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California Energy Commission

DOCKETED

14-BSDT-01

TN 73296

JUL 02 2014

California Energy Commission
Dockets Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Re: 2016 Building Standards Update
Docket No. 14-BTSD-01

To whom it may concern:

My name is David Wilds Patton and I have been a professional independent lighting designer for over 20 years. Before that I was involved with electrical and lighting installations, so I have worked with California Title 24 lighting on a daily basis for over 30 years.

I have been active with commenting for the residential section of Title 24 since the 2005 iteration of the Standards. I consider my involvement important, as I have a unique perspective as a lighting designer who has insight into the customer's and the contractor's points of view, as well as those of the design community. It is a perspective that is sadly lacking in robust representation in the Standards-making process, which makes my participation all more important and hopefully will weigh at least equally with the various paid lobbyists. I absolutely am aligned with the desire and mandate to work continuously towards better and better lighting efficiency. However, it has always been my contention that we should not sacrifice quality lighting in the process and that we must be realistic and practical in terms of where technology stands in the present moments and where we believe it will be in each of the next iterations of the Standards. I have worked closely with Staff in years past and have most often felt that my views and perspectives were respected and valued. This said, I present my comments on the proposal for the 2016 Residential Lighting Standards that were presented in concept in the May Stakeholder

meeting and formally presented at the June 24th Staff Workshop.

In May it was proposed that the 150.0(k) 1C Section of the Standards be simplified by making basically one major change. Where low efficacy luminaires outside of Kitchen, Bathrooms, Garage, Laundry Rooms and Utility Rooms are now allowed within the 150.0(k)7 section if they are controlled by dimmers or vacancy sensors, only high efficacy luminaires would be allowed. However another change would go hand in hand with that change to allow screw-base and other base high efficacy “retrofit” lamps to qualify in those areas, as high efficacy. Those luminaires would need to be on a fixture schedule presented to the homeowner upon final inspection so the homeowner would know that all high efficacy luminaires had been installed and be able to compare the documented luminaires to the installed luminaires. This approach appealed to me, in spirit, for two reasons. One- we can utilize an easy and often requested area to expand the use of high efficacy lamps and two- if technology improvements do not match what is currently available today, we would not lose any well-designed and tried-and-true technology or light sources as tools for design to poor quality products.

However, when the proposal was actually presented in the Staff Workshop of June 24, 2014, another wrinkle had been added. The new proposal was to disallow this change to happen as described, but instead to insist that recessed fixtures be all high efficacy AND have an integral source. It was characterized in the proposal that in the May meeting stakeholders preferred this requirement for dedicated downlights. This is patently false. I only heard one comment from Jim Benya addressing this issue and no other comments addressed this. In the June 24th workshop Noah Horowitz also stated his agreement with this addition to the language. I believe he and Mr. Benya were the only commenters on this issue. I strongly disagree with this approach. Bi-pin lamps, such as MR16’s and other low-voltage lamps seem from the language and direction of the proposal to also be caught in this net of “all recessed downlights must have integral high efficacy sources”. It is well known in the design community and beyond, that LED MR16 lamps cannot, at this point in time, replace one-for-one, halogen MR16 lamps either in the wide variety of lumen outputs and beam angles or in the quality of color rendering and certainly not in a combination of these qualities. Performance and lamp life are not consistent. There are still many problems with flicker. This is assertion is backed up by the DOE Caliper Snapshot of MR16’s published January 1, 2014 which states: “Few MR16 lamps currently listed by LED Lighting Facts are comparable to a 50 W (12 V) halogen MR16 lamp. Of the small subset of MR16s that provided data for beam angle and center beam intensity, only one would meet the minimum ENERGY STAR® CBCP criterion for equivalence to a 50 W halogen MR16 at the same beam angle (40°).” That is woefully lacking and says to me that we should use caution before removing these tools from our toolboxes, even in our noble pursuit of energy efficiency.

Therefore, I believe it is necessary to insure that MR16 recessed downlights, along with AR111 and AR70 lamps, which have almost no one-for-one LED replacements available, remain part of the original text of the proposal. I also believe that there is a need for medium screw base recessed replacement lamps, as well and that they should remain part of the proposal. The common form factor for current LED recessed downlights is a recessed cone with a regressed lens to diffuse and disguise the LED chip behind the lens.

The overall look is one that smacks of a traditional “shower fixture”. I think it is not the look any homeowner will wish for in the more formal rooms such as Dining Room, Living Room, Bedroom, Halls, etc. I also don’t see the need for that form factor changing right now. I know there have always been good reasons that both R and A lamps have been so prevalent in residential recessed downlighting. That is due to the omnidirectional nature of those sources and the need to have a wider patterned, diffuse source in residential lighting with the accepted “look” inside the recessed fixture. This is often also achieved through use of surface mounted ceiling and wall fixtures, but not every architectural style lends itself toward using surface mounted fixtures in every application.

