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Wind Loads on the PV Roof-Mount Systems “S-Dome 6.10”, “S-Dome 6.15” and “D-Dome 6.10” of K2 Systems GmbH

Dear Sir or Madam,

in 2020 and 2021 I.F.I. Institut für Industrieaerodynamik GmbH was commissioned by K2 Systems GmbH to compile wind load reports for the PV roof-mount systems “S-Dome 6.10”, “S-Dome 6.15” and “D-Dome 6.10”. The wind load reports in their most recent revisions, KSR04-1-2, KSR04-2-2 und KSR04-6-2 dated October 10, 2023, contain the wind load provisions to account for wind actions on these systems and correctly determine the design wind loads, as EN 1991-1-4 does not provide any guidance for such structures and ASCE 7-10, ASCE 7-16 and ASCE 7-22 only give broadly simplified and conservative values. With regard to wind loads on solar roof-mount systems the simultaneous wind action on top and bottom surfaces of the modules, venting and other aerodynamic characteristics are of particular importance. In this manner, pressure coefficients for the design of solar roof-mount systems differ significantly from pressure coefficients that apply to roofs and roof coverings as these only account for single-sided loading and not for the special geometry of solar roof-mount-systems.

The use of such wind load reports for the design is principally permitted by Section 1.5 of EN 1991-1-4 and Chapter 31 of ASCE 7-10, ASCE 7-16 and ASCE 7-22. The wind load reports are based on boundary layer wind tunnel measurements that comply with the wind tunnel testing guideline of the Windtechnologische Gesellschaft e.V. as required by DIN EN 1991-1-4/NA:2010. They are, thus, also compliant with the requirements of ASCE 49-12 and ASCE 49-21 as referenced by ASCE 7-10, ASCE 7-16 and ASCE 7-22.

Therefore, wind load reports KSR04-1-2, KSR04-2-2 und KSR04-6-2 are consistent with state-of-the-art wind tunnel testing and give exact design provisions to account for wind actions on the aforementioned systems of K2 Systems GmbH according to EN 1991-1-4, ASCE 7-10, ASCE 7-16 and ASCE 7-22.

If you have any other questions please do not hesitate to contact us.

Best regards,



Daniel Markus, M.Sc.

Head of Building Aerodynamics