

California Energy Commission
Dockets Office, MS-4
Re: **Docket No. 12-BSTD-06**
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Your reference: 2013 Residential Alternative Calculation Method Reference Manual
Docket No. 12-BSTD-06 Our reference: 29-4 Date: November 29, 2012

VELUX America Inc. has conducted a review and wishes to comment on the current draft of the 2013 Residential Alternative Calculation Method Reference Manual. The following written comments are intended to improve the skylight-related provisions to enable a more complete assessment of the energy impacts of modern products and their usage.

VELUX America Inc. offers skylights and tubular daylighting devices, across the U.S. and Canada, and certain similar products to the VELUX companies in Australia, New Zealand and Japan. With forty years of operations in the U.S., and with the benefit of our association with the global VELUX Group and their seventy years of similar history in many European and Asian nations, we have gained a unique and broad understanding of the many benefits of incorporating our offerings in buildings, as well as the challenges we all face in learning to be more responsible stewards of the bounty of our earth.

Reflecting that understanding, and with our dedication to bringing daylight and fresh air into our interior environments in the most effective and efficient manner possible, we have become the most active producer in our market segments in codes and standards development. We trust our comments are seen in the context of VELUX speaking as the "de facto" spokespersons for all those in our industry who cannot dedicate the resources to assist in this capacity.

Comments Related to Daylighting and Natural Ventilation

1. While we understand that lighting energy is currently not included in the calculation method, we wish to encourage the Energy Commission to make an exception for products that provide the potential to supplant artificial lighting that consumes energy and emits waste heat. When daylighting is a design goal in new house development, the lighting energy savings, as well as the heating and cooling energy savings, will not be insignificant. Until lighting energy use is included, it will be inherently biased against skylights and TDDs to the detriment of its end users.
2. We have previously provided to the Energy Commission (in Docket 12-BSTD-1) a report issued by Group 14 Engineering on February 19, 2012, [A Study of the Energy Impacts of Residential Skylights in Different Climates](#), by Elizabeth Gillmor, P.E.; Sue Reilly, P.E.; et al. In this report, it is shown that when fenestration is optimized by including good daylight performance as a key constraint, significant heating and cooling energy savings, along with positive TDV results, are very achievable. (Note that lighting energy savings were not included, in order to focus on the

24/7 benefits of optimized glazing design. We know there is a positive additional savings that should be quantified in a robust performance calculation method. Also note that the study did not consider cooling and IAQ benefits from enhanced natural ventilation that is possible when skylights with venting capabilities are selected.)

3. A review of that study will show that trading skylight area for larger window areas, where appropriate for good daylight design, will provide heating/cooling TDV savings in all climate zones. It appears that the Residential ACM Method provides no opportunity to take credit for those savings. We strongly urge the Energy Commission to modify the manual to permit assessment of the energy value of this design approach.

Comments Related to Shading Assumptions

4. Interior shading on windows is provided for, but not for skylights. VELUX skylights glazed with double-pane, triple low-e IGUs are often installed with matched VELUX shading or diffusing devices. These assemblies have been tested to improve U-Factor and SHGC performance by a significant percentage. We urge the Energy Commission to permit such assemblies to be equably treated and fully credited with their tested performance in similar fashion in the ACM, and to encourage NFRC to allow our labels to reflect these enhanced dynamic ratings.
5. While windows are assumed to have screens, skylights are not. VELUX venting skylights are always furnished with insect screens. We urge the Energy Commission to ensure that skylights with screens are equably treated in the ACM.
6. It is possible to add exterior shutters to skylights, as the ACM recognizes for windows. VELUX is considering offering its roller shutters designs as an option on our skylights, but unless the ACM provides the flexibility to determine the effect of such devices, ACM users will not understand their beneficial energy effects.

We urge the Energy Commission to recognize and rectify these built-in biases against the use of modern skylights in residential buildings.

We will be glad to assist as needed in filling in any information needs regarding the above comments.

Best Regards,

A handwritten signature in purple ink that reads "Roger LeBrun".

Roger LeBrun

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cc: J. Lawton
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