PRODUCT DATA SHEET

Bentley
Advancing Infrast

PLAXIS 2D

Trusted Geotechnical Finite Element Analysis Software

PLAXIS 2D is a powerful and user-friendly finite-element (FE) package intended for 2D 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 tunneling, mining, oil and gas, and reservoir geomechanics. PLAXIS is equipped with a broad range of advanced features to model a diverse range of geotechnical problems, all from within a single integrated software package.

U - , FE P

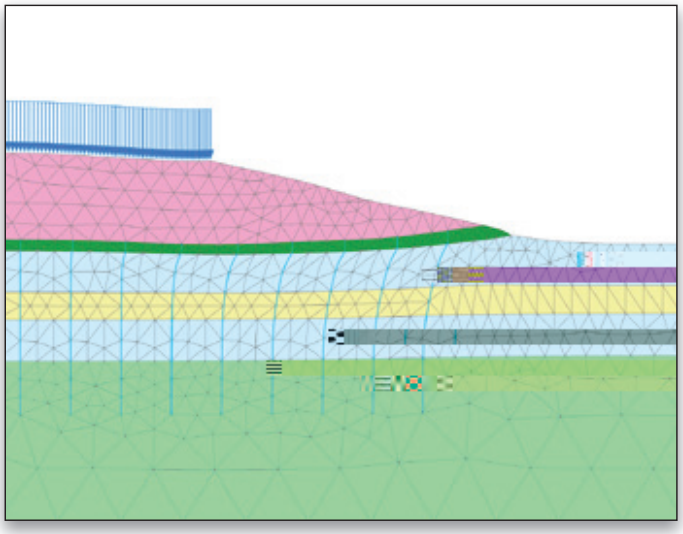
PLAXIS capabilities work together to build a powerful and intuitive finite element package for geotechnical analysis of soil, rock, and associated structures. Renowned for sound computation, PLAXIS offers a large range of material models to accurately model the behavior of various soils and rock types, which together provide realistic assessment of stresses and displacements. Not only does PLAXIS 2D offer intuitive dedicated functionality to perform settlement analysis, it also excels at complex 2D thermal or groundwater flow analysis, and comprehensive dynamic load modeling.

Advanced functionality and digital workflows include the PLAXIS Output program, which consists of a full suite of visualization tools to check details of the underground soil-structure model for powerful and versatile post processing. Also, Python-based scripting facilities are available to couple with other software applications.

F E FE M C

The user-friendly PLAXIS interface guides users across several modes to efficiently create models with a logical geotechnical workflow. PLAXIS 2D models geometry via predefined structural element types and loading types using CAD-like drawing capabilities that lead to fast and efficient finite-element model creation. The soil mode allows you to define multiple boreholes to create soil profiles or geological cross-sections structures. In the structure mode, elements like piles, anchors, geotextiles, and prescribed loads and displacements can be defined. It is also possible to import geometry from CAD and BIM files.

For tunnel solutions, a designer wizard builds off quick creation and can edit tunnel cross-sections, specify reinforcements, tunnel lining, and loading conditions. The Mesh mode features automatic and manual mesh refinements, automatic generation of irregular and regular meshes, and capabilities to inspect the mesh quality.



Stability of embankment on oft oil reinforced by rigid inclu ion .

R A S D

Staged construction mode allows users to accurately model the construction process by activating and deactivating soil clusters and structural elements in each calculation phase. Calculation types offered include; plastics, safety, and consolidation analysis as well as dynamics, with and without consolidation, or fully coupled flow-deformation analysis. PLAXIS is trusted in a broad range of geotechnical challenges and offers various constitutive models ranging from simple linear to advanced highly nonlinear models, so that a wide range of soil and rock behavior can be simulated. The well-proven and robust calculation procedures ensure that calculations converge and provide accurate results for the most common or complex models.

P . V P P

The versatile Output program offers various ways to display forces, displacements, stresses, velocities, accelerations, temperature, and flow data shown in contour, vector, and iso-surface plots. Cross-section capabilities allow areas of interest to be inspected in more detail, and data can be copied from tables for further plotting purpose using other software. The curve manager enables the creation of graphs that can plot various results across a selection of calculation phases.

S R

O G S
Windows 8 Professional 64-bit
Windows 10 Pro 64-bit

G C
Required: GPU with 256 MB OpenGL 1.3

Bentley recommends avoidGng simple onboard graphics chips in favor of a discrete GPU from the NvidGa GeForce or Quadro range with at least 128-bit bus and 1 GB of RAM, or equivalent solution from ATI/AMD.

P
Required: Dual Core CPU

Recommended: Quad Core CPU

M
Recommended for 2D: minimum 4 GB. Large projects may require more.

H D
Minimum 2 GB free space on the partition where the Windows TEMP directory resides, and 2 GB free space on the partition where projects are saved. Large projects may require signiffantly more space on both partitions.

For best performance, ensure that the TEMP directory and the project directory reside on the same partition.

