'll continue to talk about as we move forward.

24           MS. HERNANDEZ: Hi. Tanya Hernandez,  
25 Acuity Brands.

1           Please forgive my ignorance if it is, so  
2 (a) (5) is a part of this, as well?

3           MS. NEUMANN: (a) (5) is the appendix for  
4 the nonresidential, like the voluntary.  
5 Basically, when I'm mentioning nonresidential  
6 here, it is Appendix 5.

7           MS. HERNANDEZ: Okay.

8           MS. NEUMANN: -- of 5.2, section 5.2.  
9 And then for the residential, it's 4.2. Yeah.

10          MS. HERNANDEZ: Okay. I just wanted to  
11 make sure I'm commenting during the right period.  
12 Is this right?

13          MS. NEUMANN: Correct. This is --

14          MS. HERNANDEZ: Okay.

15          MS. NEUMANN: Yes.

16          MS. HERNANDEZ: Thank you. Sorry.

17                 So I didn't, unless I just had a brain  
18 fart, did not hear anything about the limitation  
19 of CCT on outdoor lighting.

20          MS. NEUMANN: So that was the slight  
21 modification that we had for the outdoor  
22 lighting.

23          MS. HERNANDEZ: Yup.

24          MS. NEUMANN: Right. So everything  
25 remains the same, except where limiting that

1 color temperature to 3000 kelvin.

2 MS. HERNANDEZ: Right. Okay. So I  
3 wanted to comment on -- about that particular  
4 change.

5 In the Statement of Reason, it says,  
6 "The purpose of the proposed regulation is to  
7 restrict light frequencies in outdoor  
8 lighting applications that have been found to  
9 disturb biological system diurnal patterns."

10 So I wanted to make sure that the science  
11 is right for every study, that you'll hear about  
12 blue light, you'll hear another story about --  
13 that CCT is not even the parameter we should be  
14 looking at when it comes to circadian  
15 entrainment. It's about the light that gets in  
16 your eye, not necessarily just the color of the  
17 light itself.

18 I would ask that the -- even though this  
19 is voluntary, this stuff tends to become quickly  
20 mandatory once nobody balks at the voluntary side  
21 of it. That -- light and health is -- it's very  
22 important. I don't want to mince words about  
23 that. But we don't want to just start putting in  
24 limitations because the AMA came out with a  
25 report that people just took and ran with when

1 there are multiple studies that talk about how  
2 you appropriately design lighting for humans, and  
3 animals as well.

4           So just be clear and make sure you're  
5 looking at all the science, not just some very  
6 particular commentary on 3000 kelvin.

7           MS. NEUMANN: Thank you.

8           MR. BENYA: Jim Benya, Benya Burnette  
9 Consultancy.

10           To disagree with Tanya, I'd just like to  
11 say that the only significant statement by any  
12 organization on the planet that's in a position  
13 to make a statement like this is from the  
14 American Medical Association. And they talked  
15 about the impact, potential impact of light at  
16 night on humans and animals. We also have a  
17 considerable amount of information from Professor  
18 Traverse Longcore, University of Southern  
19 California, and others out there that are  
20 supporting the same issue.

21           I appreciate Tanya's point because we do  
22 have a disagreement in the industry. The IES and  
23 the AMA don't agree. But in my professional  
24 opinion and what we tell our clients is, first,  
25 do no harm, take the path that is the most



1 precious, if you will. And at this point, from  
2 everything we know in the world today, the AMMA  
3 position is probably the one to stick with until  
4 we learn more. And not that science hasn't  
5 changed a lot and not that things aren't changing  
6 a lot as we go along, but this was the right  
7 decision in my opinion.

8 Thank you.

9 MS. NEUMANN: Thank you.

10 MR. RAYMER: Bob Raymer with CBIA, and  
11 also as a member of the Green Building Code  
12 Advisory Committee for the Building Standards  
13 Commission.

14 I think you get a flavor for the type of  
15 disagreements or whatever that will come before  
16 the Code Advisory Committee. So to the extent  
17 that you can provide some solid background for  
18 whatever you decide to go with on this particular  
19 point would be great. That way it won't become a  
20 two- to three-hour discussion, which I've seen  
21 happen before on other issues.

22 Thank you.

23 MR. SHIRAKH: (Off mike.)

24 (Indiscernible.)

