



Structural Analysis & Design Software

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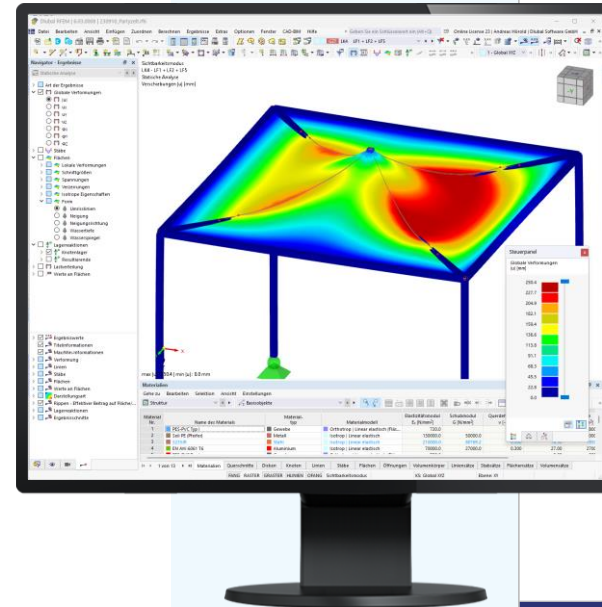


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Webinar

Form-Finding and Calculation of Tensile Membrane Structures in RFEM 6



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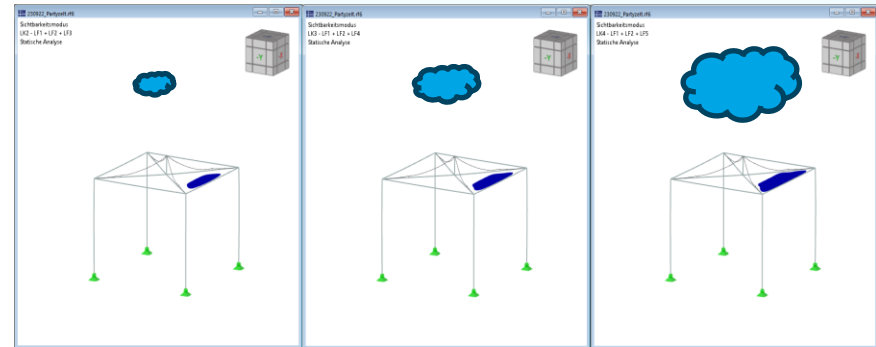
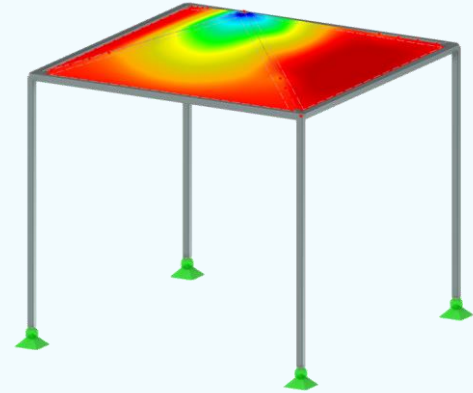


