SLOPE/W™ 2012

Slope stability analysis.

Typical Applications

SLOPE/W can model almost any stability problem, including:

- Natural earth and rock slopes
- Sloping excavations
- Earth embankments
- Open-pit high walls
- Anchored retaining structures
- Berms at the toe of a slope
- Surcharges at the top of a slope
- Earth reinforcement, including soil nails and geofabrics
- Seismic and earthquake loading
- Tension cracks
- Partial and total submergence
- Line load at any point
- Unsaturated soil behavior
- plus many more!
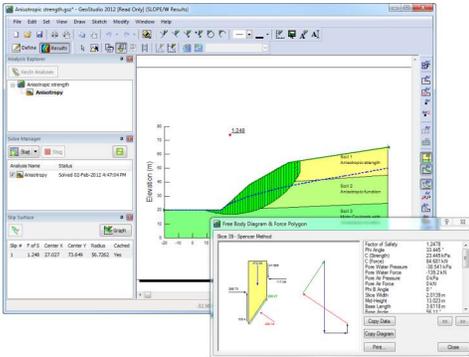
Comprehensive and Powerful

SLOPE/W is the leading CAD software product for computing the factor of safety of earth and rock slopes. SLOPE/W can effectively analyze both simple and complex problems for a variety of slip surface shapes, pore-water pressure conditions, soil properties, analysis methods and loading conditions.

Using limit equilibrium, SLOPE/W can model heterogeneous soil types, complex stratigraphic and slip surface geometry, and variable pore-water pressure conditions using a large selection of soil models. Analyses can be performed using deterministic or probabilistic input parameters. Stresses computed by a finite element stress analysis may be used in addition to the limit equilibrium computations for the most complete slope stability analysis available.

With this comprehensive range of features, SLOPE/W can be used to analyze almost any slope stability problem you will encounter in your geotechnical, civil, and mining engineering projects.

Easy to Use

Defining a Stability Problem
Beginning an analysis is as simple as defining the geometry by drawing regions and lines that identify soil layers, or by importing a DXF™ file. Then choose an analysis method, specify soil properties and pore-water pressures, define reinforcement loads, and create trial slip surfaces.

Viewing the Results
Once you have solved your stability problem, SLOPE/W offers many tools for viewing the results. Display the minimum slip surface and factor of safety, or view each one individually. View detailed information about any slip surface, including the total sliding mass, a free body diagram and a force polygon showing the forces acting on each slice. Contour the factors of safety, or show plots of computed parameters. Then prepare the results for your report by adding labels, axes, and pictures, or export the results into other applications such as Microsoft® Excel® for further analysis.

Integrated with Other Applications

Use pore-water pressures from SEEP/W, SIGMA/W, QUAKE/W or VADOSE/W
Using finite element computed pore-water pressures in SLOPE/W makes it possible to deal with highly irregular saturated/unsaturated conditions or transient pore-water pressure conditions in a stability analysis. For example, you can analyze changes in stability as the pore-water pressure changes with time.

Use stresses from SIGMA/W or QUAKE/W
Using finite element computed stresses in SLOPE/W allows you to conduct a stability analysis in addition to a static deformation or dynamic earthquake analysis. For example, you can compute the minimum factor of safety that will be reached during an earthquake, or you can find the resulting permanent deformation, if any, using a Newmark-type procedure.

GeoStudio®

One Model. One Tool. Many Analyses.

Requirements

- Microsoft® Windows® 8, Windows® 7, Windows Vista®, or Windows® XP with SP 3
- Intel® Pentium® 4 or better, or AMD Opteron™ or Athlon™ 64 or better (GeoStudio is optimized for multi-core Intel processors)
- 100 MB hard disk space
- 1024x768 screen resolution
- Microsoft® .NET 4.0 is required for Add-Ins
- An Internet connection is required to activate or renew a license

GeoStudio®

One Model. One Tool. Many Analyses.

SLOPE/W is part of GeoStudio, an integrated tool containing GEO-SLOPE's leading suite of geotechnical modeling software products: SLOPE/W, SEEP/W, SIGMA/W, QUAKE/W, TEMP/W, CTRAN/W, AIR/W and VADOSE/W. Using GeoStudio means you can run all of these products in one environment, creating one model that is shared among all products.

For example, geometry and material properties created in one product are immediately available in all other products. Sharing the data lets you run several analyses on the same problem. You can use the results from one analysis in another, or import files created by previous versions of the software.

GEO-SLOPE™
INTERNATIONAL

1400, 633 - 6th Avenue S.W.
Calgary, Alberta, Canada T2P 2Y5
Tel: (403) 269 2002
Fax: (403) 266 4851
E-mail: info@geo-slope.com
Web: http://www.geo-slope.com

Features

- Limit equilibrium methods include Morgenstern-Price, GLE, Spencer, Bishop, Ordinary, Janbu, and more
- Soil strength models include Mohr-Coulomb, Spatial Mohr-Coulomb, Bilinear, Undrained (Phi=0), anisotropic strength, shear/normal function, and many types of strength functions
- Specify many types of interslice shear-normal force functions
- Pore-water pressure options include Ru coefficients, piezometric lines, pressure contours, a grid of values, spatial functions, or finite-element computed heads or pressures
- Define potential slip surfaces by a grid of centers and radius lines, blocks of slip surface points, entry and exit ranges, fully specified shapes, or automatic
- Use probabilistic soil properties, line loads, and piezometric lines
- Transient stability analyses
- plus many more!

Join a growing network

By acquiring GEO-SLOPE software, you are joining a group located in more than 100 countries, including practising engineers, university professors, regulators, researchers and students. You can be assured that we will support and continue to enhance the software's engineering capabilities, making it even more powerful and easy to use.

Get help when you need it

When you need assistance with your model, we have helpful services available. Attend one of our workshops, or communicate directly with our experienced numerical modeling professionals. We'll help you to create better models and to gain confidence in your results.

Try out SLOPE/W now!

Experience SLOPE/W for yourself today! Simply visit www.geo-slope.com/downloads/ to download the free evaluation software.

Formulation

SLOPE/W is formulated in terms of moment and force equilibrium factor of safety equations. For example, the Morgenstern-Price method satisfies both force and moment equilibrium. This general formulation makes it easy to compute the factor of safety for a variety of methods and to readily understand the relationships and differences among all the methods.

SLOPE/W can use finite element computed stresses from SIGMA/W or QUAKE/W to calculate a stability factor by computing both total shear resistance and mobilized shear stress along the entire slip surface. SLOPE/W then computes a local stability factor for each slice.

Probabilistic analysis can be performed by using normal distribution functions to vary soil properties and loading conditions. Using a Monte Carlo approach, SLOPE/W computes the probability of failure in addition to the conventional factor of safety.