Release Notes for RISACalc

Version 4.0 - April 20, 2023

- General:
  - Added compliance with the 2021 International Building Code.
  - Added Load Combinations compatible with IBC 2021.
- Detail Report:
  - Added a summary table of results in the Calculations section for Spread Footings.
  - Updated the description for S and Z as the Elastic Section Modulus and Plastic Section Modulus.
  - Fixed an issue where the deflection results were not showing in the Detail Report for rotated beams.
  - Fixed a units issue where the retaining wall and wall footing components were multiplying the reported weights by 12.
  - Resolved a units issue where steel joist UTL and capacity were in units of plf despite being reported as klf.
  - Resolved various graphical display issues within the Detail Report across multiple materials that were inconsequential to the final results.
- Aluminum:
  - Resolved a graphical issue for the calculation of Bc in the Axial Compression check for aluminum members that referenced incorrect equations from Table B4.2 when the value used equations from Table B4.1.
- Cold Formed Steel:
  - Resolved an issue where the P-Delta amplification factor was not included for theAISI S100-16 ASD solution.
- Concrete:
  - Added a warning message when no strength Load Combinations are solved for concrete members.
  - Enhanced the calculation of the moment gradient factor to include value limits in compliance with the CSA code.
  - Fixed an issue with the wall shear capacity calculation for strip footings and retaining walls using the ACI 318-19 code.
  - Corrected the governing concrete shear strength calculation for concrete beams, columns, and drilled piers.
  - Resolved a graphical error for the PCA Notes equation reference in the Detail Report for multiple ACI 318 building codes.
  - Fixed a graphical issue with the equation for the minimum development length.
- Hot Rolled Steel:
  - Added more information to variables that are used within the detail report for hot rolled steel members.
  - Added the L-torque design parameter for hot rolled steel beams, columns, and composite beams designed with CSA S16-14.
  - Corrected the calculation of the elastic critical buckling stress (Fe) when calculating critical buckling stress.
  - Resolved an issue with the properties of certain HSS shapes in the Canadian Hot Rolled Steel database.
- Masonry:
  - Implemented larger reinforcement spacing options for masonry wall design.
- Wood:
  - Resolved an issue displaying detail reports for wood members solved with CSA O86-09: Ultimate design code.

Version 3.6 - September 15, 2022

- Detail Report:

    - Resolved an issue for concrete beams where the Moment and Deflection diagrams were not shown in the Detail Report.
    - Resolved an issue where the retaining wall bearing results were not properly displayed in the Detail Report.
    - Resolved an issue where the Detail Report did not reflect metric units for the drilled pier and spread footing components.
- Spread Footing:
    - Fixed a UI issue preventing the input of more than 2 bars for explicit footing reinforcement.
    - Resolved an issue where the pedestal reinforcement was conservatively overdesigned.
- Drilled Pier:
    - Added a new section to the Detail Report which includes the column interaction diagram, summary of provided column and shear steel, and rebar detailing diagram.
    - Resolved a UI issue preventing a metric clear cover greater than 5 mm.
- General:
    - Resolved a UI issue where changes made to one component were affecting another component.
    - Resolved an issue where cold formed steel shape sizes were not retained after switching to another component.
    - Fixed an issue where the shape database was not updating when a Canadian code was selected.

Version 3.5 - July 6, 2022

- Drilled Pier:
    - Added the analysis and design of drilled piers. Supported design codes include:
        - ACI 318-19/14/11/08.
- Seismic Load Generator:
    - Integration with the USGS Earthquake Catalog API to search site specific details based on location.
- Beams:
    - Enhanced the listed deflection load combinations to filter based on applied load categories.
    - Resolved an issue that reported "undefined" as the governing code check.
- Wood:
    - Added the incision factor Ci for sawn lumber design.

Version 3.4 - June 15, 2022

- Seismic Load Generator:
    - Added a seismic load generator for building structures and nonstructural components. Supported design codes include:
        - ASCE 7-16
        - ASCE 7-10
- Hot Rolled Steel:
    - Resolved an issue that prevented solution when Ltorque was set to zero for hot rolled steel channels.
- Spread Footing:
    - Improved the Soil Bearing graphics for the spread footing component to constrain the pressure gradient by the perimeter of the footing.
- Steel Joist:
    - Resolved a graphical issue showing moment reactions at the end of a simply supported steel joist.
- General:
    - Added additional Hot Rolled, Cold Formed Steel, Aluminum, and Stainless Steel materials.
    - Added default materials for Canadian codes.

Version 3.3 - May 10, 2022

- Wall Footing:
  - Added the analysis and design of wall footings for concrete and masonry walls. Supported design codes include:
    - Concrete: ACI 318-19/14/11/08/05/02/99, CSA A23.3-14/04
    - Masonry: TMS 402-16: ASD & Strength, ACI 530-13: ASD & Strength
- Retaining Wall:
  - Fixed an issue where the retaining wall Rebar Detailing diagram did not print to PDF correctly.
- Spread Footing:
  - Enhanced the spread footing by adding a Single Layer option to only analyze explicit bottom bars in the footing.

