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Dipl.-Ing. (FH) Andreas Hörold
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Marketing & Public Relations
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Dipl.-Ing. Juliane Stopper-Akdag
Co-Organizer

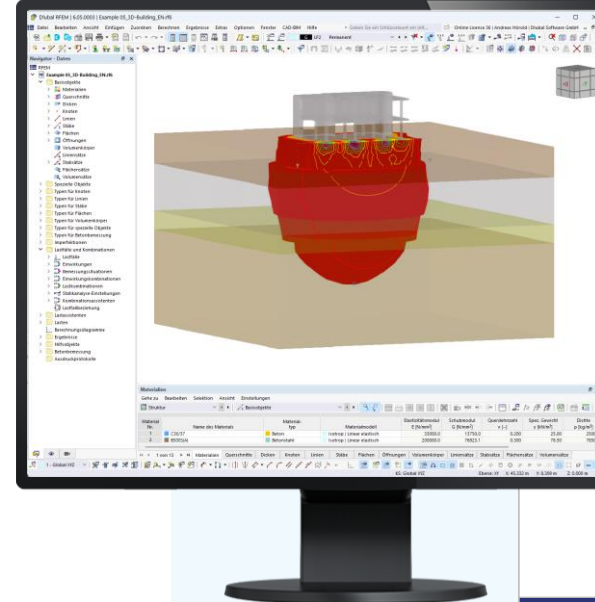Product Engineering & Customer Support
Dlubal Software GmbH

Dipl.-Ing. (FH) Alexander Meierhofer
Co-Organizer

Head of Product Engineering Concrete &
Customer Support
Dlubal Software GmbH

Webinar

Geotechnical Analysis in RFEM 6

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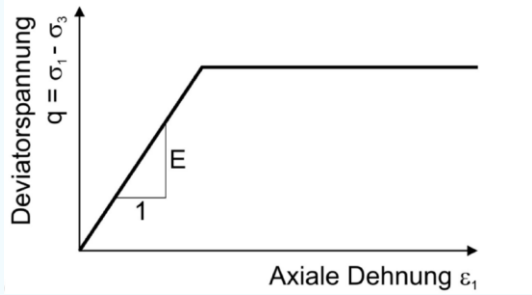
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Webinar

Agenda

01   **Basics and definition of soil materials**

02   **Import of borehole list from Microsoft Excel using WebService & API**

03   **Generation of soil massiv**

04   **Analysis, settlements and soil pressures for a reinforced concrete building**

05   **Printout report**
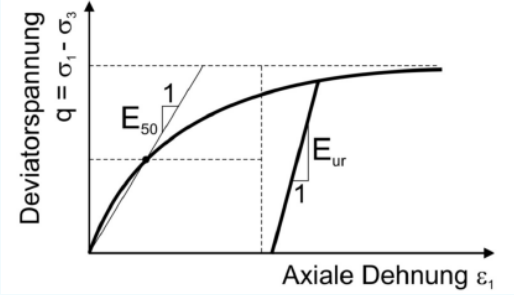
06   **Prospects**
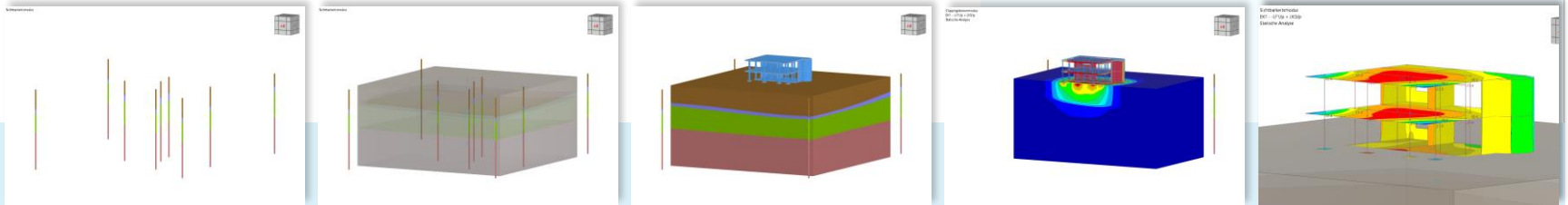
Material Models

- Soil is a three-phase system consisting of soil particles (grains), water, and air, having highly nonlinear behavior.