25 MR. RAYMER: What you just heard, yeah.

1 MS. BROOK: Hey, Bob --

2 MR. RAYMER: Yeah?

3 MS. BROOK: -- there are stakeholders in  
4 the room, myself included. I don't think I'm a  
5 stakeholder, but I have this question. And maybe  
6 you could help us because we don't really  
7 understand the timing and the schedule of the  
8 code -- Green Building Code Advisory Committee.

9 MR. RAYMER: Sure. Unlike Part 6 where  
10 the CEC adopts and the Building Standards  
11 Commission approves, and you guys have a  
12 perfectly understandable and well established  
13 timeline for all of that to occur, what's going  
14 to be happening in the coming months, all of the  
15 agencies, the Department of Housing and Buildings  
16 Standards Commission and DSA, in particular, need  
17 to get their green building proposals into the  
18 Building Standards Commission for processing in  
19 the April time frame. That way the BSC can put  
20 them all into a singular format and then get them  
21 out to interested parties, who then would attend  
22 the Code Advisory Committee meetings in the month  
23 of July and the first two weeks of August. And  
24 they have not established when the Accessibility  
25 Committee will be meeting, or the Green Building,

1 but we've been given those six weeks of time  
2 frame right there.

3           What will then happen is after the Code  
4 Advisory Committee meets the agencies will then  
5 have about two weeks to respond. They either  
6 agree with the Code Advisory Committee, they  
7 disagree or whatever, but then they basically  
8 turn the draft 45-day language into formal 45-day  
9 language and get it back to the BSC for  
10 processing. That will take place within two to  
11 three weeks after the Code Advisory Committee  
12 meeting. Then there will be a December and,  
13 probably, January meeting of the Building  
14 Standards Commission. I believe the December  
15 meeting is December 4th and 5th. And if they  
16 can't get it all done on the 4th and 5th, they'll  
17 have a January date to finish the adoption, just  
18 like they did this last time around.

19           So that's sort of the adoption process.

20           MS. BROOK: So is the Code Advisory  
21 Committee membership already established and --

22           MR. RAYMER: That's --

23           MS. BROOK: -- or is there a way the  
24 stakeholders could apply?

25           MR. RAYMER: That deadline was about two

1 weeks ago.

2 MS. BROOK: Okay.

3 MR. RAYMER: The Building Standards  
4 Commission will be meeting on -- not the  
5 Commission. The Code Change Committee of the  
6 Building Standards Commission will be meeting on  
7 February 14th to go through all the resumes that  
8 have been turned in, and a whole bunch have been  
9 turned in for Green Building, as you can imagine.  
10 And then at the April Building Standards  
11 Commission meeting, the nominees for each of the  
12 Code Advisory Committees will be formalized at  
13 the April full commission of the meeting --  
14 business -- or Building Standards Commission.

15 MS. BROOK: Thank you so much.

16 MR. STRAIT: I will add, just  
17 procedurally, that discussions like this is one  
18 of the reasons that we moved in both of the  
19 residential and nonresidential sections to a  
20 choose one out of a menu format to accommodate  
21 these kinds of discussions.

22 MR. MARTIN: Good morning. My name is  
23 John Martin. I'm here representing the  
24 International Association of Lighting Designers.

25 And I just want to come back to the 3000

1 CCT outdoor lighting issue. And I'm not  
2 endorsing any of the previous comments, nor  
3 disputing them, other than to point out that  
4 there are serious scientific questions regarding  
5 the report in 2016 by the American Medical  
6 Association's Council on Science and Public  
7 Health. And it should not be relied on as a  
8 source of unbiased scientific advice.

9 MS. NEUMANN: Thank you for that.

10 MR. FLAMM: Gary Flamm.

11 Also about the 3000 CCT, I would assume  
12 that there's a different threshold for the  
13 various outdoor lighting zones whereas it might  
14 make sense to have a lower CCT for Outdoor  
15 Lighting Zones 0, 1 and 2. I don't -- it doesn't  
16 make sense to me. I don't know the science, but  
17 it doesn't make sense to me for Outdoor Lighting  
18 Zone 4, the whole arguments about (indiscernible)  
19 scotopic vision (phonetic). Intuitively, I would  
20 assume that Lighting Zone 4, it doesn't matter.  
21 And varying CCTs may be used for marketing  
22 reasons, such as a car lot.