Version 3.2 - April 20, 2022

- Spread Footing:
  - Added the analysis and design of spread footings. Supported design codes include:
    - Concrete: ACI 318-19/14/11/08/05/02/99, CSA A23.3-14/04
- Retaining Wall:
  - Enhanced the Geometry input for masonry retaining walls to provide a dropdown with available wall thicknesses.
- Composite Steel Beam:
  - Resolved an issue where the Composite Bending section was not properly displaying results in the expanded Detail Report for composite steel beams.
- General:
  - Add the ABIF column into the Load Combinations modal for foundations.
  - Updated the concrete settings default to allow a minimum spacing of one bar diameter between parallel bars.

Version 3.1 - March 22, 2022

- Retaining Wall:
  - Added a load combination toggle into the retaining wall Detail Report to toggle diagrams for different load combinations.
  - Added the governing load combination to the service checks for Overturning Moment, Sliding, and Bearing.
  - Implemented expanded masonry design calculations in the Detail Report for masonry retaining walls.
  - Resolved a graphical display issue in the retaining wall Detail Report where the Wall Length was reported using the Wall Height parameter.
  - Corrected load combination IBC 16-15 for retaining walls to use a safety factor of 1.
  - Resolved an issue with the Vc calculation for retaining walls designed using ACI 318-19.
  - Resolved a graphical issue with the hydrostatic pressure reported in the detail report at the top of the footing.
  - Resolved an issue with backfill slope height calculation for retaining walls when heel batter exists.
  - Resolved an issue with angle of active pressure resultant for Coulomb's Method.
  - Resolved an issue with active earth pressure coefficient for soil below the water table when Coulomb's method is used.
  - Fixed an issue with lateral earth pressure due to surcharge if at rest condition is activated when the passive force exceeds the active force.
  - Removed seismic forces from the analysis when the wall is propped or the Rankine lateral earth pressure method is selected.

- Hot Rolled Steel:
  - Enhanced the Detail Report for hot rolled steel members for clarity regarding the Cb factor when Cb is user specified.
  - Resolved a display issue in the Shear Analysis expanded calculations for certain cases which listed omega as 1.67 instead of 1.5.
  - Corrected the unbraced length reported in the Elastic Buckling Stress section for hot rolled steel member Detail Reports.
- Aluminum:
  - Corrected the phi factor to determine the nominal flexural capacity of aluminum shapes.
- Wood:
  - Enhanced the strong axis Flexural Analysis section of glulam Detail Reports to clarify Cm, E, and Emin.
  - Resolved an issue where the flat use factor, Cfu, was being incorrectly applied to wood members with rotation.
  - Resolved a graphical issue where the combined axial and bending unity check for wood members in axial compression was not referencing the correct governing equation between Eq. 3.9-3 and Eq. 3.9-4.
  - Corrected a graphical issue in the wood Detail Report where the required shear demand was reported incorrectly when analyzed using CSA 086-14.
- Concrete:
  - Enhanced the beam reinforcement design to provide a warning when the explicit rebar spacing provided exceeds the maximum allowed by code.
  - Corrected a graphical issue in the Detail Report for concrete members using explicit reinforcement where the total shear strength was not displayed in the expanded calculations.
  - Corrected a visual issue in the Detail Report for concrete column nominal flexural strength which had no effect on the final calculations.

Version 3.0 - February 22, 2022

- Retaining Wall:
  - Added the analysis and design of retaining walls for concrete and masonry walls. Supported design codes include:
    - Concrete: ACI 318-19/14/11/08/05/02/99, CSA A23.3-14/04
    - Masonry: TMS 402-16: ASD & Strength, ACI 530-13: ASD & Strength
- Graphics:
  - Updated the Welcome Screen user interface.
  - Updated the navigation bar for better visibility of Settings and Projects.
  - Improved the workflow to add new components within a project and added filters by component.
  - Updated the workflow and graphics in the right-side Input pane with tabs and subtabs.
  - Enhanced the Detail Report to incorporate auto-scrolling and half/full views.
  - Updated the design of the printed Detail Report.
  - Re-implemented new feature notifications as toast notifications rather than a link from the Navigation bar.
- Loads:
  - Added the ability to copy loads within a component.
- Cold-Formed Steel:
  - Resolved an issue where single joist Dietrich shapes were not providing results.
- Wood:
  - Fixed an issue where Table 6.3 was being shown as the glulam reference for both CSA 086-14 and CSA 086-09.
- General:
  - Updated the text in the units to say 'Material Stiffness' instead of 'Material Strengths'.

Version 2.2 - October 6, 2021

- Added print settings to customize the Detail Report by selecting which sections to include.
- Enhanced the Reactions section of the joist Detail Report with a graphic reporting the joist span.