- **Modified Mohr-Coulomb Model**

Suitable for:
Deformation calculation without reversion of load

- **Nonlinear Elastic Model**
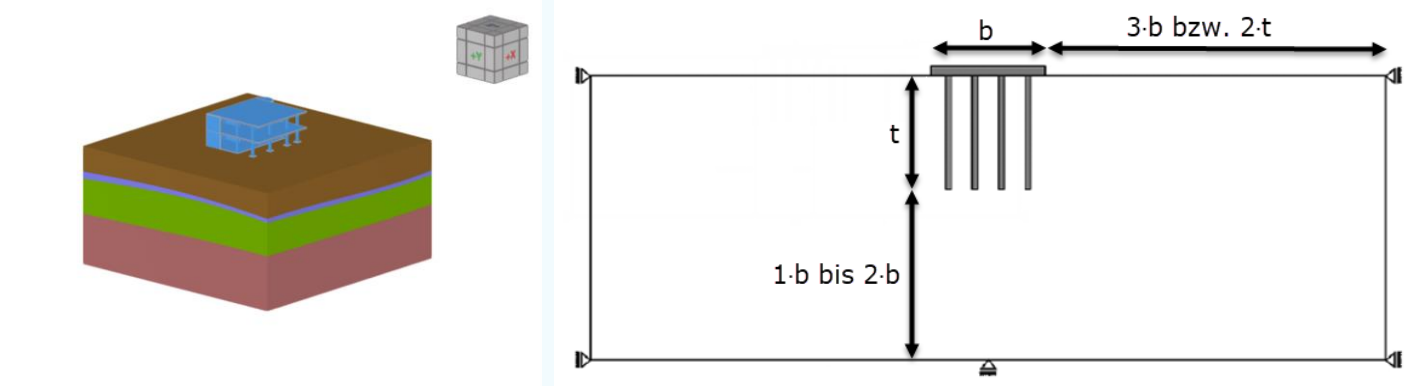

Suitable for:
Deformation calculation including lower reversions of load

Geotechnical Analysis in RFEM 6

Sufficient Distance Structure - Boundary Surface

b

3·b bzw. 2·t

t

1·b bis 2·b

Source:

„Empfehlungen des Arbeitskreises für Numerik in der Geotechnik", German Geotechnical Society (DGGT), 2014
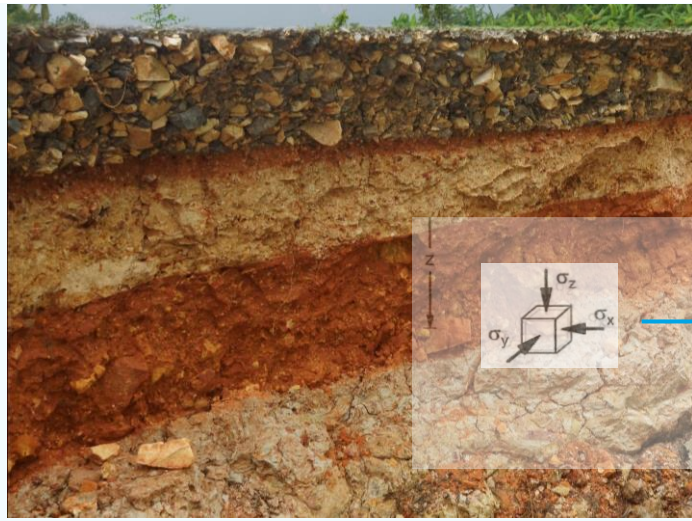
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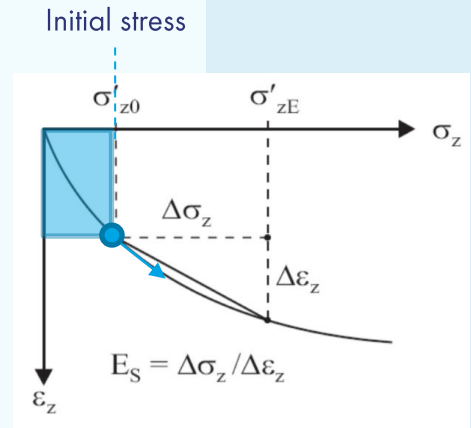
- The element mesh has limited extension compared to the soil.

- **In order not to have a distorting influence from the boundary surfaces, they need to be placed with sufficient distance from the modeled structure.**

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Initial State – Geostatic Stress State

Initial stress

Initial State of the element

$$E_S = \Delta\sigma_z / \Delta\varepsilon_z$$

- For most geotechnical problems, the first step of the analysis is the calculation of the geostatic stress state.

Links

- **Webservice & API**
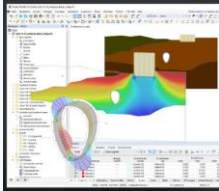

  https://www.dlubal.com/en/downloads-and-information/documents/online-manuals/rfem-6-rstab-9-webservice-api
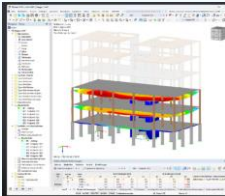
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- **Geotechnical Analysis**

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- **Construction Stage Analysis**