V
Required: 1024 x 768 pixels, 32-bit color palette

Recommended: 1920 x 1080 pixels, 32-bit color palette

F . . B :

C B
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G O U G
www.bentley.com/contact

PLAXIS 2D A -A-G

M G

- Tunnel deconfinement
- CAD Import and Export*
- NonlGnear geogrids: Elastoplastic (№) and Viscoelastic (time-dependent)
- Polar and rectangular array
- NonlGnear embedded beam row (Mĸ diagrams)
- Connections
- Tunnel Designer with easy definition of rockbolts*
- Automare processes with full command lGne support and remore scriprGng API *

M M

- Industry standard soil models: HardenGng Soil, HSsmall, Soft Soil and Soft Soil Creep
- Rock models: Joinred rock, Hoek-Brown with paramerer guide
- Concrete
- UDCAM-S with cyclic accumulation and oprGmization tool
- NGI-ADP
- User-defined soil models*
- Static and dynamic liquefaction models: NorSand, UBCSand, PM4Sand, PM4Silt

C .

- Well-proven and robust calculation procedures
- Multicore computGng
- K0, Gravity loadGng and Field stress for initial stress calculations
- DU rGnguish between a plastic calculation, safety, or consolidation analysis
- Facilities for steady-stare and transient groundwarer or thermal flow calculations, includGng flow-relared marerial paramerers, boundary conditions, drains, and wells
- Pseudo-staric and dynamic analysis, includGng dynamics with consolidation and free field and compliant base boundary conditions
- Specify load, acceleration, head or temperature variations through time with lGnear, harmonic or table functions
- Fully coupled flow-deformation analysis
- Convenient and inruitive Phase explorer
- Automaric regeneration of construction stages for geomerric changes

R .

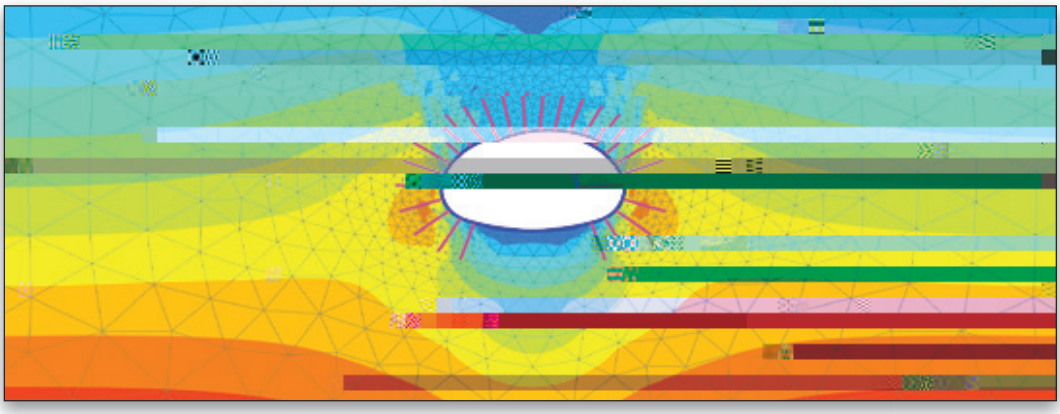
- Realistic assessment of stresses and displacements
- Vector, contour and iso-surfaces plots of displacement, stress, pore pressure, temperature, or acceleration
- Use the Output command lGne to display plots, generate cross-sections or save plots with user-defined resolution
- Curves Manager to creare load vs. displacement, Pseudospectral acceleration plots, or cross-section curves
- Automaric centerlGne extraction for structural forces plots
- Structural forces in volume plares (tunnel lGnGng, retaGnGng wall)
- ResultGng Force View
- Plot annotations
- Extensive report and movie generator
- PLAXIS 2D Viewer

U

- Rock-mass response and surface settlements due to tunnelGng, mGnGng, or reservoir depletion
- Slope stability and seepage analysis for large earth dams, taGlGng dams, embankments, and pit mGnes
- PredictGng differential settlements of buildGngs adjacent to excavation pits
- Stability of and seepage inro excavation pits, lareral displacements of diaphragm walls
- Calculate necessary consolidation time for pore pressure dissipation in undrained loadGng problems
- BearGng capacity and foundation settlement analysis for high-rise buildGngs, LNG tanks, and other structures (ie. offshore suction anchors)
- Liquefaction analysis to predict the safety of critical infrastructure like levees or large dams under earthquake loadGng
- Seismic design of jetties, quays, walls, buildGng foundations
- Stability of dams or levees under rapid drawdown, durGng seasonal variations of warer level or durGng precipitation or floodGng
- Ice wall formation durGng ground freezGng in tunnel construction
- Temperature disrribution and propagation into surroundGng soils of nuclear waste disposal facilities

S E S S

- Provides a universal ID to lGnk together all activity within Bentley applications
- Manage lGcense entitlements at a user level, without requirGng activation keys or hardware dongles
- Access personal learn marerial, paths and hisrory, timely product related news, automaric product updares, and notifications



NATM tunnel with rockbolt .

*Some features are dependent on product level or select entitlement