

**STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA**  
**1414 K Street, Ste 260**  
**Sacramento, CA 95814**

**WIND CODE COMMITTEE**

January 25, 2011

Pete Fischer & Ron LaPlante  
Senior Structural Engineers  
Division of the State Architect, San Diego Office  
Department of General Services  
10920 Via Frontera, Suite 300  
San Diego, CA 92127

Subject: Wind on Photovoltaic Panels

Dear Pete & Ron:

In response to your inquiry of December 17, 2010 to James Lai and myself, the SEAOC Wind Code Committee discussed some of the issues addressed in your inquiry at their January 21, 2011 meeting. Recommendations and comments agreed on by the committee are as follows:

1. If wind tunnel testing is to be used to justify not providing a positive anchorage for photovoltaic panels, we recommend that both the wind tunnel tests and final calculations be peer-reviewed by a consultant or entity with appropriate experience in wind tunnel testing and wind design.
2. If uplift forces less than the dead load weight of the panels are accepted by DSA, we recommend that a means of tethering the panels be required to ensure that they will not fly off of the roof. They would represent a serious safety hazard if they do fly off. A design load of 80% of the ASCE 7-10 design pressure for components might be considered for design and anchorage of the tethers. The tether design force should be calculated with wind pressure applied on the net area of a panel with the panel oriented in a vertical position.
3. Recommend consideration of establishing a minimum uplift pressure regardless of the wind tunnel test results. Although we recognize that the 10 psf minimum required by the code for roof-top components and claddings is arbitrary, we suggest that a percentage of the 10 psf minimum required by the code for roof-top components & claddings might be used.

Regardless of the apparent uplift pressure indicated to occur on these panels by the wind-tunnel tests, the consensus of the committee was that some means of securing the panels against flying off of the roof definitely should be employed. We hope that this will be helpful and please contact James Lai or me if there any questions or comments.

Sincerely,

Kenneth A. Luttrell, Chairman  
SEAOC Wind Committee