Version 2.1 - June 28, 2021

- Added the Deflection Check into the graphical interface and calculations section for Beams.
- Improved the reporting of the Deflection Check section for Composite Beams.
- Added the batch printing ability to print Detail Reports for multiple components at once.

Version 2.0 - May 4, 2021

- General:
  - Added the ability to copy existing components within the same project.
- Hot Rolled Steel:
  - Improved the compactness class determination for single angles with the consideration of Clause 11.1.2 and 11.1.3 according to CSA S16-14 and CSA S16-09.
  - Updated Material Defaults to Include ASTM A500 Grade C for Round and Rectangular HSS sections.
  - Corrected the capacity calculation for members with only tension loads to follow chapter D of AISC 360 instead of chapter H.
  - Corrected a graphic display issue in Detail Reports where 'Lcomp,top' was reported as the variable label when the controlling value of the unbraced length was 'Lcomp,bot'.
- Aluminum:
  - Enhanced the Bending and Axial Interaction Check section of aluminum Detail Reports for clarity.
- Wood:
  - Corrected bending capacity of wood members due to Cm factor being applied twice during member capacity calculations.
  - Corrected an issue with Cm value in E'min calculation under the combined bending and axial compression check under NDS codes.
  - Resolved an issue where compression analysis according to CSA 086-14 was reporting incorrect values for Fc and Kzc.
- Concrete:
  - Added the ACI 318-19 concrete code for beams, columns and wall panels.
  - Resolved an issue that was only preventing shear design of concrete beams when members met Deep Beam criteria.
  - Resolved an issue which was providing erroneous Deep Beam warnings.
- Detail Reports:
  - Modified the Detail Report for wood members when the beam stability factor is 1 due to the member being fully braced.
  - Corrected the display of values reported in the concrete member Detail Report for the depth to the equivalent rectangular stress block and for the depth to the neutral axis.
  - Updated the metric unit of stress to read as MPa.

Version 1.3 - March 4, 2021

- Composite Steel Beam:
  - Added camber design for composite steel beams.
  - Added the ability to specify shored or unshored for composite steel beam design.
  - Added the ability to specify the direction of the metal deck as parallel or perpendicular.
  - Added tooltip descriptions to the loads for the Composite Steel Beam component.

    - Added percent composite to the main view header.
    - Added deflection ratio results and deflection diagram graphics for all deflection load combinations.
    - Fixed a graphical units issue in the Detail Report where the moments used to calculate Cb were reported in in-ft.
- Hot Rolled Steel:
    - Resolved an issue when using the Fully Braced unbraced length option.
- Wood:
    - Added factored compression resistance into the Combined Bending + Axial section for glulam Detail Reports per Clause 7.5.12 (CSA 086).
- Columns:
    - Added the option to include P-Delta for column components.

Version 1.2 - January 4, 2021

- Composite Steel Beam:
    - Added composite steel beam design for the following codes:
        - AISC 360-16 (15th Edition) ASD & LRFD
        - AISC 360-10 (14th Edition) ASD & LRFD
        - AISC 360-05 (13th Edition) ASD & LRFD
        - AISC LRFD (2nd and 3rd Editions)
        - AISC ASD (9th Edition)
        - CSA S16-14
        - CSA S16-09
        - CSA S16-05
        - CSA S16-01
- Wood:
    - Modified the Detail Report for wood members when the beam stability factor is 1 due to the member being fully braced.
    - Added customizable load duration factors for wood load combinations.
    - Added factored compression resistance into the Combined Bending + Axial section for glulam Detail Reports per Clause 7.5.12 (CSA 086).
    - Resolved an issue to correct the governing location for wood members designed with CSA 086.
    - Resolved an issue where the moment component was not being considered in the Bending and Axial Compression Analysis for wood members designed with CSA 086.
    - Corrected an issue where the incorrect value for unbraced length was used in the calculation for the slenderness ratio of wood members.
    - Resolved an issue where negative bending allowable stress was used for glulam members when positive bending allowable stress should be used.

Version 1.1 - August 20, 2020

- Joists:
    - Added design for steel joists per SJI 42nd and 43rd/44th Edition.
- Hot-Rolled Steel:
    - Corrected the display of the slenderness ratio in compression in the Detail Report.
- Wood:
    - Added LRFD wood design for NDS 2018 and NDS 2015 codes.
    - Resolved a graphical error for wood members using CSA 086-14 where the shear capacity was reported incorrectly in the Calculations.
    - Resolved an issue where the wood bending capacities using CSA 086 were reported in the wrong units in the Member Detail Report.
- Display:

    - Added notifications.
- Report:
    - Enhanced the Detail Report force diagrams to report all peak magnitudes and locations.

Version 1.0 - May 14, 2020

- This is the initial release of the program. See the Accessing Projects topic and also the Application Interface topic for more information on getting started.