

# Release Notes for RISAFloor

## Version 19.0.0 Enhancements/Corrections

- General:
  - Updated installers to support Remote Mass Deployment through tools such as Microsoft Intune.
- Design:
  - Added ASCE 7-22 / IBC 2024 Load Combination generation.
  - Added Wind and Seismic Loads generation per ASCE 7-22.
  - Added member design per the AISC 360-22 (16th edition) steel specification.
  - Corrected Sy calculation for hot-rolled steel double angle shapes when using CSA codes.
- Integration:
  - Added a note in the RISACONNECTION anchorage Detail Reports indicating seismic load combinations were imported from RISA-3D and seismic provisions were not considered.
  - Corrected an error message to read 'Invalid member type' instead of 'Invalid connection member shape' to more accurately reflect the cause of the issue.
  - Fixed an issue where column splice integrations to RISACONNECTION incorrectly used member end forces from the incorrect column instead of consistently taking them from the physically top column.
- Detail Report:
  - Fixed a units conversion issue in the Web Opening Detail Report where certain results, including Mu, did not update properly when changing units.

## Version 18.0.2 Enhancements/Corrections

- General:
  - Updated the license manager to use a new identity provider for cloud licenses and allow single sign-on.
- Steel:
  - Updated three ASC deck databases (BH-36, BHN-36R, and ASC Steel Roof Deck).

## Version 18.0.1 Enhancements/Corrections

- Integration:
  - Corrected an issue where automatically generated roof wind area loads led to a co-planar error during integration with RISA-3D.
  - Resolved a model specific issue where edits to the hot rolled camber values could not be saved during round-trip integration with RISA-3D.
- Interface/Graphics:
  - Resolved an issue where using criteria selection for slabs in a beam supported floor (no slab) could cause the program to close unexpectedly.
  - Resolved an issue where modifying a diaphragm edge in a plan view while a full model view was open on the side might cause the program to close unexpectedly.

## Version 18.0 Enhancements/Corrections

- Concrete:
  - Added ACI 318-19 (22) concrete code for concrete design.
  - Corrected CSA one-way shear  $V_r$  calculation methodology.
- Operations:
  - Added spreadsheet-based batch editing and template saving for wall panel openings.

- Analysis:
  - Added functionality to incorporate columns into walls.
- General:
  - Added functionality to allow nodes from a RISAFloor model to be detached from diaphragms in RISA-3D.
  - Removed continuous beam over column connection assignment from beam member properties in the double-click dialog box.
  - Updated the minimum wind pressure used in the wind load generator to be 16psf for ASCE 7-10 and 7-16.
- Wood:
  - Added options for stud spacings of 12" and less in the design rules of wood walls.
- Masonry:
  - Updated the default Masonry strength  $f'_m$  in the Material Spreadsheet to be 2000psi.
- Integration:
  - Resolved an issue with incorrect load transfer into RISACONNECTION based on member orientation for continuous beams over column connection.
  - Corrected a problem where lateral columns set as continuous beam over column in RISAFloor lost their connection assignment when integrated into RISA-3D.
  - Fixed an issue where a corrupted model file with bad data in CFS wall types caused an error with the message "Null object cannot be converted to a value type" during integration.
  - Fixed a rare issue where modifications requiring the clearing of saved solutions after round-trip integration could unexpectedly close the program due to some mesh nodes not initializing properly.
- Interface/Graphics:
  - Updated URLs in the Subscription Login Dialog to direct users to the revised sections of the customer portal website.
  - Corrected visual error in the Seismic Loads window during RISAFloor to RISA-3D integration to accurately indicate parapet height consideration.

## Version 17.0.2 Enhancements/Corrections

- General:
  - Converted to cloud-based subscription licensing.

