Release Notes for RISA-2D

Version 17.0 Enhancements/Corrections

- General:
  - The member exclude feature now applies to the Member Forces Maximum and End Reactions spreadsheets.
  - Beam deflections spreadsheet now allows sorting of members in terms of their deflection value.
  - Improved the status bar in Design Results spreadsheet.
  - Improved the Load Combination Generator so it will not generate multiple identical load combinations for the same code.
  - Updated the Copy/Paste functionality so that the column headers would not erroneously paste into the program. They now will only paste if you're in an external program.
  - Corrected wrong units reporting in the Wall Panel Forces spreadsheet. Force in pounds was reporting as kips.
  - Corrected a unit conversion issue for the wall panel axial and shear forces.
  - Corrected a unit conversion issue in the detail report for unbraced lengths after the model is solved.
  - Corrected an error message that was mistakenly generated for story drifts using Elevation type.
  - Fixed a problem where opening a model with results from the current version would give an erroneous message about the results being from an older version.
- Analysis:
  - Added deflection optimization and design checks for beam members.
  - Improved convergence procedure for Tension Only members.
  - Added the option to specify a Design Rule at the time of drawing a member.
  - Improved the mesher for the Automesh plate drawing tool to be more robust.
  - Updated Tension/Compression-Only behavior to solve one more iteration after converging to use the correct model stiffness.
  - Updated the Service and Strength L/y ratio to use the legacy deflection method.
  - Improved design checks of custom WT members integrated from RISASection whose orientation did not match the default in RISA-2D.
  - Deflection ratio updated to be only in terms of local deflection.
  - Corrected a problem where Envelope Only solutions gave a slightly conservative value for story drift.
- Hot-Rolled Steel:
  - Added Stainless Steel member design per *AISC 14th (360-10): ASD & LRFD*.
  - Added the 2014 EuroCode for steel member design (*EN 1993-1-1:2014*).
  - Added consideration of the L-Torque unbraced length for all EuroCode(*EN 1993-1-1*) member design.
  - Added the *British Annex 2014* to into the 2014 EuroCode member design (*EN 1993-1-1:2014*).
  - AISC Direct Analysis Method Stiffness Adjustment for both axial and flexural now applies to all member types, not just Beams, Columns, Vbraces.
  - Added 14" and 16" depth CS shapes from SSMA database for cold formed steel design.
  - Changed the buckling curve for EuroCode (*EN 1993-1-1:2014*) HSS members to be based on imperfection factor for cold formed (0.49) instead of hot finished (0.21 or 0.13) which was used previously.
  - Fixed display of governing equation for *CSA S16-09* code check in detail report.
  - Added Stainless Steel spreadsheets to the options for the printed report.
  - Resolved a display bug that affected the Detail Report after sorting the Code Check column in the Stainless Steel design results spreadsheet.
- Concrete:
  - Added the 2014 European concrete code (*EN 1992-1-1:2014*).
  - Enhancements to the Custom Rebar Layout dialog:
    - Added spreadsheet functions for easier data input (TAB and ENTER keys).

        - Added the option to highlight and copy data from several cells at once.
        - Added access from the Concrete Members spreadsheet directly to the Custom Rebar Layout dialog through a new Set Layout dialog.
        - Fixed a problem where using the undo command and saving would modify Custom Rebar Layouts in your model.
    - Added custom Cm inputs for concrete wall panels.
    - Updated the Concrete Reinforcing spreadsheet region labels when the Transfer check-boxes are used for concrete wall panels.
    - Updated the effective flange thickness calculations for concrete T-Beams per the *ACI 318-14* code to account for the span limit changing due to overhang distance.
    - A factor of 1.43 is now applied to the cracked moment of inertia for concrete beams and columns for service load combinations per *ACI 318* and *CSA A23.3* commentaries.
    - Corrected an issue which caused a wall to be designed for the wrong rebar spacing when the Group Wall checkbox was selected.
    - Corrected an error in the bar spacing calculation for concrete walls in tension when an Envelope solution is solved.
    - Corrected a problem where the optimized shear steel would not fit in the concrete member when metric units were selected.
    - Fixed a problem with the concrete column solver where, for certain column lengths, the interaction diagram would fail and give a message about a missing rebar layout.
- Masonry:
    - Added the *TMS 402-16* masonry code.
    - Fixed a problem where the in-plane shear reinforcement spacing design was over-conservative per the the *ACI 530-13 ASD* masonry code.
    - Corrected a crash when code is set to None and a detail report is opened.
- Wood:
    - Added design of wood shear walls per the Canadian *CSA O86* wood design codes.
    - Added design of Structural Composite Lumber materials per the Canadian *CSA O86-14* code.
    - Corrected an error in the CF factor calculation for Custom Wood Species. Now the program will always default to CF = 1.0 unless the user manually enters a value.
    - Custom Wood Species now uses the user designated Type to code select appropriate chapter for design.
    - Increase factor of 40% is now applied to wood walls in models with load combinations for wind applied to roofs.
    - Added a new wood wall Aspect Ratio factor per the *ANSI/AWC SDPWS-2015 section 4.3.4.2* which applies to FTAO and Segmented walls who have an aspect ratio greater than 2:1.
    - Corrected erroneous capacity equation references for wood members designed per the *CSA O86-14* code.
    - Corrected a display issue with hold downs in the detail report.
    - Fixed a problem where the program would check the overall material for a wall rather than the custom chord material for a wall, which would cause an erroneous message.
    - Fixed an issue where Custom Wood Material inputs would give an erroneous message about a missing E05 input value.
- Cold-Formed Steel:
    - Added Cold Formed Steel codes:
        - *AISI S100-16*
        - *CANACERO-2016*
        - *CSA S136-16*
    - The Distortional Buckling Factor Beta from *AISI S100 Eqn C3.1.4-7* is now taken as 1.0 for all unbraced lengths except those left blank or using the Segment command.
    - Corrected a calculation that affected the lateral-torsional buckling for face-to-face Cee shapes.
- Aluminum:
    - Corrected an error where aluminum members gave a design check value of infinity (reported as '-nan(ind)' in the output) when they were set as non-physical members.

- Corrected an issue where some aluminum members were not checking yielding and rupture limit states for flexure.
- Corrected an issue when changing units after solving the model where the values would not update properly.
- Corrected an error in the bending capacity calculation for aluminum pipes in tension.
- Corrected Aluminum code checks to include the limit state *F.8.1.1*.
- Corrected the unbraced length for aluminum members that were using Lbout instead of Lcomp.