Content

01 New Features

02 Form finding and calculation of membrane and cable constructions

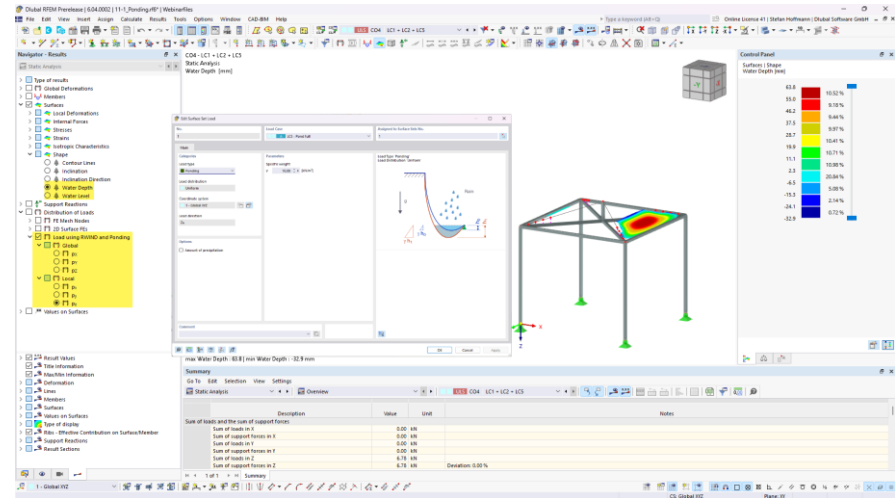
03 Prospect





Ponding

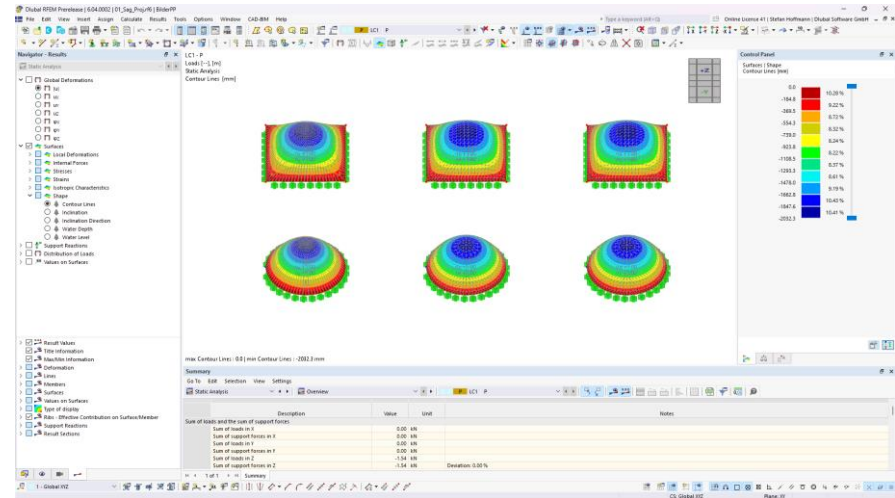
- Simulation of the effects of rain on multi-curved surfaces
- Consideration of geometry and displacements according to Th. III. O.
- Analysis of approximately horizontal membrane roofs





Surface load Sag – projection method

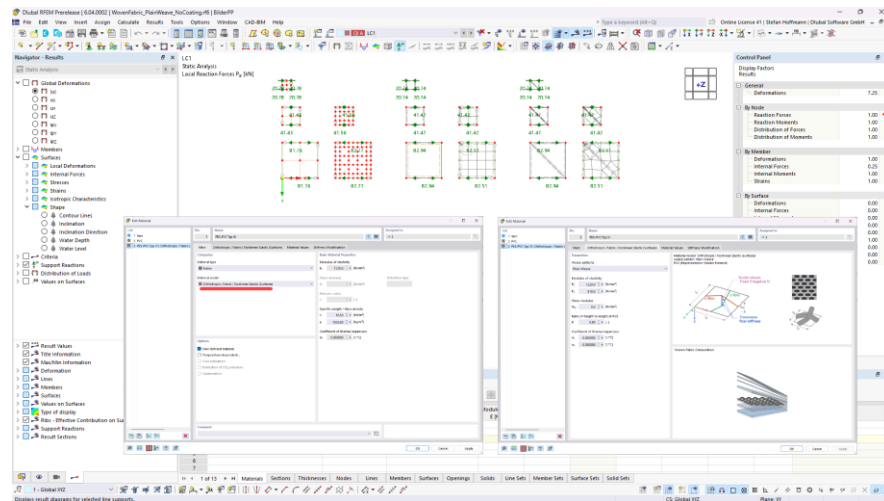
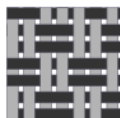
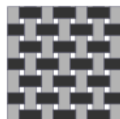
- Calculation method – projection
- FF-Definition – Sag
 - Orthogonal
 - Radial
- For synclastic shapes





Material model - orthotropic, fabric, nonlinear elastic (Surfaces)

- Material type fabric
- orthotropic, fabric, nonlinear elastic (surfaces)
- Weave patterns
 - Plain weave
 - Basket weave





Material model - orthotropic, fabric, nonlinear elastic (Surfaces)

- Microstructure-based material model
- Representative volume element
 - Inclined cables (fibers)
 - Vertical truss (distance of fibers)
 - 2D foil element (coating, optional input of shear modulus)

Main | Orthotropic | Fabric | Nonlinear Elastic (Surfaces) | Material Values | Stiffness Modification

Parameters

Weave patterns
Plain Weave

Modulus of elasticity
 E_x : 1220.0 [N/mm²]
 E_y : 810.0 [N/mm²]

Shear modulus
 G_{xy} : 0.0 [N/mm²]

Ratio of height to length of RVE
 R : 0.50 [-]

Coefficient of thermal expansion
 α_x : 0.00000 [1/°C]
 α_y : 0.00000 [1/°C]

Material model 'Orthotropic | Nonlinear Elastic (Surfaces)'
 weave pattern 'Plain Weave'
 RVE (Representative Volume Element)

