RocFall 5.0

...the upgrade is underway.

Join the Rocscience Beta Testing Program

Cover Photos: Mark Gray
The long awaited update to RocFall is nearing the beta testing stage and we will be looking for beta testers in August 2013. The program has been updated with a wealth of new features. The latest version is the result of 4 years of research and development into a new two-dimensional Rigid Body Impact Mechanics (RBIM) model that fully considers rock shape and size.

The interface has been modernized to make RocFall easier to use while adding powerful new functionality. New barrier design tools have been added to help users create effective rock fall barriers based on ETAG-027 guidelines. Finally, viewing simulation results has never been easier and more powerful statistical analysis is now possible.

Rigid Body Impact Mechanics

The new RocFall includes a new two-dimensional RBIM model. The rock shape is fully accounted for and rotational dynamics are included to accurately model the rock position and resulting impact locations. The effect of rock shape and size, in relation to the slope layout, is now possible to explore.

The RBIM model also simplifies defining slope material types by focusing on measurable empirical parameters.

Rock trajectory is quickly calculated by tracking motion in real time, finding impact points with the slope and calculating the resulting outgoing velocity. Despite the complexity of finding accurate rock paths the new model is still fast due to heavy optimization and multithreading. This allows for statistical simulation with thousands of rock paths to be completed in seconds.
The lump mass model from *RocFall* 4.0 is still available to use while taking advantage of all other new features. *RocFall* 4.0 files can be imported and run using the lump mass model to produce equivalent results or updated to the new RBIM model to be re-examined.

**Updated Interface**

The *RocFall* interface has been updated to include new functionality and improve user productivity. We’ve added full undo redo support. Improved drawing tools have been added to help annotate the model. Printing has been updated for the model and results to produce professional reports.

It’s also easier to design, edit and view models. By separating the design and analysis functionality, we’ve been able to make it easier to create and edit models without having to worry about accidental changes when analyzing a problem.

*Figure 2 - Individual impacts that rock trajectory is based on can be displayed.*

*Figure 3 - The RocFall interface in slope design mode.*

*Figure 4 - Individual rock results can be animated to better visualize the rock’s trajectory and motion.*
Barrier Design

RocFall 5.0 includes new barrier tools to aid in designing rock fall protection barrier systems. We’ve included a library function to store barrier specifications spelled out in the ETAG-027 standard for designing deformable barriers. The library can be populated with information including energy absorption capacity, max height and max elongation for different barrier types. This information can then be automatically applied when modeling barriers to ensure it meets all design specifications.

Figure 5 - The barrier library allows known design specifications to be applied to your model and helps ensure that your barrier design can be implemented successfully in the real world.

Figure 6 - The maximum elongation of a deformable barrier can be displayed when viewing results to ensure that the barrier is placed an adequate distance away from assets in need of protection.

There are also improved tools for analyzing barrier impacts to determine the ideal height and absorption capacity based on statistical data and safety factor. These tools both reduce the amount of work necessary for barrier design and can produce better results by considering full rock trajectories leading up to the barrier impact.
Improved Results

Simulation results are now easier to analyze. We’ve improved the viewing of large numbers of results by offering better filtering and alternative ways to view mean and average result information.

We’ve improved charting functionality and added new statistical charts to provide additional information.

Figure 7 - Improved filtering functionality makes it easier to analyze results and compare the effects of different rock shapes, sizes and starting conditions.

Figure 8 - The charting functionality has been updated to create visually appealing and easier to interpret charts. This new functionality lets you to better share your results with others and helps justify any necessary rock fall barrier designs.

As always we want your input!

If you’re interested in participating in the RocFall 5.0 Beta Program and receiving $100 towards the purchase of the final version, please contact us at: software@rocscience.com

We’ll be announcing the start date soon.