

Energy Star Luminaires Version 2.0 Draft 1 Comments

Following are my comments/concerns regarding the Program Requirements for Version 2.0 Energy Star qualification of luminaires.

- I wholly endorse the proposal to allow non-directional luminaire certification by shipping said products with Energy Star certified lamps. This would immediately open a wide variety of additional designs to the consumer seeking energy efficient lighting, as well as the builder who needs Energy Star qualified lighting to meet the Energy Star for Home requirements of new construction. I urge you to include this proposal in the final document.
- In the "Source Minimum Light Output Requirements" chart for both "Directional" and "Non-directional Luminaires" I remain concerned with the minimum light output levels in the "lumen per head" section. This logic is viable with traditional arm-type chandelier as have been popular in the past, but what of the future designs employing MANY smaller light sources that will result in a cumulative greater output? As solid state technology changes, the design of the luminaire will also change. We are VERY likely to see more "heads" with smaller amounts of light emanating from each. That means luminaires that stretch existing aesthetic boundaries will likely be ineligible for Energy Star qualification. I urge you to find a way to include certification for new multi-head designs that employ multiple sources of light in an effort to certify a wider variety of luminaire designs.
- In the "Luminous Efficacy" Requirements for Directional Residential Luminaires (9.2,) you are asking for an initial lumen output of 200 per foot for coves. I remain concerned about this number and stated so in the initial comments for these specifications. Most residential cove or tray-ceiling lighting is supplemental or decorative. 200 lumens per foot would be substantially higher than necessary in most every application. While it may be important in commercial use, it is difficult to visualize where this high lumen demand would be applicable in a residence. You may want to alternately consider adding a category called "Decorative Linear" or "Architectural Detail" that uses a similar efficacy with no minimum light output. This type of decorative light is growing in popularity. Consumers will use energy to accent these spaces. It may as well be done efficiently.
- In the "Luminous Efficacy" Requirements for Directional Residential Luminaires (9.2,) zonal requirements for Accent Lights ask for 80% of the lumens to be delivered within the 0-40° range. If we use current MR lamps as a benchmark, 35° is the most typical beam spread with 60°

following closely behind in popularity. Each serves a specific functional purpose. Switching this number to 0-60° would allow for the inclusion of the most popular lighting effects used by designers.

- During the initial drafts of the Luminaire specifications, I expressed concern over the inclusion of 4000/4100K and 5000K Correlated Color Temperature lamps. I remain concerned, perhaps even more so this round, especially with the mounting medical research that shows the derogatory impact blue light has on the Circadian Rhythm of plants, animals and humans. In addition, blue light is historically perceived as unacceptable in the low-light levels found in general residential interiors. (Please note the research that led to the development of Kruitehof's Curve in 1941.) I urge you to revisit this list. If you cannot find consensus for eliminating the 4000/4100K and 5000K, the 5000K option must surely be removed. Energy Star should not be recommending light color that is both damaging to health and perceived as unappealing.
- I support the 80 CRI minimums, (9.4) but going forward, I urge the EPA to raise that number, ultimately aligning with the California Energy Commissions' move toward 90 CRI minimums. A National Standard and a state standard introduce challenges to manufacturing and customer order satisfaction. It also demonstrates to the consumer that the National standard is somehow subservient to individual state needs. A unified level is most desirable.
- A study conducted a few years ago, (I thought by the EPA, Energy Star in conjunction with the Consortium for Energy Efficiency [CEE]) found that consumers could not / did not relate color temperature of lighting to a descriptor. In this proposal, you are asking manufacturers to use descriptors in addition to the number. Much effort has been exerted on the part of manufacturers and designers to promote the "correct number" of light. Adding a descriptor will only add another level of complexity. One lamp manufacturer, "Warm White" is another's "Neutral White." I have also seen manufacturers call 4200K lighting, warm. I urge you to remove the terms and stick with the enforcement and importance of numbers only.
- In the "Dimming Requirements" for solid state lighting and the conjoined "Product Labeling & Packaging Requirements" (16.1) the packaging is required to provide dimming range and link to a list of compatible dimmers. Different dimmers may perform differently on the same luminaire. I suggest you eliminate the dimming range on the packaging and maintain the URL link for full details. You may also want to include the option of a

QR Code. Listing each range for each dimmer will result, not in a carton label, but a spreadsheet pasted to the box.

- The requirement for light distribution of directional luminaires needs to be further fleshed out to be relevant. Because light distribution is much more important during the specification and design portion of the process, these distribution sheets should be available on the manufacturer's website or in printed catalogs. Having this paperwork in the carton is too late in the process to be meaningful. Lumen distribution is often a part of third-party testing and because of its complexity is usually only understood by the lighting professional. Consumers and installers will typically find no value in this information. Please spend an additional moment on this point and make it relevant to the applicable designer, installer and user.

Please consider these comments when working to rectify the Energy Star for Luminaires program requirements.

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