



PLAXIS 3D

Three-dimensional reliability

PLAXIS 3D and the 3D Dynamics and 3D PlaxFlow modules create a powerful and user friendly finite element package intended for three-dimensional analysis of deformation and stability in geotechnical engineering and rock mechanics. PLAXIS is used worldwide by top engineering companies and institutions in the civil and geotechnical engineering industry. Applications range from excavations, embankments and foundations to tunnelling, mining and reservoir geomechanics.

The software is equipped with advanced features to tackle modelling challenges in the most complex geotechnical projects, that cannot be solved with PLAXIS 2D. Geometry can be modelled in full 3D by using various CAD-like drawing tools and the intersect, combine and array tools, leading to fast and efficient finite element model creation. A large range of material models is offered to accurately model the behaviour of various soils and rock types, which together with our robust calculation procedures provide realistic assessment of stresses and displacements.

The PLAXIS Output program consists of a full suite of visualization tools to check details of the complex inner structure of a full 3D underground soil-structure model for powerful and versatile post processing. Python based scripting facilities are available to couple PLAXIS 3D to other software applications.

PLAXIS Academy

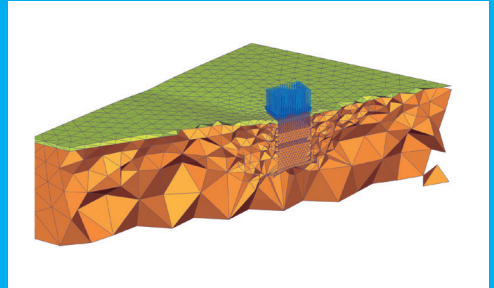
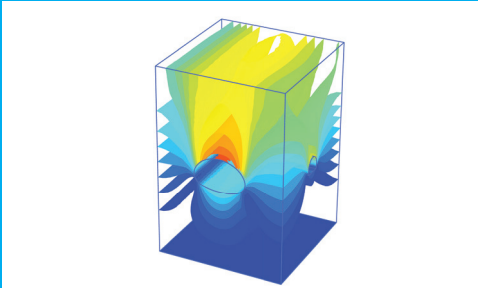
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Fast and efficient finite element model creation

The user-friendly PLAXIS interface guides the user across several modes to efficiently create models with a logical geotechnical workflow. The Borehole mode allows definition of multiple boreholes to create any complex soil profile or geological cross-section. In the Structures mode, structural elements, like piles, anchors, geotextiles and prescribed loads and displacements can be defined. Geometry can also be imported from CAD-files. PLAXIS offers a Tunnel designer to quickly create and edit tunnel cross-sections and loading conditions. The Mesh mode features automatic and manual mesh refinements, automatic generation of irregular and regular meshes and tools to inspect the mesh quality.

Realistic assessment of stresses and displacements

The Staged Construction mode allows users to accurately model the construction process by activating and deactivating soil clusters or structural elements in each calculation phase. Calculation types offered, like plastic, consolidation, dynamic and safety analysis, allow PLAXIS to be used in a broad range of geotechnical problems. PLAXIS offers various constitutive models ranging from simple linear to advanced highly non-linear models, to simulate the behaviour of a wide range of soils and rocks. The well proven and robust calculation procedures ensure that calculations converge and provide accurate results. With multi-core calculations and a 64-bit kernel PLAXIS can deal with the largest and most complex models.

Powerful and versatile post processing

The versatile Output program offers various ways to display, forces, displacement and stress or flow data, in contour, vector and iso-surface plots. Cross-section tools allow areas of interest to be inspected in more detail and data can be copied from tables for further plotting purpose outside of PLAXIS. The Curve manager enables the creation of graphs plotting various types of results across a selection of calculation phases.

With the remote scripting facilities based on Python, it is possible to port results to other software packages which support a Python API.

Applications

- Rock-mass response and surface settlements due to tunnelling, mining or reservoir depletion
- Slope stability and seepage analysis for earth and tailing dams, embankments and open pit mines
- Predicting differential settlements of buildings adjacent to excavation pits
- Stability of and seepage into excavation pits, lateral displacements of diaphragm walls
- Bearing capacity analysis of suction anchors
- Calculate consolidation time for pore pressure dissipation in undrained loading problems

Request a free demo

To learn more about PLAXIS and to download a free demo version, visit www.plaxis.com/demo.