

Release Notes for RISA-2D

Version 16.0 Enhancements/Corrections

- General:
 - Added compatibility with IBC 2015.
 - Added the live display of coordinates and deflection values to the mouse cursor.
 - Improved the reaction description in the graphic information label for the model view display.
 - Added the ability to view deflection ratios as a graphical member label.
 - Added a new Member Distributed Load type that is applied as a pressure to the face of the member. The program will automatically calculate the load in terms of force/length.
 - Fixed a display error which prevented the Wall Panel Editor from opening on walls with a large number of nodes in its plane.
 - Added two new tabs to the Member Forces spreadsheet to display the maximum force based on internal sections and end reactions.
 - Major improvements to the automatic model backup functionality.
 - Using the Copy to Clipboard command from spreadsheets no longer copies blank cells to the clipboard.
 - Fixed a problem where the Truss High Level Generation Tool would create web members that didn't attach properly to the chords if the Out to Out option was selected.
 - Updated a local axes error in the detail report where the enveloped moment diagram didn't match the detailed diagram that you get when you click on it.
 - Fixed a problem with envelope detail reports where the diagrams were not properly giving the maximum and minimum values.
 - Fixed a problem where the program was not using the user input Cm value and was instead manually calculating it if the member was rotated 90 or 270 degrees.
- Analysis:
 - Added new / advanced Story Drift checks and calculations.
 - Changed / improved behavior of wall panels when part of a Response Spectra Analysis.
 - Corrected an inconsistency related to plate shear modulus calculations.
 - Fixed a problem where the plate contour tool would not work with very small plate models (less than a foot total length or width).
 - Corrected an error where compression-only spring reaction forces were not updating in a solution with many iterations.
 - Fixed a conservative problem where wall force diagrams in the detail report would report a min/max of 0 even if the forces didn't go to zero.
 - Corrected a problem where a very short wall height would cause the program to shut down. A check has been added requiring a wall to be at least 6 inches tall.
- Hot Rolled Steel:
 - Added the CSA S16-14 Canadian steel design code.
 - Implemented L-torque input for the CSA S16-14 code clause 13.3.2 similar to how it is done in the AISC 13th/14th editions.
 - Added a notification to the detail report whenever the Canadian steel code overrides the user-input effective length (K) factor.
 - Improved reporting of effective yield stress for Canadian steel class 4 sections.
 - Corrected weak axis KL/r checks where K = 1.0 was conservatively used instead of the actual input K factor.
 - Added a new steel shape database for Paco Steel & Engineering.
 - Corrected a minor error in the Lateral Torsional Buckling limit state for a custom input tapered wide flange shape.
 - Corrected a problem with the 2005 and 2001 Canadian steel codes with compression capacity of class 4 sections.

- Corrected an issue with Canadian steel code checks where the unity check reported was wrong for members with near zero (but not zero) moments.
- Fixed a problem where the program was not using the user input C_m value and was instead manually calculating it.
- Concrete:
 - Added the CSA A23.3-14 Canadian concrete design code.
 - Updated the P-little delta calculations for concrete walls to show the location along the wall where it was considered.
 - Updated the P-little delta calculations for concrete walls for the odd case where both axial forces and moment forces were below program minimum thresholds.
 - Corrected a problem in the concrete reinforcement optimization where reinforcement design could produce a code check of 1.02 instead of 1.00.
 - Corrected an error where T-beam effective flange widths were being incorrectly calculated per the ACI 318-14 design code.
 - Fixed an erroneous $Kl/r > 100$ message for Canadian concrete columns that use explicit reinforcement.
 - Corrected an error where a concrete beam detail report would crash after an Envelope Only solution.
 - Corrected a problem where the shear check on a multi-span concrete column was reported as controlling for the wrong span.
- Wood:
 - Added wood member design per the Canadian CSA O86-2014 design code.
 - Updated the Structural Composite Lumber databases for updated material tables.
 - Corrected an error in wood member area calculations for NDS 2012 & 2015 design codes.
 - Fixed a problem in the NDS 2012 and 2015 codes where equation 3.9-4 was implemented but the text in the detail report would report Eqn 3.9-3.
 - Updated incorrect headers for Canadian wood members with an enveloped solution.
 - Corrected Wood C_v factor to only apply to weak axis.
 - Corrected an erroneous change to the NDS 1991/97 wood design code label name.
 - Fixed a problem that showed null values for wood shapes and materials that were not existent.
 - Corrected an issue in wood design where the data could become corrupted if a custom C_{fu} (flat-use factor) value was used.
 - Fixed a problem with FTAO wood wall design where certain walls within a multi-story wood wall stack would give N/A for the results when actual results should be given.
- Masonry:
 - Removed all reference to bond stress for masonry. This check was a holdover from the UBC-97 code and is not present in the current codes so it was removed from the program.
 - Fixed a problem where the 2011 and 2013 ASD masonry code was over-conservative in designing the in-plane shear reinforcement spacing.
 - Corrected an issue in the reported masonry wall panel output to show results based on a consistent effective width.
 - Fixed a problem with masonry walls where a wall custom region that used staggered reinforcement would use an incorrect grout spacing internally for self-weight and stiffness parameters.
- Cold-Formed Steel:
 - Added the design of Cold-Formed tube sections and face-to-face shapes.
- Aluminum:
 - Added the AA ADM1-2015 aluminum design code.
 - Added bending code checks for aluminum single angles per the AA ADM1-2015 code.
 - Added Tau B display into the detail report.
 - Updated messaging in the spreadsheet for aluminum design results to notify the user when a P-Delta solution is required.
 - Updated the strong-axis bending capacity for wide flange members to no longer be dependent on K for the 2010 and 2015 codes. An update to the specification between 2005 and 2010 changed this behavior.
 - Corrected an error which caused aluminum member forces to differ in subsequent solutions using different design codes.

- Corrected a problem in the 2010 code where Local Buckling Interaction (section E.4) was being used as the capacity instead of as the upper limit.
- Corrected an issue where the moment strength for pipes could be based on yield instead of rupture. The error was due to a difference in the phi factor.
- Fixed an error in the governing equation display for aluminum pipe bending capacity.
- Corrected an over conservative error with the weak axis code check for Z sections in the AA ADM1-10.
- Updated the aluminum member detail report for Fs to report it about the proper axes.