As a designer, I do not want to lose any tools in my toolbox. I think a balance must happen between what exists and what is desired, in order to create a fertile ground for manufacturers to create new products. Moving too quickly just for the sake of energy efficiency, for instance without taking into consideration the various needs of design will effectively “neutralize” and “homogenize” the tools available and will subsequently hamper the ability to create good design. We will find the lowest common denominator will prevail. I think the earlier parts of the presentation which clearly show that light quality through color, dimmability, and flicker-free sources in many different form factors indicate that the homeowner are much more sensitive to these things and much more sophisticated than we give them credit for. The market showed this in the rollout of CFL’s into the market and the flat-lining of adoption by the consumers. As it was originally presented, there was still a fantastic move forward in the reach towards an all high efficacy home, made up of high quality light sources.

I strongly appeal to reason, practicality, and deliberate movement, not an over-reach in this case, where we will decide to go forward with the original proposal, which did not force recessed fixtures to have integral sources and which will allow change-out after the final inspection by the homeowners if the products simply cannot perform. I agree and am happy that most homeowners will leave the high efficacy lamps intact. This will also effectively provide incentive for the manufacturers to improve their integral products to the point where we will truly not need alternative products. Truly this is my ultimate goal, as well. I just don’t want to create the premature extinction of products in this State that are useful not only in quality lighting design but in moving manufactures forward towards better products. I think that approach keeps everybody honest. It also preserves forms (with high efficacious sources) that consumers are comfortable with and accept.

Now, as it is, I believe that there are going to be very difficult obstacles in the way, given the sorry lack of LED replacement lamps which have alternate bases and form factors, such as bi-pin G4, GX5.3, or GX6.3 lamps or candelabra-base form factors. For instance, I have not seen ANY flame tip candelabra base lamps either in a frosted lens or more importantly in a clear lens on the market that are the same size as incandescent or halogen versions. The clear halogen or incandescent filament has not been duplicated in these types of lamps. How are we going to then legislate or dictate with any legitimacy that all fixtures must be high efficacy if we don’t address the prevalence of use with these kinds of lamps by most residential consumers? I would expect quite a backlash from homeowners, interior designers, architects and lighting designers to the requirement for these lamps to be high efficacy. There may be sub-standard products that will be used

only to be replaced later. This is a shame, but I believe this part of the proposal will cause lamp manufacturers to push forward with quality replacement lamps in all form factors. This completely supports the spirit of the rule as proposed for where we currently stand.

I also heard rumblings from various individuals and entities that CRI should not be held to >90 for JA-8. I believe 90 should remain a MINIMUM and I would like to shoot for higher standards (95CRI, for instance), including a much higher R9 value than >50; more in the range of >90. I also feel that 10% dimming as a standard is woefully low, unless we state that as perceived, not measured (I say that tongue in cheek, since perceived would be impossible to measure). I suggest that we require dimming down to 1% at a minimum. Although I understand the lack of perfect testing for flicker or even of a good place for this in the Standards, But, I also think this is a critical issue that needs to be addressed. From experience, I have found myself in situations where I had acceptable color, and lumen output, and dimming down to 1%, but the source flickered and this rendered the entire installation unacceptable. I think quality, unfortunately for those of us trying to replace incandescent with LEDs, is a combination of ALL these things and I applaud and support the authors of this presentation on their adherence to quality even in the face of the obstacles that do exist.

On another note, I have addressed the following issue during every review of the Standards since 2005 and respectfully submit it again, for addition and approval. I wish to see the following language added to the section on IC rated fixtures: "Exception 1 to Section 150(k)(1)(C): Luminaires recessed into ceilings between conditioned floors of a multistory building that are within the building's insulation envelope are not required to be certified IC". I believe building inspectors, contractors, plan checkers and all parties who both approve and enforce the Standards are intelligent enough to know the difference between recessed fixtures that are part of or installed in the building insulation envelope and those that are WITHIN the envelope. In multi-story buildings, as you go lower through the floors, the framing members need to be closer together for structural reasons. This can make it difficult, if not impossible at times, to install fixtures in locations they need to be installed because, as IC rated fixtures, they will likely be too deep, too long, or too wide. Most other states do not require IC rated housings be installed in insulated spaces that are insulated only for acoustic purposes and are not part of the insulation envelope. I know of many, many inspectors who simply look the other way or require the contractor to build a drywall box around the non-IC housing and then they will allow it. I think that's because they understand the necessities in actual day-to-day building practices and decide they can be flexible within the spirit of the Standards. I would hope the Commission could also be reasonable about these cases and allow non-IC recessed housings in floors that are not part of the building envelope. Insulation can effectively be held back 3" from the fixtures, therefore keeping the thermal protectors from shutting the fixtures off. I have thought, as many other have as well, that this is just simple practicality and common sense.

Sincerely,

David Wilds Patton, LC, IALD, IES