

# Release Notes for RISAFoundation

## Version 12.0.0 Enhancements/Corrections

- Analysis:
  - Added ability to create nested load combinations.
  - Corrected an issue with the progress bar that increased solution times.
- General:
  - Added single layer reinforcement design for mat slabs.
  - Added support for the Eurocode 2 concrete code. This includes design for mat slabs, pedestals, and grade beams.
  - Added the option to specify the minimum area of steel for longitudinal reinforcement in pedestal design.
  - Improved the slab safety factors spreadsheet to report sliding resistance due to passive pressure.
  - Refined the slab sliding force to properly reflect the direction of the applied lateral load.
  - Resolved an issue where applied vertical uplift was contributing to sliding resistance for slabs.
  - Fixed an issue where slab sliding results were reported for the opposite slab local axis.
  - Resolved an issue where modifying the slab local axis was not affecting sliding results.
  - Corrected an error in considering soil overburden pressure in overturning moment calculation for slabs.
  - Fixed an issue that caused a false warning message stating failure to satisfy minimum reinforcement.
  - Corrected an issue where the provided top and bottom reinforcement for slabs were erroneously combined to meet minimum reinforcement requirements.
  - Corrected the footing setting Force Top bars to require top flexural steel in both directions.
  - Corrected the slab setting Force Top and Bottom bars to require flexural steel at the top and bottom of the slab.
  - Resolved a spreadsheet issue where the pile type and shear UC were reported incorrectly.
  - Resolved an issue where retaining walls with keys reported a higher unity check for sliding.
  - Resolved an issue where the program would show a blank cell when the footing safety factor exceeded 1000 and will not report 'NA' instead.
- Integration:
  - Resolved an issue where the unattached nodes from RISAFloor or RISA-3D were unable to be deleted in RISAFoundation.