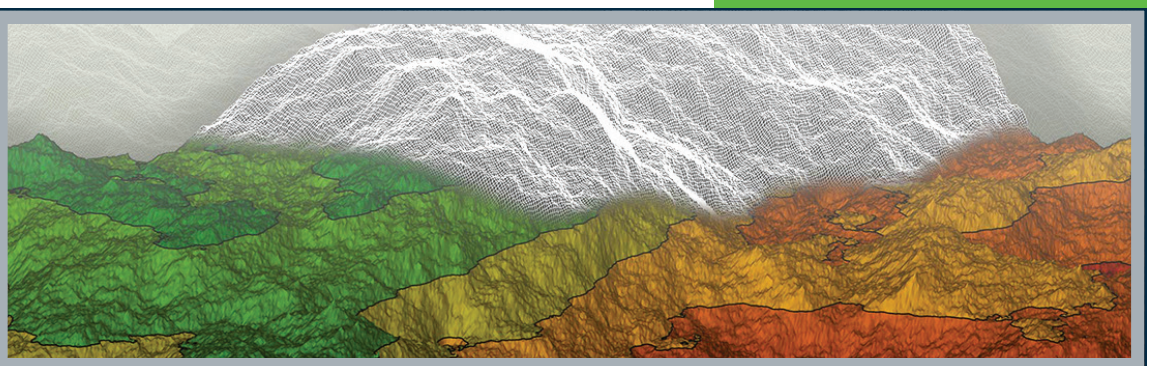
PRODUCT DATA SHEET

Bentley®
Advancing Infrastructure



PLAXIS® Designer

3D Geotechnical Conceptual Modeler

PLAXIS Designer (formerly SVDESIGNER) offers powerful 3D conceptual design capabilities that are specifically built for geotechnical engineers, bridging the gap between raw data and conceptual models. One of the most difficult aspects of designing 3D models is manipulating 3D geometry. Whether it is the representation of complex geostrata or the representation of geotechnical designs – such as roads, embankments, or tailing dams – these structures are often most suited for 3D analysis but are difficult to describe to the computer.

3D Conceptual Modeling and Visualization

With Bentley's open modeling environment, you gain the ability to visualize and manipulate geotechnical site data. PLAXIS Designer helps you organize your data and use simple and complex geometry to create conceptual models. Overcome the challenge of merging and analyzing your geotechnical data.

Import Digitally Faster

Geostrata can be imported based on borehole data, or from one of many different file formats. Surfaces can be represented as grids or as triangulated surfaces (TINs). Once 3D geometry is created, it can be exported to numerical models in the form of 2D slices or as full 3D models. Overall design and prototyping time are reduced in this system. Creating 3D numerical models does not have to be complicated. They can be created in a short time frame simply and efficiently. Your time and expertise are valuable, and you should spend it analyzing for better solutions, not designing geometry. Importing lithology data from OpenGround® Cloud, a CSV file, or other formats allows boreholes to be located on a site, visualized in 3D, and integrated with design or topology data, while allowing the development of fence diagrams and 3D interpolation of geostrata layers. The import feature provides an ability to transition borehole data into a full 3D conceptual model of a site for subsequent numerical modeling. The most common 3D file storage types are supported to ensure easy import. It allows PLAXIS Designer to provide an amalgamated 3D site view of relevant data on a consistent coordinate system.

Design 3D Conceptual Models

A rich variety of functionality is implemented into PLAXIS Designer to allow editing of existing geometry to represent the integration of new geotechnical designs with existing topology. There are also advanced features in PLAXIS Designer to handle intersections of various surfaces, so that 3D geometry can be represented accurately. Users can produce exact meshes when objects overlap, and pinchouts become easily handled in this robust application. In addition, you can simplify geometry by filtering out unwanted or unneeded sections. PLAXIS Designer enables you to efficiently handle construction and excavation actions:

- Define a road cut into the side of a hill or the shape of an open pit.
- Generate construction sequences by building layers of material to create roads, embankments, earth dams, or user-defined shapes.
- Generate a set of slurried depositional surfaces for a user-defined filling scenario.
- Calculate volumes of material to aid in construction activities.
- Multiple 3D model-building methodologies are available, including extrusions, 2D cross-section stitching, 3D layer cake, or the material volume method.

PLAXIS Designer conceptual models can be exported to PLAXIS 3D LE, PLAXIS 2D LE, and PLAXIS 2D numerical modeling modules for analysis in the areas of slope stability, stress/deformation, consolidation, and groundwater.

