# Certificate

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|---|---|
| s u b j e c t : | Esdec FlatFix Fusion Series - calculator 2023 |
| d a t e : | October 24th, 2023 |
| r e f e r e n c e : | MvU/MvU/W 15389-34E-NO |
| f r o m : | ir. G.M. van Uffelen |
| t o : | Esdec B.V. - Deventer |

This certificate concerns an evaluation of the Esdec Calculator for ballast calculations for the Esdec FlatFix Fusion system-module positions landscape as well as portrait. The photographs show the systems and some of the scale models in our wind tunnel.
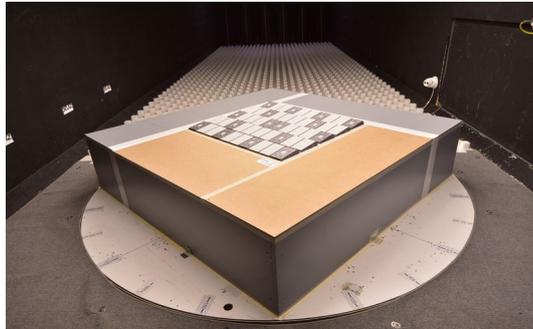



This is based on the specific wind tunnel research conducted by Peutz bv into the wind load on the Esdec FlatFix Fusion mounting system for flat roofs. This dedicated wind tunnel studies, specifically for this system, were carried out by Peutz bv in 2018 and 2023.
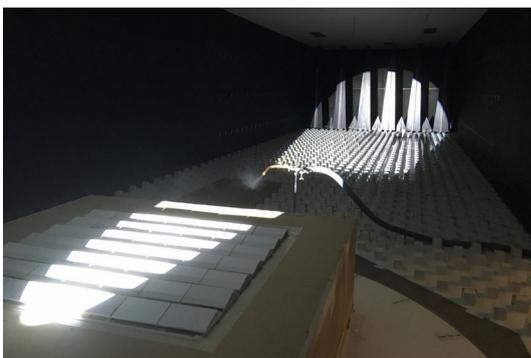
Based on mechanical lift tests carried out by Esdec with improved system connections in 2021 and 2023, conforming to NEN 7250:2021 appendix D.5, see the lower right photograph at the front page, the actual degree of interconnection of the systems was determined and processed by Peutz bv into the wind tunnel data.

These have been incorporated in the aforementioned calculator of Esdec. A pair of screendumps has been depicted down here, for the landscape and the portrait system-module positions.

We hereby declare, after studying and testing the calculator, that Esdec does indeed use the wind tunnel measurements of FlatFix Fusion, which have been combined with the mechanical lift tests into the wind tunnel data, and that the results have been correctly and safely processed in the Esdec calculator. The approach and method used by Esdec when applying this calculator have been tested and approved by us in several reference projects.

Conformity:    CUR Recommendation 103: 2005
               NEN 7250: 2021
               NEN-EN 1990: 2019
               NEN-EN 1991-1-4: 2019

Mook,

This certificate contains 3 pages