23 So I'm not sure that there's a one-size-  
24 fits-all answer across all outdoor lighting  
25 zones.

1 MS. NEUMANN: Thank you.

2 MR. MEYER: We have a question online.

3 George, are you there?

4 MR. NESBITT: Yes. Can you hear me?

5 MR. MEYER: Yes. Please state your name  
6 and your affiliation.

7 MR. NESBITT: Yeah. George Nesbitt, HERS  
8 Rater.

9 So just a couple things. On EDR, I think  
10 people need to understand that the scale is 100  
11 to 0 being the standard design, which is based on  
12 this 2006 (indiscernible), and zero being net  
13 zero energy based on (indiscernible). So a score  
14 of 50 percent (indiscernible) than the standard  
15 (indiscernible) --

16 MR. MEYER: George, this is Christopher.  
17 Sorry to interrupt you, but you're breaking up a  
18 little bit. I just wanted to make sure we didn't  
19 lose any of your comment.

20 MR. NESBITT: Yeah. I can hear a slight  
21 echo back on (indiscernible). So --

22 MR. BOZORGCHAMI: George --

23 MR. NESBITT: -- I think --

24 MR. BOZORGCHAMI: -- we keep losing you.

25 MR. PENNINGTON: Sometimes, George, if

1 you don't use a headset, you avoid that echo.

2 MR. BOZORGCHAMI: Is it better for you  
3 just to submit your comments in writing to us,  
4 George?

5 UNIDENTIFIED MALE: (Off mike.) Have him  
6 use the chat function on the --

7 MR. BOZORGCHAMI: Or use the chat  
8 function on your own computer.

9 MR. STRAIT: Yeah. We're not hearing  
10 anything at the moment.

11 MR. BOZORGCHAMI: Okay. We'll come back  
12 to you.

13 Anybody else? So if there's no one else,  
14 and it's time -- it's almost 12:00, should we  
15 take a lunch break?

16 So I apologize for not being able to  
17 capture George, but we'll come back after lunch  
18 and see if we can do a better job with George.  
19 How about this, reconvene back here again at one  
20 o'clock, and we'll start with Thao presenting  
21 Subchapter 6. Thank you.

22 (Off the record 11:53 a.m.)

23 (On the record at 1:03 p.m.)

24 MR. BOZORGCHAMI: So if you folks are  
25 ready, we're going to start the second -- the

1 afternoon session of the Commission hearings.

2           But before we start with Subchapter 6,  
3 the nonresidential, high-residential, hotel-motel  
4 additions -- alterations, George Nesbitt was  
5 trying to get on the communication with us on the  
6 CALGreen. I just wanted to see if he still wants  
7 to make those comments, or would he be -- is it  
8 more beneficial for him to submit those comments  
9 in writing to us?

10           MR. BALNEG: Hi, George. Are you on the  
11 line?

12           MR. NESBITT: Can you understand me  
13 without me breaking up?

14           MR. BALNEG: Yeah. It sounds a little --  
15 a lot more clear now. Go ahead.

16           MR. NESBITT: Okay. Just a point I have  
17 made many times before and I'm making it again, I  
18 think you're going to run up against reality with  
19 net metering rules and how much people or a  
20 customer is allowed to install, not only under  
21 Part 6, but especially under Part 11. Because in  
22 order -- in order to reach EDR scores, people are  
23 going to have to use more PV. The Energy  
24 Commission has said that you can only get as low  
25 as 30 or 40 without it. So the net metering



1 rules, if you don't already have existing use,  
2 limit you to two watts per square foot. So you  
3 could maybe justify saying you're going to add  
4 electrical use beyond plans, but I think what  
5 we're going to face is we're going to be  
6 requiring some sizes that are larger than net  
7 metering will allow which we'll either have to  
8 lie about their predicted energy use, the  
9 utilities may not allow you to put in the  
10 required system, or what we're going to  
11 (indiscernible) is because often over-predicted  
12 energy use is -- we're going to have much larger  
13 (indiscernible) than planned, and problems that's  
14 going to cause a large (indiscernible).

15 Thank you.

16 MR. STRAIT: All right. Is that your  
17 comment? You started cutting in and out there at  
18 the end. I think we got it, though. Okay.

19 MR. BOZORGCHAMI: Okay. Thanks, George.

20 So we're going to move on to Subchapter  
21 6, section 141 -- 140.0 and 140.1. So with that,  
22 Thao will be doing the presentation.

