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SVFlux2D - Advanced Features

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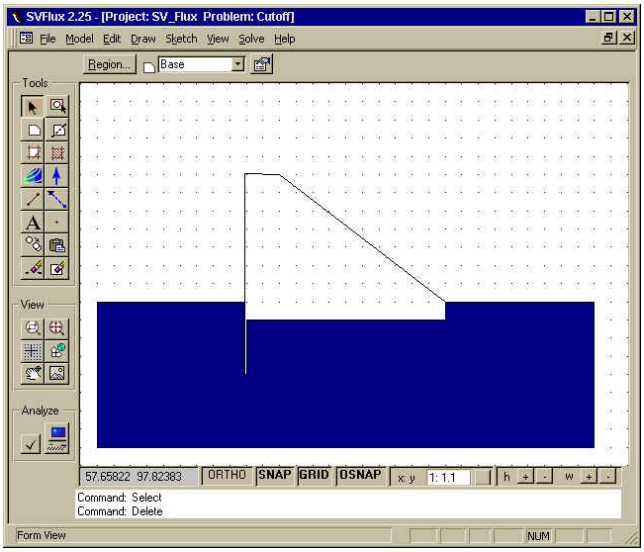
The SVFlux automated seepage modeling software package is not designed to be just another seepage modeling package. It is specifically designed to bring seepage modeling to "the next level". As such, it offers significant advantages over currently available seepage modeling software packages. The specific advantages SVFlux offers over currently available seepage modeling package are as follows:

Automatic mesh generation and refinement - It is our experience that typical modeling projects historically include a significant amount of time designing a finite element mesh. This work is extremely tedious and time-consuming. Our approach to modeling is that the finite element process is a mathematical tool who's solution is best left to mathematicians. The modeler should be focused on the conceptual seepage model.



SVFlux

As such, SVFlux provides fully automatic mesh generation and refinement. This automation results in time savings up to 85% as well as improved convergence stability which allows the modeler to focus on the seepage model and not on the finite element method.

Automatic time-step refinement - SVFlux also provides automatic time-step refinement for transient seepage models. The time-step refinement provides an added degree of convergence stability in transient problems. Plots of program variables may be selected at any time-step irregardless of the time-step increment used to obtain a solution.

AutoCAD DXF import - SVFlux allows problem geometry to be imported from an AutoCAD DXF file thereby greatly reducing the time required to design a model. The automatic mesh generation automatically adapts to difficult imported geometry.

Increased solution stability - The automatic mesh refinement present in SVFlux causes the mesh to be refined around critical zones of the solution mesh. There are two benefits of this refinement. (1) The user is able to determine the location of critical zones visually, and, (2) the ability of SVFlux to converge around these critical zones is better than conventional seepage software. The solver used by SVFlux uses the Galerkin Integral method with a non-linear Newton-Raphson iteration technique with pre-conditioning of the convergence matrix. The pre-conditioning of the convergence matrix significantly improves convergence stability.

3D modeling capabilities - SVFlux2D can be upgraded to SVFlux3D. SVFlux3D is similar to SVFlux2D and therefore provides consistency to the end user.

Soil property database of over 6000 soils - When bundled with SoilVision, the user has access to a large database of laboratory-measured soil-water characteristic curves (over 6000) as well as over 2500 measured saturated permeabilities and over 600 unsaturated permeability curves. Laboratory data may be cut and pasted into any particular problem in SVFlux.

Estimation of unsaturated soil properties - When bundled with SoilVision, the user also has access to the world's best unsaturated soil property estimation methods. Seven methods of theoretically estimating the soil-water characteristic curve including Arya & Paris, Fredlund & Wilson, and Vereecken are included. Eight methods of estimating saturated permeability are included as well as five methods for estimating unsaturated permeability.

Flexible boundary conditions - Free form equations or tabled precipitation data may be input as boundary conditions. This is in addition to the standard head or flux boundary conditions.

Database functionality - All created models are stored in a database. This allows the user to develop a database of models. Models are organized by project and model type for future reference. All previous models can be used as templates in the creation of future models. The database format is also ideal for multi-user environments. The database file may be installed on a server and multiple users may "plug in" to the same file. All model creation is therefore centralized and available to the entire company.

Output visualization - There is significantly more variety in the output available when the TECPLOT visualization module is used.

Standardized CAD front-end - The CAD front-end is standardized against AutoCAD ™ and is therefore simple and quick to use. All standard grid and snapping features are provided.

Internal database of model soil properties - An internal database of soil properties (required for seepage modeling) is maintained by the SVFlux software (separate from the SoilVision database). The user therefore has a choice with each new model to either enter new soil properties or pull soil properties from a previous problem.

Price advantage - SVFlux is designed as high-end seepage modeling software while not breaking your budget! Email us for our current price list.