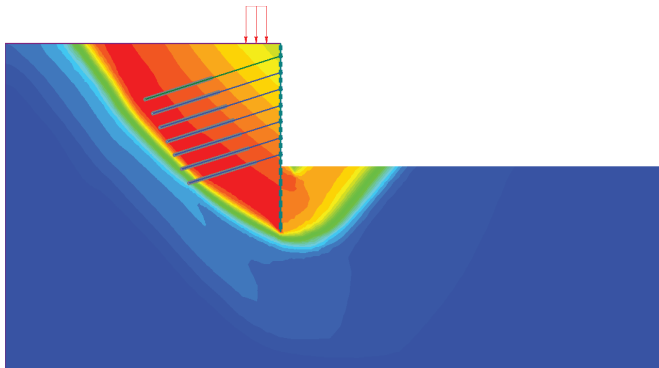


2D Geotechnical Finite Element Analysis



Total displacement contours from shear strength reduction on a sheet-pile wall

What is RS2?

RS2 is a powerful 2D finite element program for soil and rock applications. RS2 can be used for a wide range of engineering projects including excavation design, slope stability, groundwater seepage, probabilistic analysis, consolidation, and dynamic analysis.

In RS2 consolidation can be modeled with coupled (Biot Theory), slope stability can be analyzed with automatic shear strength reduction, and dynamic analysis can be performed by applying pseudo-static loads or defining an acceleration time history.

What's New in RS2

Advanced Material Models

- RS2 features the addition of a comprehensive array of new material models, including: Slide2 material models with Isotropic and Anisotropic failure criteria; FLAC models including CY Soil and CH Soil; PLAXIS models including Hardening Soil, HS Small Soft Soil, and Soft Soil Creep; Visco-Elastic-Plastic models; Swelling Rock model; Dynamic Models such as Dafalias-Manzari; and the NorSand model.

Integration with Slide2

- RS2 allows the seamless transition of models between Slide2 and RS2, including import of all material models.

Enhanced Groundwater Analysis Features

- Hydraulic properties are now found in the Material Properties dialog for increased ease of use. Initial transient pore pressure is now defined by individual material. Wick drains can now be added to groundwater models.

Improved Loading Capabilities

- Improved loading capabilities in RS2 allow users to add multiple loads to one location on a model. Improvements were also made to the Add Load user interface, which allow loads to be added with a simple click and drag.

Accelerated SRF

- Get more done with approximately 50% faster SSR analysis.

Uncoupled Consolidation

- Uncoupled Consolidation is a new analysis type that will improve the stability and speed of consolidation analyses.

Find more details: rocscience.com/software/rs2

Plans & Pricing

Personal License: Locked to one computer.

- Lease: **USD \$3,495/year**
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$6,995**
Purchased outright. Includes 12 months of Maintenance+.

Flexible License: Installed on any number of machines. The license file sits on the server.

- Lease: **USD \$5,295/year**
Leased annually. Includes Maintenance+.
- Perpetual: **USD \$10,495**
Purchased outright. Includes 12 months of Maintenance+.

Maintenance+

Maintenance+ is our enhanced maintenance and support services subscription, purchased annually at 20% of the license cost.

With Maintenance+ Continuous Software you get access to all feature releases, enhancements, and bug fixes throughout the year and as soon as they're available. You also have access to convenient License Services, the support of our experts, and exclusive learning offerings.

Contact us at software@rocscience.com

Data Interpretation

- View stress, displacement, strength factor contours
- Effective stress, pore pressure contours
- Contour user-defined data
- Stress/Failure trajectories, deformation vectors
- Display deformations to user-defined scale
- Query and graph material, support, joint data
- Export to Excel
- Show values directly on model
- Highlight yielded material, support, joint elements
- Add iso-contours

Elements & Meshing

- Triangular or quadrilateral finite elements
- 3 or 6-noded triangles
- 4 or 8-noded quadrilaterals
- One-click mesh generation
- Graded, uniform or radial meshing
- Mapped meshing
- Custom meshing
- Check/Define mesh quality
- Easily apply boundary conditions

Far-Field Stress

- Constant stress field
- Gravity stress field
- Multiple stress fields (customize per material)

Finite Element Slope Stability

- Automated FE slope stability using shear strength reduction (SSR) method
- Define SSR include/exclude area
- Import/Export Slide2 models
- Accelerated SSR

Groundwater

- Finite element steady state or transient seepage analysis
- Staged groundwater
- Material permeability functions
- Discharge sections
- Piezometric lines
- Pore pressure grids

- Fully coupled consolidation
- Include pore pressure for effective stress analysis
- Uncoupled consolidation
- Staged groundwater methods
- Wick drains
- Unknown boundary condition (seepage face)

Joints

- Elastic or non-linear
- Mohr-Coulomb, Barton-Bandis, Hyperbolic, or material-dependent slip criterion
- Natural or artificial joints
- Pressurized joints
- Staged joint properties
- Statistical modeling of joint networks

Loads

- Constant or linear distributed loads
- Concentrated load
- Seismic load
- Poned water load
- Staged loading
- Springs
- Dynamic

Materials

- Undrained and drained behaviour
- Elastic or non-linear
- Strength criteria—Mohr-Coulomb, Generalized Hoek-Brown, Cam-Clay, Modified Cam-Clay, Drucker-Prager, discrete function, anisotropic, Mohr-Coulomb with Cap, Softening/Hardening
- Advanced material models—Slide2 (Power Curve, Barton-Bandis, Vertical Stress Ratio, Hyperbolic, Shear Normal, Shansep, Generalized Anisotropic), FLAC (CY Soil, CH Soil), Plaxis (Hardening Soil, HS Small, Soft Soil, Soft Soil Creep), Dafalias-Manzari, Bounding Surface Plasticity, Mohr-Coulomb with Cap, BBM (Basic Barcelona), and NorSand
- Staged material properties
- Datum-dependent properties
- Isotropic, transversely isotropic, orthotropic elastic models
- Import from RocData

Modeling

- Interactive geometry entry
- Intuitive workflow tabs
- Boundaries—external, material, excavation, stage, joint, piezo, structural interface
- Grid/Vertex/Object snapping
- Sequential staging of excavation and support (up to 300 stages)
- Plane strain or axisymmetric analysis
- One-click material assignment
- Import/Export in .dxf files
- Unlimited undo/redo
- Right-click editing shortcuts
- Tunnel Wizard
- Property Viewer
- Visibility Tree

Probabilistic Analysis

- Monte Carlo, Latin Hypercube, Point Estimate methods
- Random variables—materials, joint properties, field stress
- Contour/Error plots of statistical output

Support

- Staged support installation
- Bolt types – end anchored, fully bonded, cable bolts, Swellex, splitset, tiebacks
- Liner types—beam, reinforced concrete, geotextile, cable truss
- Composite liners
- Reinforcement database
- Timoshenko or Bernoulli beam models
- Staged liner properties
- Elastic or non-linear
- Peak/Residual strength
- Interactive support capacity plots (thrust/moment, thrust/shear) for reinforced concrete liners (includes CSA, ACI, EC2 codes)