23 MR. CHAU: So my name is Thao Chau. I am  
24 with the Building Standards Office, and I will be  
25 presenting Subchapter 6 and section 141. So

1 Subchapter 6 is about additional alternations and  
2 repairs for nonresidential, high-rise  
3 residential, and hotel and motel occupancies.

4 Section 141.0(b)(2)(A), we made minor  
5 changes to create consistency in phrasing and  
6 clarified in a note what constitutes fenestration  
7 repair.

8 Section 141.0(b)(2)(B), we removed the  
9 term thermal mass (phonetic) from (indiscernible)  
10 to the section 141.0(b)(2)(B) to (B)(i) and (ii).

11 For section 141.0(b), for this code  
12 cycle, we made great effort to simplify the  
13 nonresidential lighting operations code language.  
14 Instead of the current there different sections  
15 of three different types of alterations in  
16 section 141.0(b)(2)(I), (J) and (K), which are  
17 entire luminaires operations, luminaire component  
18 modifications and lighting wiring alterations, we  
19 merged them into a single new outdoor -- indoor  
20 lighting system.

21 Since option two and three are different  
22 compliance alternatives from option one, we are  
23 allowing option two and three to have the same  
24 controls. And all of the different controls for  
25 three different options will be listed in Table

1 141.0-E, which will be the next slide. An  
2 important new limit of 5,000 square foot project  
3 is now imposed on option three. Also, 40 percent  
4 uniform lighting power reductions apply for all  
5 occupancies, instead of the current 35 percent,  
6 50 percent split reductions, depending on voltage  
7 (phonetic) type.

8           So here's the table that I just  
9 mentioned. We reworked this Table 141.0-E just  
10 to simplify the code. Furthermore, in this  
11 table, every control requirement is listed  
12 depending on which option a project chooses to  
13 comply with. Options two and three share the  
14 same column since they both have the same control  
15 requirement.

16           We, again, strongly encourage submitting  
17 written comments via the three methods, either  
18 through e-file or via email through the docket,  
19 or mailed to us.

20           And I also would like to take this  
21 opportunity to thank and acknowledge the  
22 California Energy Alliance for submitting the  
23 nonresidential code change proposals to us. We  
24 forgot to include and acknowledge their work this  
25 morning in (indiscernible) section.

1           So other than that, I'll take comments  
2 and questions. Thank you.

3           (Colloquy)

4           MS. RODDA: I'm just not loud enough?  
5 Okay. Gina Rodda from Gabel Energy.

6           I have to -- I've been working with the  
7 case teams a lot with this stuff, and it's  
8 amazing, the changes you guys are making. It's  
9 so much easier to understand.

10           I do have an issue with the option three,  
11 with the 5,000 square foot limitation. Due to  
12 the complexity that that now entails with using  
13 that method, we now need drawings to prove the  
14 5,000 square feet, and that was what made the  
15 option so beautiful because you could use  
16 lighting audits and not have drawings. Now you  
17 have to have drawings.

18           I just would say if we're going to do  
19 that, let's just get rid of it since it's the  
20 same as option two, and your paperwork  
21 requirements are pretty much the same. And I had  
22 this as docketed comments, also.

23           MR. CHAU: Thank you.

24           MR. BOZORGCHAMI: Thank you.

25           Any other comments? Any on -- are you

1 guys tired, or what's going on? You guys had  
2 energy yesterday.

3           So if there's no more comments, we're  
4 going to move on to the nonresidential appendix.

5           MR. ALATORRE: Okay. I'm going to  
6 present the changes to our nonresidential  
7 appendices.

8           The changes in NA 1, they're made to --  
9 let's see, the updated language for documenting  
10 registration, and this was contingent on the  
11 approval of a nonresidential data registry.  
12 Changes to the roles and responsibilities for the  
13 builder, HERS provider, rater, installer and  
14 enforcement agency when documents are required to  
15 registered again, that's all contingent of the  
16 approval of a registry.

17           The changes to the HERS procedures and  
18 sampling, what was currently in NA 1 was just for  
19 duct testing, since that was the only thing that  
20 triggered HERS verification in nonres. Now with  
21 the dwelling unit ventilation requirement for  
22 that being HERS rated, verified by a HERS rater,  
23 as well, we needed to update the language to  
24 incorporate dwelling unit ventilation.