  https://www.dlubal.com/en/support-and-learning/learning/webinars/003048

Conclusion/ Outlook

- **Analysis for super- and substructure integrated**

- **Soil-structure interaction**

- **Interaction between foundation components (induced settlement, etc.)**

→ **Displacement calculation using FEM with superior quality**

- **Geotechnical analysis with construction stages**

→ **Ideal tool for the Observational Method**

- **Material models – Hoek-Brown, Hardening Soil & Cam Clay**

- **Pile foundations**

- **Geotechnical stability analysis**
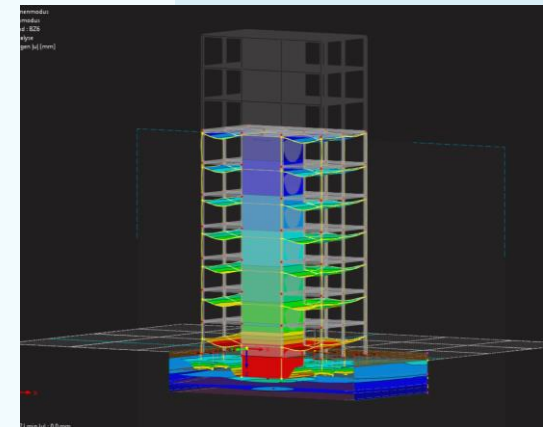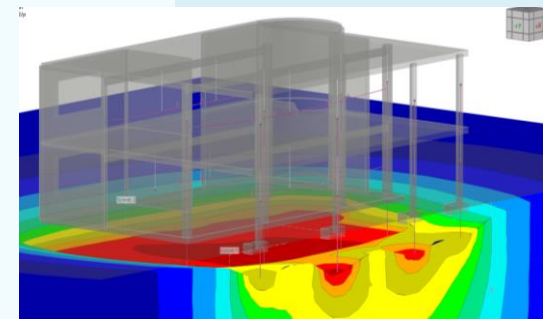
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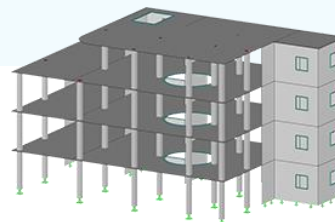
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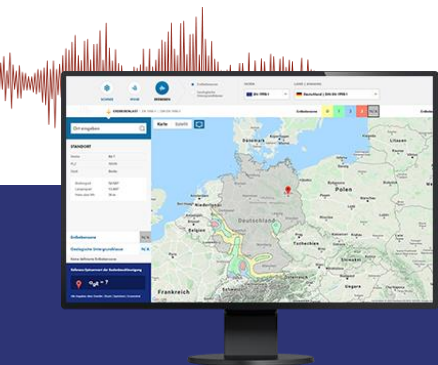
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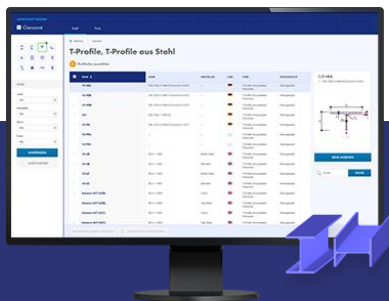
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Geo-Zone Tool

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.
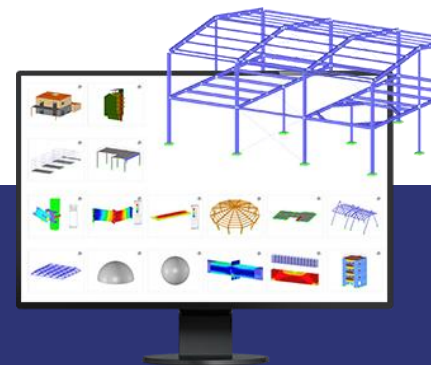
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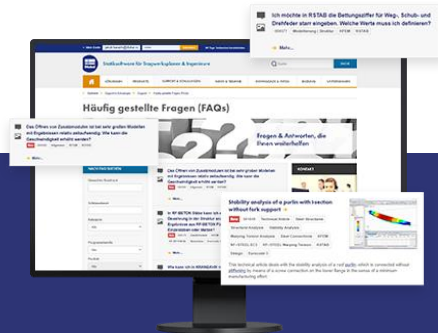
Models to Download

Download numerous example files here that will help you to get started and become familiar with the Dlubal programs.
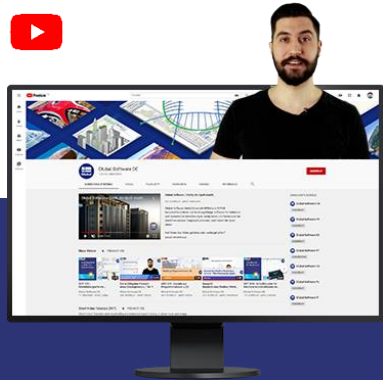
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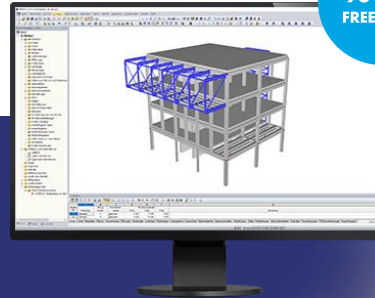Videos and webinars about the structural engineering software.

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Webinar

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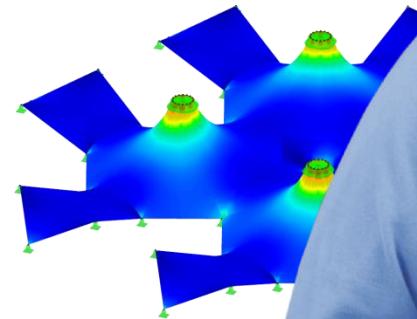
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Dlubal Software GmbH
Am Zellweg 2,
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