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ICC-ES Los Angeles

**DUPONT RESPONSE TO PROPOSED CHANGES TO ICC-ES ACCEPTANCE
CRITERIA AC-365**

Mr. Moya,

In response to the notice parties Interested in Evaluation Reports on Building Integrated Photovoltaic Roof Modules and Panels published by ICC Evaluation Service, Inc., E. I. du Pont de Nemours and Company ("DuPont") is registering our response to the staff seeking input. It is our hope that this will enable the ICC to better understand photovoltaic (PV) components that are used in BIPV.

The staff has asked for input on certain areas of interest.

Consideration of staff letter dated December 29, 2009, regarding Proposed Revisions to the Acceptance Criteria for Building-integrated Photovoltaic (BIPV) Roof Panels, Subject AC365-0210-R2 (YM/CA).

DuPont provides the following comments.

- **Section 3.2.5.4 Ultraviolet Exposure:** *Ultraviolet light exposure testing and conditions of acceptance for the BIPV roof module shall comply with the requirements found in Section 25 of UL 746C, when installation is on roof slopes of equal to or greater than 2:12. When installation is on roof slopes between 1/4:12 and less than 2:12, the durability provisions found in Section 1504.6 of the IBC shall be followed.*
1. Section 3.2.5.4 requires further clarity. There is insufficient explanation of the scope of the acceptance criteria.
 2. IBC Section 1504.6 requires 2000 hours of weathering, whereas Section 25 of UL 746 requires only 1000 hours. The rationale for weathering the BIPV module on a low sloped roof (1/2:12 to 2:12) to a different degree than high sloped roofs (greater than 2:12) is not understood. In both cases, the BIPV module will see continuous exposure to UV Light, since this is required for the BIPV module to

- function. Thus, the argument that low sloped roofing membranes are more susceptible to UV exposure, per IBC 1504.6, does not apply, since there are no 'shingles' protecting the BIPV module from sunlight in the high sloped roof.
3. It is recommended that the criteria for IBC 1504.6 be applied (2000 hours of exposure) for both low and high sloped roofs.
 4. UL 746C is used to evaluate polymeric materials for use in electrical equipment. The scope of this standard is intended to cover polymeric components. UL1703 is used to evaluate photovoltaic modules.
 5. Section 25 of UL 746C is intended to test polymeric materials supplied as a film, resin, plaque, or test bar with two exceptions listed.
 6. The acceptance criteria for a BIPV module tested to UL 746C, section 25 is unclear. Greater clarity is required regarding the applicability of using the test procedure exceptions listed in section 25 of UL 746C for BIPV modules.
 7. There is insufficient description of the intended use of UL 746C, section 25 as it applies to a BIPV roof module. It is unclear as to whether section 3.2.5.4 is intended to test the individual polymeric films used in the construction of the module or to test the entire BIPV module.
 8. The duration of the test should be a 2000 hour exposure, consistent with 3.1.4.2.2 Polymeric or Elastomeric Materials of BIPV Roof Panel Tiles Used as Roof Covering.
- Editorial Comment: Consistent with the proposed editorial changes, please include the word "modules" to Section 3.1.4.2.2. It should read: "**3.1.4.2.2 Polymeric or Elastomeric Materials of BIPV Roof Modules and Panel Tiles Used as Roof Covering:**" to be consistent with the additional descriptive language used throughout the document.

Thank you for your time in considering our comments regarding ICC-ES AC365.

Sincerely,



James D Katsaros, PhD
DuPont Building Innovations



Alexander Z Bradley, Ph.D.
DuPont Photovoltaic Solutions

CC: Michael Beaton