Produce Visually Appealing Models

Access state-of-the-art, report-ready graphical presentation of results without requiring additional manipulation. The 3D immersive graphics engine provides performance advantages and responsiveness while creating and manipulating simple to large and complex models. Present high-quality digital twin visualizations of designs to share your sustainable solutions. Your data interoperates with other Bentley analysis and design applications. Win bids with image draping of aerial site photos or animations of sites. We are taking 3D geotechnical analysis to new levels and broader interoperability. We see the big picture – from subsurface imports, through design, to analysis – so that you see the big picture.

System Requirements

Operating System
Windows 8
Windows 10

Processor
Intel Pentium-based or AMD Athlon-based PC or workstation

Memory
44 GB minimum, 8 GB recommended, (more memory typically results in better performance)

Display Resolution
1024 px by 768 px or better

Hard Disk
2 GB free disk space

Video
256 MB VRAM minimum, with full support for OpenGL 3.3

Find out about Bentley at: www.bentley.com

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PLAXIS Designer At-A-Glance

Display
- 2D, 3D, and cross-sectional views
- Configurable display features
- MSAA (antialiasing) support

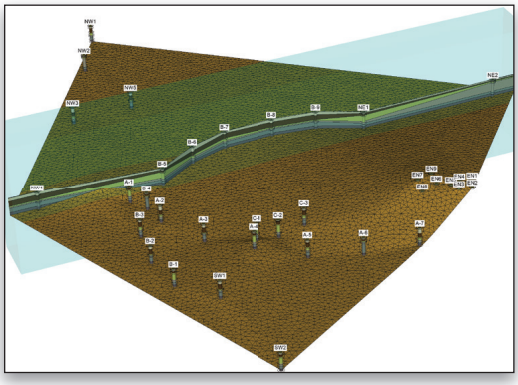
Geometry
- Define regions
- Define surface grids
- Define surface meshes (TINs)
- Define polygons, polylines, scatter points
- Define water levels and piezometers
- Define boreholes and fence diagrams
- Define elevation and thickness contouring
- Define reality modeling/image draping
- Define slurried deposition
- Define bedding guides for anisotropic material layering
- Define enclosed volumes as material volume meshes (MVMs)
- Define faults and planar surfaces
- Advanced construction features available
- CAD drawing functions available
- Customizable display features available

Import
- Import piezometer data and updates from the sensemetrics cloud platform
- Import boreholes from OpenGround Cloud, gINT®, and CSV
- Import block models
- Import from OBJ, 3DS, Plain ASCII/CSV, DEM, DTM, DXF, Esri grid, STL, and LandXML

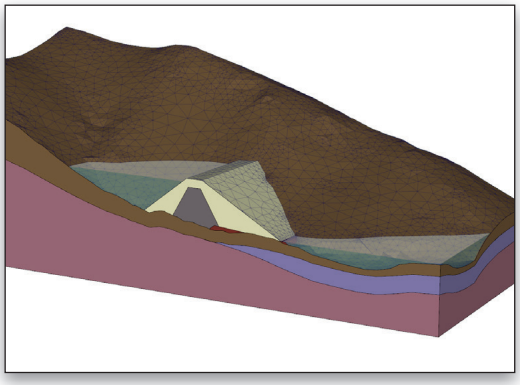
Export
- Export model volumes and slices to PLAXIS 3D LE, PLAXIS 2D LE, PLAXIS 2D for analysis
- Export data to flat file (CSV)
- Export data to OBJ
- Export data to STL

Calculations
- Data transformations (translation, rotation, scaling)
- Surface adjustment (planar calculations, overlap testing)
- Kriging (for generating grids)
- Extrusion (generate surfaces from cross-sections)
- Set operations (union, xor, subtraction)
- Surface intersections
- Surface clean up and repair
- Mesh refinement
- Surface remeshing
- Merge operations (combine surfaces, regions, polygons)
- Boundary calculations
- Volume calculations
- Filling curve
- Slicing
- Surface cuts and excavations
- Build surfaces from boreholes and fence diagrams
- Depositional surfaces
- Build 3D model volumes from multiple cross-sections

Subscription Entitlement Service Support
- Provide a universal ID to link together all activity within Bentley applications
- Manage license entitlements at a user level, without requiring activation keys or hardware dongles
- Access personal Learn material, paths and history, timely product-related news, automatic product updates, and notifications



Quickly and easily create meshes from your borehole data.



Accurately represent your site data in 3D.

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