## Version 17.0.1 Enhancements/Corrections

- General:
  - Added a search bar to quickly search and access commands and spreadsheets in the program.
  - Added quick hotkeys on highly repetitive commands (e.g. draw columns, draw beams, etc.).
  - Added a new feature to export results spreadsheet data to Excel spreadsheets.
  - Added a new feature to directly assign an explicit shape when drawing a beam or column.
  - Added a button to direct users to the RISA feedback page.
  - Enhanced backward compatibility when the program cannot recognize model file data generated from future versions.
  - Fixed a graphical issue where the wind speed in the wind loads dialog was displayed in imperial units instead of metric units when changing the model's unit settings to metric.
- Operations:
  - Improved the program behavior to properly save all default files when updating the programs.
- Concrete:
  - Added a new rebar design option to optimize slab design based on average steel area per slab width instead of integer number of bars.
  - Updated program to correctly calculate  $V_c$  for longitudinal reinforcement by taking the larger value between equations a and b in Table 22.5.5.1 of ACI 318-19.

- Implemented provisions to distinguish between the compression strength capacity of walls and columns according to CSA A23.3-14, where it was previously undifferentiated in the program.
- Resolved an issue that caused a misleading warning regarding explicit rebar spacing during solution.
- Corrected the equation used to determine the axial tension capacity of concrete columns from ACI Section 22.4.3 to ACI Section 22.4.2.
- Integration:
  - Added continuous beam over column connection integration support from RISAFloor to RISAConnection.
- Masonry:
  - Corrected an issue that displayed incorrect masonry rebar.
- Wood:
  - Updated the wood SCL LVL database for Roseburg based on latest design values.
- Detail Report:
  - Resolved a graphical issue for a model integrated from RISAFloor into RISA-3D where the LL Reduction checkbox was not visible in enlarged force diagrams.

## Version 17.0 Enhancements/Corrections

- General:
  - Added compliance with the 2021 International Building Code.
    - Added Load Combination generation compatible with 2021 International Building Code.
    - Added compatibility with AISI S100-20, AISI S240-20 and S400-20
  - Compatibility with RISA-3D V21.0.0 and RISAFoundation V15.0.0.
  - Resolved an issue that beams with negative floor elevation offset due to floor sloping with cantilever beams may be recognized as invalid.
  - Corrected an issue with models that have sloping floor with negative elevation offset may cause the program to close unexpectedly.
- Hot Rolled Steel:
  - Added a new button in the Member Properties Dialog to allow modifications of web opening data through the web opening spreadsheet..
- Solution:
  - Corrected an issue that prevented composite design from being performed when composite deck properties E and G were set to 'Auto Calc'.
- Interface/Graphics:
  - Corrected an display issue that the composite stud Fu input may have incorrect unit display in the input dialog.
  - Resolved a display issue in detailed report that CFS member may show incorrect demand and capacity nomenclature (e.g.  $P_n/O_m$  vs.  $\phi \cdot P_n$ ) for ASD and LRFD design.

## Version 16.0.6 Enhancements/Corrections

- General:
  - Compatibility with RISA-3D V20.0.6 and RISAFoundation V14.0.6.

## Version 16.0.5 Enhancements/Corrections

- General:
  - Fixed an issue that prevented reading exchange files properly which is required for REVIT integration.
- Spreadsheet:
  - Corrected an issue that prevented the beam label from being shown correctly in the title bar of the web opening spreadsheet dialog box.

- Detail Report
  - Revised the web opening miscellaneous check warning messages within the detail report.

## Version 16.0.4 Enhancements/Corrections

- Concrete:
  - Added the analysis and design of Welded Wire Fabric Design for elevated slabs.
- Hot Rolled Steel:
  - Added the design of web openings to steel beams in RISAFloor.
- Wood:
  - Added wood flexible diaphragm region design.
  - Corrected an issue where the legend of the wood diaphragm display may not get updated properly when multiple region design rules are assigned.
  - Resolved an issue where the modify wood diaphragm region tool may always apply to all regions instead of the selected regions.
- General:
  - Enhanced display of steel joist labels in DXF output to be at the center beams instead of at the ends.
  - Improved the behavior with the Modify Slab Edge tool that would have caused the program to close unexpectedly.
  - Fixed column stack spreadsheet behavior that prevented selected cells from moving to the next cell when the Tab key was pressed.
  - Corrected an issue that treated certain Other Loads (e.g. OL1) as Seismic and Wind Loads when integrated into RISAFoundation.
- Detail Report:
  - Corrected a rare issue that would cause the program to close unexpectedly when viewing a Detail Report for a general masonry wall with openings.
  - Resolved an issue prevented masonry lintel capacity values to be saved and read correctly within the solution file.
- Interface/Graphics:
  - Resolved a minor display issue in the warning log that displays dash lines with an extra symbol A.

