

## Validation of the software „GLASGLOBAL“

The Chair of Structural Design and Building Physics at the University of the Bundeswehr in Munich has been commissioned to validate the computer program GLASGLOBAL Version 7.2621 for the calculation of glazing according to ASTM E1300-16 for standard-compliant design and implementation. The validation is based on comparative calculations with the software MEPLA Version 4.07. The validation is carried out for a total of 15 reference constructions, which comprise linearly supported laminated, monolithic or insulating glazing with partially different types of glass, cf. Table 1.

| Nr. | Setup [mm]                  | Glass             | Size [mm]   | Geometrie | Support        | Angle | Loading                               | Special Loads      |
|-----|-----------------------------|-------------------|-------------|-----------|----------------|-------|---------------------------------------|--------------------|
| 1   | 6                           | Float / AN        | 1200 x 1500 | rectangle | allside line   | 90°   | Windload 2,5 kPa                      |                    |
| 2   | 6/12/8+0,76+8               | ESG/FT + LG: 8 HS | 1520 x 1900 | rectangle | allside line   | 0°    | Snowload 6 kPa                        |                    |
| 3   | 6                           | ESG/FT            | 1930 x 965  | rectangle | allside line   | 90°   | Windload 1,8 kPa                      |                    |
| 4   | 4/16/4/16/4                 | Float Glass       | 1000X1000   | rectangle | allside line   | 90°   | Windload 0,58 kPa                     | Lineload 1,56 kN/m |
| 5   | 6                           | ESG/FT            | 1000X1000   | rectangle | allside line   | 0°    | Windload 2,0 kPa + Snowload 1,0 kPa   | Lineload 1,00 kN/m |
| 6   | 6                           | ESG/FT            | 1500 x 1500 | rectangle | threeside line | 0°    | Windload 1,0 kPa + Snowload 1,0 kPa   |                    |
| 7   | 6                           | ESG/FT            | 1500 x 1500 | rectangle | twoside line   | 0°    | Windload 1,0 kPa + Snowload 1,0 kPa   |                    |
| 8   | 4/16/4                      | Float Glass       | 1000X1000   | rectangle | allside line   | 90°   | Windload 0,58 kPa                     | Lineload 1,00 kN/m |
| 9   | 4/16/4                      | Float Glass       | 1000X1000   | rectangle | twoside line   | 90°   | Windload 0,58 kPa                     |                    |
| 10  | 4+0,76+4                    | LG: 4 AN          | 1000X2000   | rectangle | allside line   | 0°    | Windload 0,75 kPa + Snowload 0,75 kPa |                    |
| 11  | 4+0,76+4                    | LG: 4 AN          | 1000X2000   | rectangle | twoside line   | 0°    | Windload 0,75 kPa + Snowload 0,75 kPa |                    |
| 12  | 6+0,76+6+0,76+6             | LG: 6HS x 3       | 1500 x 1500 | rectangle | allside line   | 0°    | Windload 1,50 kPa + Snowload 1,00 kPa |                    |
| 13  | 8+1,52+8                    | LG: 8 FT          | 1500 x 1500 | rectangle | allside line   | 0°    | Windload 3,00 kPa + Snowload 4 kPa    |                    |
| 14  | 6+0,76+6/16/5+0,76+5+0,76+5 | HS                | 1250 x 1250 | rectangle | allside line   | 0°    | Windload 2 kPa + Snowload 2 kPa       |                    |
| 15  | 4 + 0,76 + 8                | AN                | 1500 x 1500 | rectangle | allside line   | 0°    | Windload 1,50 kPa + Snowload 1,00 kPa | Lineload 1,00 kN/m |

Table 1: Reference setups for the validation calculations

The Chair of Structural Design and Building Physics of the University of the Bundeswehr was provided with an executable version of the calculation program GLASGLOBAL in version 7.2621 for this purpose.

The validation is based on the data stored in ASTM E1300-16 and ASCE/SEI 7-10.

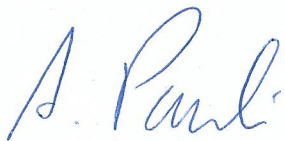
The results of the validation calculations with the two software programs mentioned in section 1 of this report were compared load case by load case for the stresses and deformations. The calculations of GLASGLOBAL are generally on the safe side for the stresses, deformations and utilization ratios.

The standard-compliant calculation according to ASTM E1300-16 and ASCE/SEI 7-10 of laminated and insulating glass glazing can be confirmed. This validation report refers exclusively to the calculation program described in section 1 and the tested functions.

Only the complete test documentation (report - b-04-18-12b) or an abridged version prepared or approved by the Chair of Structural Design and Building Physics may be used for information or advertising purposes. If the test documentation is published on the Internet, it must be ensured that the file is protected against changes (read/print authorization in pdf format only). A corresponding file will be provided by the Chair of Structural Design and Building Physics.

This declaration is valid for 3 years, after which it must be clarified whether conformity with the then valid testing and assessment principles is still ensured.

Neubiberg, the 07.10.2020

  
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