'Woven Fabric Composition'

$$R = \frac{h_0}{l_0}$$



Examples

Static Analysis
Displacements [m] [mm]

max |u| : 2425.8 |min |u| : 0.0 mm

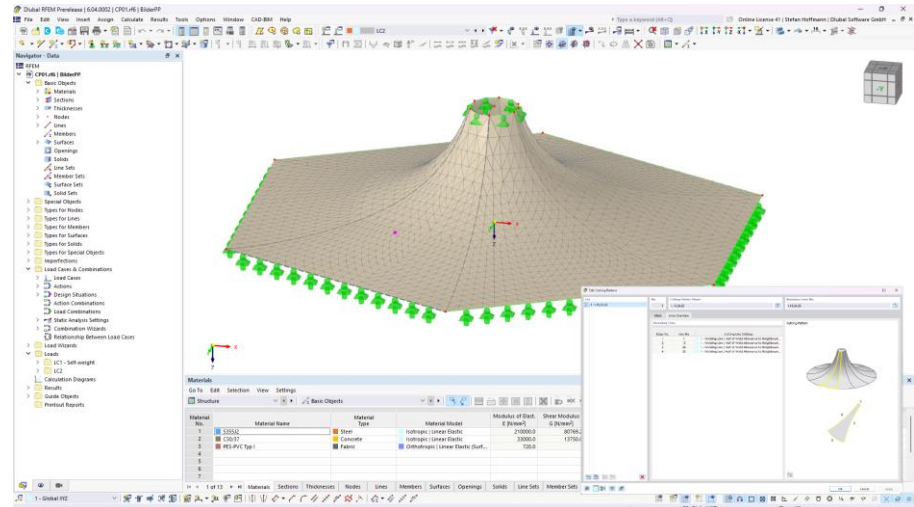
Description	Value	Unit	Notes
Sum of loads and the sum of support forces			
Sum of loads in X	0.00	kN	
Sum of support forces in X	0.00	kN	
Sum of loads in Y	0.00	kN	
Sum of support forces in Y	0.00	kN	
Sum of loads in Z	5.93	kN	
Sum of support forces in Z	5.93	kN	Deviation: 0.00 %





Prospect

- Finalizing the features of the pre-release version
- DXF export form-found structure
- Development of cutting patterns





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Christian Stautner**

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COO of Dlupal Software GmbH



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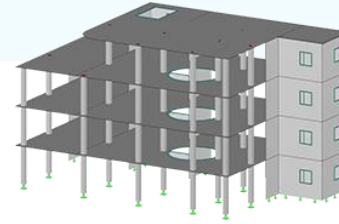
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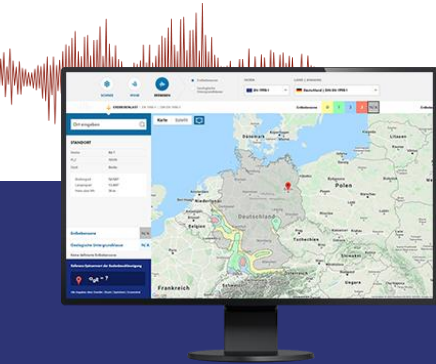


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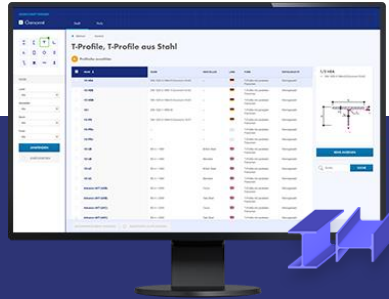
Geo-Zone Tool

Dlubal Software provides an online tool with snow, wind and seismic zone maps.



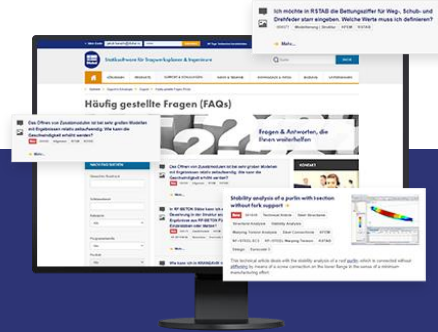
Cross-Section Properties

With this free online tool, you can select standardized sections from an extensive section library, define parametrized cross-sections and calculate its cross-section properties.



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Free Online Services

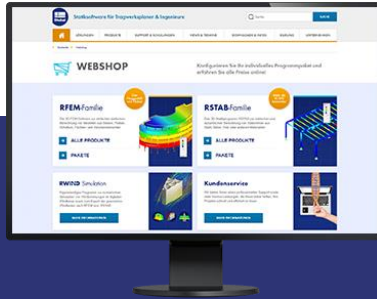
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Videos and webinars about the structural engineering software.



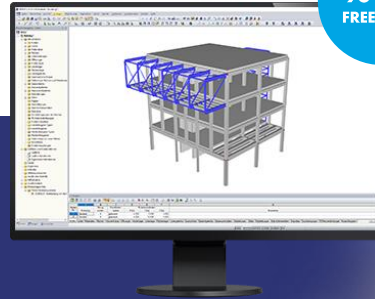
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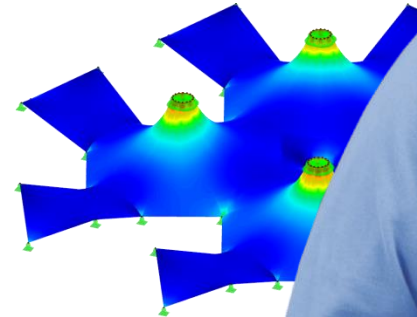
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