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DAVID WILDS PATTON LIGHTING DESIGN  
DAVID WILDS PATTON, L.C., Associate I.A.L.D., I.E.S.  
3325 Kimberly Way  
San Mateo, CA 94403-3001  
Phone: 650-574-2371  
Fax: 650-989-4076  
E-Mail: [dwpatton@dwplightingdesign.com](mailto:dwpatton@dwplightingdesign.com)  
Website: [www.dwplightingdesign.com](http://www.dwplightingdesign.com)

**Comments to the proposed Standards that were presented at the February 26, 2007 Staff Workshop**

To parties concerned with 2008 Residential Lighting Energy Standards:

As there was no formal transcription of the hearing and as there was still some need for further discussion, I have formulated my comments as markups to the proposed language, which I have attached. I have tried to copy all the parties related to the CEC, as well as the participants in the round-table discussion from last summer. I appreciate any and all comments and ask that this document become my formal statement, especially, if none was written into the record on the 26th. Additionally, if any of you are aware of someone who would be interested in reviewing this document who is not on this list would you kindly forward it on to them?

Thank you all for your hard work.

Yours,  
David Wilds Patton

**Section 150(k)(2)(E)      Blank electrical boxes installed in ceilings**

I am going to continue to oppose this proposed addition to the Standards. Although I understand the concerns you have about cheating and although I know you are trying plug the holes, as best you can, I can state, simply that, given the normal fast-tracking of residential project, these days, and also, given the fact the manufacturers nearly never stock inventory of decorative fixtures, anymore, that this rule would put homeowners, and also contractors, in an untenable position. It is often difficult for homeowners to decide exactly which fixtures they want until the design and construction progresses to the point where they can "see" what the house is shaping up to look like. (This is probably pretty specific to custom home building and remodeling). That said, they rarely are able to order the fixtures in a timely enough fashion to allow the fixtures to be onsite when the contractor is ready to get final inspection for occupancy. As many construction loans are time-sensitive, the tie-up of monies from these loans can then become contingent upon receiving the Certificate of Occupancy in a timely

fashion. I see this as the main reason there are blank covers at all during the final inspection process. Therefore, I believe you put a lot of pressure on the contractors, in particular, to hold the Homeowner's feet to the fire to make these decisions within time limits that I think are probably not realistic. The implied outcome of a change to the Standards in this respect, in my opinion, will be to force contractors to simply install cheap, low-quality fluorescent or other fixture(s) temporarily, in order to get the final inspection for move-in and then remove them and install the originally specified fixture(s) later. Again, it is worded: "blank electrical boxes". What does that mean? Should that read: "electrical boxes finished with blank covers"?

This proposal is a stop-gap measure, and one only supported by anecdotal information, anyway. This section, also does not determine what the rating of a blank cover should be. I think is really not a good idea and should be dropped or re-considered.

**Section 150(k)(3) Luminaire Wattage** *In residential kitchens the wattage of blank electrical boxes installed in ceilings shall be determined by the available volt-ampere(AV) capacity of the branch circuit feeding the blank electrical box.*

This is something of an extension of the Section "E", above, and again in my opinion, has no place in the Standards. Hypothetically, let's say that the fixture in question is a fluorescent, decorative, pendant with 2- 26watt CFL lamps. This has been considered in filling out the WS-5R form at initial permit submittal. According to this proposed language, if the contractor is unable to get the manufacturer to deliver before the final inspection is needed for progress payments or for occupancy (which may have payment contingent upon moving in), if this is a 15amp branch circuit, the VA rating of that circuit at 110 volts, would be 1650 watts. At 20 amps for the branch circuit rating, it would be 2200 watts. This proposed language is such that, depending on the branch circuit rating, the 53 watt pendant would now need to be rated at either 1650 or 2200 watts in order to now, at this late date, comply with this Standard. I would see not alternative for the contractor but to cheat and install a cheap alternate, temporary fixture, to comply, in the sort-run and then install the permanent one later. Therefore, not only will those who are intentionally trying to circumvent the rules change their modus operandi, but the contractor or homeowner, wishing to comply would suffer as well. I think this is just a bad road to go down. It would be much more pertinent to work on some wording that required the follow-up inspection of fixtures after the final inspection to insure compliance if a blank cover needs to be installed. Lastly, it is worded: "blank electrical boxes". What does that mean? Should that read: "electrical boxes finished with blank covers"?

### **Section 150(k)(5) Night Lights**

Jim Benya's response to this, during the public hearing, was very pointed and pertinent in discussion about this proposed new Section. I think that the way to address this should be in a maximum wattage per luminaire; perhaps 5 watts.

This could allow various lamp types, as long as the maximum rating for the lamp is stated on luminaire, by the manufacturer. This addresses the concern for use of high wattage lamps and the fact they could burn 24/7 by limiting the top end of what is allowed. I propose this, as, for instance, I currently use a luminaire for night lights that employs a 1 watt LED. This luminaire is great, but would not comply, as the efficacy, as stated by the manufacturer, is 16lm/watt. Will I now need to use a 9watt CFL instead? 9 watts, burning 24/7, versus 1 watt burning 24/7, seems like a no-brainer. Some kind of wattage cap, actually seems more useful in regulating the energy use for night lights, until LED's are all efficacious enough to comply both ways.

