

# Release Notes for RISABase 2.0

## Version 2.0.0 Enhancements/Corrections

### *Code Changes*

- Added AISC 13th Edition ASD and LRFD code checks
- Added F1554 Anchor Rod materials
- Added ability to switch between AISC and foreign steel databases for column shapes

### *ACI 318 Appendix D Anchorage Calculations*

- Added Concrete Pullout capacity calculations for Anchor Rods / Anchor Bolts
  - Added graphic representation of controlling concrete failure cones / pyramids
  - Added additional input for pedestal (depth, concrete type, cracked?, supplemental reinforcement)
  - Added additional Anchor Bolt / Anchor Rod parameters (yield strength, total length, head type)
- Added strength reduction factors for Load Combinations that include Seismic Loads

### *Interface & Graphics Enhancements/Corrections*

- Added a Load Combination Generator to allow for better LC customization

### *Miscellaneous Enhancements/Corrections*

- Now compatible with Windows Vista
- Improved error messages when there is a geometric inconsistency in the base plate

## Version 2.0.1 Enhancements/Corrections

- Added concrete modulus of elasticity calculation per ACI 318-05 Section 8.5 (previously was a fixed value).
- Updated graphic within Anchor Bolts dialog so that grout is not shown, and total length does not include bolt head.
- Modified calculations for seismic reinforcement.
- Modified load combination numbering for pullout to match global LC numbers (Because of this, solution files from 2.0.0 cannot be read).
- Modified formula used for allowable bearing stress (AISC J8) such that only pedestal area that is geometrically similar to base plate area is used for calculation of A2.
- Modified unit conversion capabilities. Conversion is now required for previously entered values when changing units.
- Reduced memory requirements for displaying detail reports, thereby eliminating "Out of Memory" errors.
- Improved program's ability to recognize solver errors and produce an error message (as opposed to crashing).
- Corrected calculations for ACI anchor bolt steel capacity ( $N_{sa}$ ,  $V_{sa}$ ) to use net anchor bolt area instead of gross.
- Corrected formula used for check of combined tension and shear in anchor bolts per AISC J3 (13th Edition Only). Program now specifies whether tension, shear, or combined forces control.
- Corrected load factors in generated load combinations (ACI-05 and IBC-06 ASD).
- Corrected a bug that would crash the program if a file with a very long name had been previously opened.
- Fixed a bug whereby program would ignore "min AB to edge spacing" when optimizing anchor bolt layout.
- Fixed a problem whereby bolt group tension was (conservatively) reported as greater than actual tension.
- Fixed a bug whereby single bolt pullout capacities were only calculated and displayed for the first load combination when using a custom layout.
- Fixed a problem whereby program would analyze shear groups consisting of only one bolt (which generated a UC of 9.999 for near edge capacity).

## Version 2.0.2 Enhancements/Corrections

- Added "Built-up Grout Pad" option to decrease anchor bolt shear strength per ACI Appendix D.
- Activated allowable bearing increase factor (ABIF) for LRFD (2nd and 13th) load combinations.

- Fixed an issue with the allowable bearing stress increase factors (ABIF, ASIF) being overridden as 1.0 for some ASD load combinations.
- Fixed a problem with anchor bolts falsely reporting as failing for seismic ductility check.

### **Version 2.0.3 Enhancements/Corrections**

- Fixed the calculation of  $N_{pn}$  (Pullout Strength) so that it is not affected by provision D3.4 (lightweight concrete).
- Eliminated D.5.2.3 hef correction for  $N_{sb}$  (Sideface Blowout Strength) calculations.
- Corrected  $N_{sa}$  (Bolt Tensile Strength) calculations for 1.75 and 2 in diameter bolts.
- Modified eccentricity calculation for anchor bolts in tension to consider each direction (X and Z) independently.
- Modified eccentricity calculation for anchor bolts in shear to consider each direction (X and Z) independently.
- Anchor Bolt  $F_u$  now defaults to 60 ksi for new models, as opposed to 36 ksi
- Improved support for Windows 7. Sentinel System Driver 7.5.0 or higher now required.

### **Version 2.0.4 Enhancements/Corrections**

- AISC Database updated to include new shapes in the 13th Edition AISC Manual
- Section properties of AISC shapes updated to reflect new values in the 13th Edition Manual.
- Corrected load direction for shear loads with respect to shear breakout failure modes. Load direction was previously opposite of input.
- Corrected a problem whereby the program would use user-defined values for anchor bolt allowable stresses even when standard anchor bolt materials were specified.
- Adjusted anchor bolt capacity equations under the 13th Edition to account for  $\phi/\omega$  factors when using User Defined anchor bolt strengths.
- Eliminated "Threads Excluded" allowable stress increase for A307 bolts when using the 13th Edition.
- Removed AISC code checking for Concrete Pullout load combinations.
- Fixed problems with the calculation of edge distance ( $ca_1$ , ACI 318-05: RD6.2.1(b), D6.2.4) for shear bolt groups.
- Corrected the calculation of  $A_{vc}$  (ACI 318-05: RD.6.2.1b) by not basing  $h_a$  on  $s_1$  from D.6.2.4
- Corrected load combination generator to generate ACI equation 9-7 correctly.
- Fixed a crash caused by having a column larger than the baseplate.
- Corrected a problem which prevented some models with metric units and column eccentricity from solving.