25           There was also some clarification on

1 resampling and corrective action when there was a  
2 fail in the group.

3           There was an update to the Third-Party  
4 Quality Control Program. Staff updated and  
5 clarified specifications and procedures for the  
6 TPQCPs. The information in this section is  
7 reorganized into categories and clarifying  
8 details are added in each category. This is a  
9 new requirement to automatically confirm the  
10 location of the system undergoing testing using  
11 an electronic tracking means, such as GPS, if  
12 available.

13           NA 1.9 was -- this is a new section, and  
14 this is to accommodate an alternative procedure  
15 that was approved under the 2016 Standards. This  
16 will allow local jurisdictions to close on the  
17 results of an acceptance test, rather than having  
18 it third-party verified by a rater. An again,  
19 this is at the disclosure of the local  
20 enforcement agency, and this is only applicable  
21 for duct testing.

22           NA 2.2, this is new and this is, again,  
23 because we're requiring HERS verification for  
24 high-rise residential dwelling unit ventilation.  
25 The procedures here are identical to what is

1 called in the RA, the Residential Appendix, since  
2 the procedure for verifying airflow is the same.

3           Also, in NA 2.2, there's the verification  
4 of the kitchen range hood, you know, for it being  
5 certified by HVI.

6           NA 2.3, field verification and diagnostic  
7 testing for multifamily dwelling unit enclosures,  
8 this is, again, a new requirement. And this is  
9 to give procedures for verifying the envelope  
10 leakage in the event that they're using the  
11 supply-only or exhaust-only method for  
12 ventilating.

13           NA 6, there was an edit to reduce the  
14 square footage for -- from 1,000 square feet to  
15 200 square feet. And this is for non-rated side  
16 build (phonetic) fenestration. Only 200 square  
17 feet is allowed to use a default. When you have  
18 more than 200 square feet, then you'd have to use  
19 the computer model approach.

20           Moving on to NA 7, I will let Simon talk  
21 about these.

22           MR. LEE: In NA 7.4, we added three new  
23 subsections for advanced daylighting devices,  
24 including two stories, horizontal slacks and  
25 light shelves. For the acceptance testing for

1 outdoor lighting controls, we revised the  
2 subsection NA 7.A7 (phonetic) and 7.A8 (phonetic)  
3 to verify the programming lighting control  
4 schedule on the construction documents if it is  
5 not available -- verified the program schedule is  
6 matching to the default. And the default is off  
7 from midnight to 6:00 a.m. and on in all other  
8 nighttime hours.

9 I will turn it back to Mark.

10 MR. ALATORRE: Okay. For the acceptance  
11 test procedures for air distribution systems, the  
12 duct leakage acceptance test, we added language  
13 to accommodate the new alternative procedure of  
14 allowing the project to close based off the  
15 acceptance test results. Otherwise, the  
16 procedure remains unchanged.

17 There was a new acceptance test for built  
18 up air handlers that trigger the FDD requirement.  
19 This new procedure is to ensure that the FDD  
20 system detects and reports the proper faults.

21 There was a new acceptance test added for  
22 occupied standby. And this new section has -- is  
23 proposed in section 120.2(e)(3). It is for  
24 spaces that have an occupancy sensor because of  
25 lighting controls. And Table 120.1(a) identifies



1 it as an occupancy that is eligible for occupied  
2 standby. The acceptance test ensures that it  
3 acts according to the requirements in 120.(e)(3)  
4 [sic] which is to set up or set down the set  
5 point, and also to turn off the ventilation.

6 And I will let Simon talk about this.

7 MR. LEE: Yeah. I think I covered this  
8 in the earlier slide already. And so the -- to  
9 verify the programming lighting control schedule  
10 on the construction documents for automatic  
11 scheduling controls.

12 So I'll turn it back to Mark.

13 MR. ALATORRE: Okay. Because we included  
14 adiabatic condensers or hyper condensers in our  
15 refrigerated warehouses, we now have a new  
16 acceptance test to verify their performance.  
17 We've gotten comments on this from the Case Team,  
18 and so there will be changes to what has been  
19 posted. And I will be reaching out to the  
20 stakeholders so that they're aware of all the  
21 changes prior to the 15-day release.