**Section 150(k)(6)(F)** *Manual-on occupant sensors, motions sensors, and dimmers installed to comply with Section 150(k) shall comply with the applicable provisions of Section 119*

I reviewed the section that was added specifically for Residential occupancy sensors and found it clear and concise. I rescind my objections from the hearing and think it is well-written and addresses the concerns we all had regarding the use of lighting control systems.

**Section 150(k)(6)(G)** *In rooms other than kitchens, two switch wires shall be provided to blank electrical boxes that have been installed for luminaires or ceiling fans.*

I'm sorry, but this proposal is very unclear in its intent and, again, relates back to some of the issues I brought up in the earlier discussions of blank covers. I think regulating those is not a good approach, but the wording in this one is even more unclear. If, as I stated in the hearing, if you are trying to separate fans from lighting in rooms other than Kitchens, you may have some trouble doing that, as most fans, these days, are sold as retrofit and new-installation combination-kits, having powerline carrier controls that allow separate control the two, by sending two, distinct, signals- one for the fan and the other for the lights. They typically allow speed control of the fan and dimming of the lights. Firstly, the phrase used should be: "switch legs" not "switch wires". Secondly, again, it is worded: "blank electrical boxes". What does that mean? Or should that read: "electrical boxes finished with blank covers"? Thirdly, the phrase: "for luminaires or ceiling fans" leads one to believe that any box with a blank cover would need two switch legs. I don't see where the energy saving happens, here. I also don't see where the problem is, here. Even with re-wording, what exactly does adding this Section accomplish? I just don't get it.

**EXCEPTION 1 to Section 150 (k) 9:** *Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by an a manual-on occupant sensor(s) certified to comply with Section 119 (k)*

I would like to see this and Section 150(k)12 worded to more clearly include systems built from discrete, approved devices, as well standalone devices, by wording it: "a manual-on/off switch or dimmer, in conjunction with an occupant sensor, certified to comply with Section 119"

**Section 150(k)(11)** *NOTE: Luminaires recessed into ceilings between conditioned floors of a multistory building where no insulation is installed in the cavity between the floors are not required to comply with Section 150(k)11.*

This is probably one of the most important (to me), and yet easiest changes, that it seems we have gotten wrong year after year. If the changes I am requesting to this Section, to clearly reflect the true intent of the Standards, is somehow being held up by semantics, please let's get this one worked out!

The issue at hand is this:

In multi-story residences, insulation is often installed between floors for acoustic purposes. This is in addition to the required insulation that is installed in the building envelope that insures there is reduced thermal loss through the outside walls and roofs. When this acoustic insulation is installed, according to the current and previous iterations of the Standards, if recessed luminaires are installed in these insulated spaces, they must be IC/AT rated. Additionally, from a design standpoint, as you go deeper in the building, down through the floors, the framing members get closer and closer together, making it much harder to fit the large sheet-metal-boxed luminaires that the IC/AT housings need to be in order to dissipate the heat. It has always seemed to me that this was a mistake in the way this Section was written. From an energy standpoint I am the first one to explain to my clients that IC housings are needed to reduce the thermal loss through the building envelope, where in the years preceding this part of the Standards, non-IC housings might allow heat to escape through the space where insulation is pulled back 3". As we all know, that 3" is required by manufactures on non-IC cans in order to keep the thermal overload devices from intermittently turning the luminaire on and off with a high thermal overload (basically a safety feature). I explain to my clients that infra-red thermal imaging from aircraft have clearly shown the "spots" on the roof where the heat is escaping and that using IC housings helps to minimize the thermal loss through those "holes" in the building envelope. What I have trouble explaining to them, and trouble understanding myself, is why the Section is currently worded to include all cavities that are insulated, rather than only in those cavities that are part of the exterior building envelope. There is no energy issue here, as any heat loss through the "hole" in the insulation held back the 3" on the interior floors will still be retained and kept within the building envelope by the insulation and IC/AT housings in the building envelope. I have asked this question of Gary and Mazi and the answer is that it was never the intent of the standards to be interpreted in this way. However, with the wording the way that it is, it clearly mandates use of

IC/AT housings in all insulated cavities, regardless of the purpose of the insulation. I suggest that the wording proposed in the 2008 Standards be slightly modified to say: "Luminaires recessed into ceilings between conditioned floors of a multistory building where acoustic or no insulation is installed in the cavities between these floors, are not required to comply with Section 150(k)11. There is no exception for housings installed within the exterior building envelope" I think that will clarify intent while still requiring IC/AT housings in insulated spaces that are part of the building envelope.

**EXCEPTION 1 to Section 150 (k) 12:** *Permanently installed outdoor low efficacy luminaires shall be allowed provided that they are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the motion sensor, and one of the following methods:*

- A. Photocontrol not having an override or bypass switch that disables the photocontrol; or*
- B. Astronomical time clock not having an override or bypass switch that disables the astronomical time clock; or*
- C. Energy management control system (EMCS) not having an override or bypass switch that allows the luminaire to be always on.*

I would like to see this and Section 150-9 worded to more clearly include systems built from discrete, approved devices, as well a standalone devices, by wording it: "a manual-on/off switch or dimmer, in conjunction with an occupant sensor, certified to comply with Section 119"