22 RJ?

23 MR. WICHERT: So for 7.16, we're  
24 proposing that the acceptance testing for the  
25 proposed lab exhaust system prescriptive

1 requirements of section 140.9(c)(3), acceptance  
2 testings for these measures includes construction  
3 inspection and sensor calibration, installation  
4 location and system operation for both wind and  
5 contaminant control exhaust systems. Functional  
6 testing of both wind and contaminant controlled  
7 systems is also being proposed. Functional  
8 testing consists of simulation verification of  
9 system operation for critical operation points  
10 and verification of system warnings and  
11 failsafes.

12           And then 7.17 is the section we're adding  
13 to test the proposed automated fume hood  
14 prescriptive requirements. Acceptance testing  
15 for these measures includes construction  
16 inspection, sensor calibration, installation  
17 location, system operation. Functional testing  
18 for the automatic sash closure system is also  
19 being proposed, and the functional testing  
20 consists of simulation verification of system  
21 operation for critical operation parameters and  
22 safeguards.

23           And to finish out this section of  
24 standards, we have the 7.18. And this section,  
25 given the new HERS verification requirements for

1 outside air and envelope leakage, there needed to  
2 be an accompanying acceptance test performed by  
3 an installer. The procedures in section 7.18  
4 serve as that new acceptance test since the  
5 existing tests do not apply to high-rise  
6 residential dwellings.

7           And if you have any questions, please ask  
8 them now.

9           MR. STRAIT: Before there are any  
10 comments, I'd like to complement my staff on the  
11 smooth hand-offs between presenters. I mean  
12 that.

13           MS. JACKSON: Hi. Thank you. Cori  
14 Jackson, California Lighting Technology Center at  
15 UC Davis.

16           One comment I did have, and it's on one  
17 of the nonresidential appendices that were not  
18 addressed in this presentation, but in 7.6 is the  
19 acceptance test for lighting controls, 7.7 are  
20 the installation requirements, there's been  
21 acceptance test for institutional tuning controls  
22 that's been continued to be carried forward as  
23 part of the installation requirements of 7.7, so  
24 it's really misleading. It can be hard to find.  
25 I'm just asking that the Commission look at that

1 and move it over to 7.6, which is where all the  
2 other acceptance tests are for lighting controls.  
3 So it's that way in 2016 and I think it was just  
4 an oversight and carried forward under the 2019.

5 Thank you.

6 MR. STRAIT: Cori, do you have a specific  
7 section?

8 MS. JACKSON: 7.7 has installation  
9 requirements for institutional -- or  
10 institutional tuning controls, lighting controls.

11 MR. STRAIT: But do you know what the --  
12 the specific subsection? Because there's --  
13 these go like five numbers deep, so --

14 MS. JACKSON: I don't have it.

15 MR. BOZORGCHAMI: So, Cori, could you  
16 send that to us (indiscernible)? That would be  
17 great.

18 MR. STRAIT: 7.7.

19 MS. JACKSON: 7.7.4.

20 MR. STRAIT: Thank you.

21 MS. JACKSON: There should be acceptance  
22 tests in there for institutional tuning controls  
23 that I would think would be better served moved  
24 over to 7.6.

25 MR. STRAIT: Understood.

1 MS. JACKSON: Okay. Thank you.

2 MR. ROSE: Hi. John Rose with Home  
3 Ventilating Institute.

4 With respect to this was a nonresidential  
5 section, but dwelling units and residential  
6 topics were discussed, I think you mentioned  
7 something at the end that it was not applicable  
8 to high-rise residential, or is that -- I just  
9 want to be clear.

10 Yeah, for section 7.18, yeah.

11 MR. ALATORRE: So there's a difference  
12 between what we call an acceptance test and a  
13 HERS verification. So there's an acceptance test  
14 requirement for the installer to verify outside  
15 air, and that's what we put into NA 7.18.  
16 There's also an accompanying HERS verification  
17 where they would do a visual on the kitchen range  
18 hood.

19 MR. ROSE: Okay. Yeah. So the same  
20 comments that I said yesterday, you know, I'll  
21 mention those in my -- these sections in my  
22 written comments also.

23 MR. ALATORRE: Okay.

24 MR. ROSE: I also wanted to just point  
25 out, with the high-rise residential, you have

1 options of having individual unit ventilation,  
2 heat recovery, individual units rather than  
3 centralized units. And so I just wanted to make  
4 sure that the rulemakings keep that in mind, if  
5 there's any special considerations that need to  
6 be taken into account for the smaller units.

7 MR. ALATORRE: Okay. Thank you.

8 MR. BOZORGCHAMI: So no more comments? I  
9 guess so.

10 George, are you on there?

11 MR. NESBITT: Rater. Since there are  
12 HERS (indiscernible) that have always  
13 (indiscernible) on res, as well additional --

14 MR. BOZORGCHAMI: George, you're breaking  
15 down again.

16 MR. NESBITT: Well, the joys of remote  
17 participation.

18 HERS measures applied (indiscernible)  
19 high-rise (indiscernible), as well as to  
20 residential. So the residential should just be  
21 renamed (indiscernible). All the duplicate  
22 (indiscernible) information, whether --

23 MR. BOZORGCHAMI: George, I apologize,  
24 we're only hearing like every third word you're  
25 saying.

1           MR. ALATORRE: Hi, George. This is Mark.  
2 If I recall the other times you've mentioned  
3 this, you -- your comment is about there being  
4 duplication between the nonres and the  
5 residential HERS procedures and for it to be  
6 housed all in one place, rather than having  
7 duplications.

8           MR. NESBITT: Correct.

9           MR. ALATORRE: Okay. Well, can you  
10 submit that in writing and we can consider making  
11 that move?

12           MR. BOZORGCHAMI: Okay. I think you  
13 nodded your head yes. Okay. Good. Thank you.

14           If there's no more comments, we're at the  
15 end of the Lead Commissioner hearing.

16           We're going to have Peter Strait give us  
17 a quick description of the initial study of  
18 negative declaration that needs to be done and  
19 what's expected. There's not a PowerPoint  
20 presentation on this. This is more of a  
21 discussion with you folks or an explanation to  
22 your folks.

23           MR. STRAIT: Yeah. This isn't really  
24 advisory. And, of course, if folks want to get  
25 up and comment, they can. We are working

1 internally on a CEQA document, on specifically an  
2 initial study and negative declaration for the  
3 amendments proposed in the 2019 Energy Code.  
4 We've identified a number of environmental  
5 benefits. The only potential for environmental  
6 impact related to the code was identified to be a  
7 materials impact related to the requirements for  
8 construction. We've identified the measures that  
9 we feel have a potential for a materials impact.  
10 And in examining those impacts, we have  
11 determined those impacts do not rise to a level  
12 of significance.

13           Therefore, we will be publishing this,  
14 likely within the next week or two. We're a  
15 little bit cautious about publishing it early.  
16 We know in the last code cycle, we actually had  
17 to create a second CEQA document due to some of  
18 the amendments that were made in the 15-day  
19 language in response to stakeholders. So we're  
20 likely to take some of the comments that you've  
21 got, consider what changes are likely to be made  
22 in the 15-day language, and then move that  
23 document forward.

24           So, certainly, if anyone has any comments  
25 on the environmental process or the environmental



1 impacts of the proposed language, they can speak.  
2 Otherwise, simply know that we are moving forward  
3 with a negative declaration at this time -- at  
4 this point.

5 Thank you.

6 MR. BOZORGCHAMI: So with that, please, I  
7 know there's a lot of information the past two  
8 days and I know you guys are going to have some  
9 comments, concerns. Please submit those as soon  
10 as possible, preferably by February 20th, and so  
11 Staff can start a dialogue with you and start  
12 working on these measures with you.

13 I appreciate you folks participating, and  
14 I look to seeing you guys for the next set of  
15 meetings.

16 MR. MEYER: Martha, did you have any  
17 closing thoughts or comments?

18 MS. BROOK: Not right now.

19 MR. BOZORGCHAMI: Oh, I'll bring it back  
20 up for Martha to say something.

21 MR. MEYER: Okay. Just for me, just  
22 thank you everyone. You know, it's been a big  
23 lift for residential in 2019, so we'll start,  
24 actually, now looking forward to 2022 and all the  
25 fun stuff we're going to do there. And so I

1 thank you for keeping us, you know, going on  
2 these things, and we'll see you all soon.

3 (The hearing adjourned at 1:30 p.m.)

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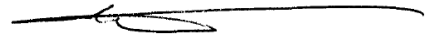
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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of February, 2018.

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PETER PETTY  
CER\*\*D-493  
Notary Public

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I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.



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MARTHA L. NELSON, CERT\*\*367

February 6, 2018