## Version 16.0.3 Enhancements/Corrections

- Updated the interoperability between RISA programs and RISA-Revit link.

## Version 16.0.2 Enhancements/Corrections

- Composite:
  - Resolve an issue that caused the program to occasionally close unexpectedly if a B(eff) value of 0 was entered for a non-composite steel member.
- Concrete:
  - Fixed an issue in calculation of the size effect modification factor ( $\lambda_s$ ) in ACI 318-19 code when metric units are used.
- Wood:
  - Corrected a rare instance where a unity check greater than 1.0 would be calculated for wood members exceeding  $l_e/d$  of 50.
- Steel Joist:
  - Corrected an issue where the joist material set was displaying as aluminum material.
  - Resolved an issue where joist girders were not properly designed when using the shape name designation xxG or xxGxxN.
- Operations:

- Enhanced the program behavior to produce an error message where there are too many interior nodes on a physical member or wall.
- Corrected an issue where the System Factor, KH, would erroneously reset back to 'None' after closing the model.

## Version 16.0.1 Enhancements/Corrections

- General:
  - Removed an erroneous warning message in RISAFloor during startup saying “steel code check not calculated” for columns governed by RISA-3D sizes.
  - Resolved an issue that prevented the solutions file from being read when reopening the file from within the program.
- Concrete:
  - Corrected an issue where users could manually input non-concrete columns supporting elevated concrete slabs.
  - Resolved an issue that caused the program to close unexpectedly when slab elements were degenerate.
- Masonry:
  - Implemented larger reinforcement spacing options for Masonry Wall Design.
- Spreadsheet:
  - Clarified the Units being used for Wall Panels in the Material Take Off spreadsheet.

## Version 16.0.0 Enhancements/Corrections

- Cold Formed Steel:
  - Added the analysis and design of face-to-face cold formed steel members and tubes.
- Concrete:
  - Added the CSA A23.3-14 concrete design code for concrete wall panels.
  - Fixed a rare occurrence that would cause the program to unexpectedly close when defining a user defined region for a slab.
  - Corrected a rare instance where a thickened slab region / opening could not be deleted.
- Hot Rolled Steel:
  - Added the AISC 360-10 and 360-16 code checks for WT and double angle shapes
- Steel Joist:
  - Added Steel Joist Design to SJI 45th Edition Standard Specifications.
  - Updated LH joist design tables to include the expanded load tables per SJI 45th Edition Load Tables.
  - Corrected a display issue where the depths of K joists were not displayed correctly in the Shape Selection dialog under the SJI 43rd and 44th codes.
- Design:
  - Added ASC steel deck to the default deck database.
  - Improved the optimization algorithm for sloped members.
- Analysis:
  - Added the ability to analyze and design Hanger Columns in RISAFloor.
  - Resolved an erroneous error during the solution that members are overlapping.
  - Corrected a rare instance where shear calculations for slabs were not calculated.
- Solution:
  - Added functionality to prevent the solution process from going into an infinite loop causing the program to close unexpectedly.
  - Enhanced the meshing routine to better handle complex models and added a Full Model Alignment tool which will shift node coordinates to align vertical elements.
  - Corrected an issue where the program closed unexpectedly when clearing results.
  - Resolved an issue with the slab mesher that caused duplication of plate nodes.

- Fixed an issue that caused the program to show no bending code check for members when the combined bending and axial demands on the members are close to zero.
- Operations:
  - Enhanced the ability to draw area loads and decks past the overhang at the edges of beam supported decks.
  - Enhanced the copy tool to allow the copying of skewed project gridlines.
  - Resolved an issue that prevented assigning splice connections of a column within the Column Stack Manager.
  - Addressed a behavior that would cause a model to close unexpectedly when opening multiple concrete beam detail reports in a sequence.
  - Enhanced functionality to allow modifications to slabs, openings and thickened regions.
  - Fixed an issue where creating a slab opening at drawing grid snap points would sometimes cause the program to close unexpectedly.
  - Resolved an issue where copying elements from one floor to another was causing the program to close unexpectedly.
  - Resolved an issue where trying to copy a column on a parent floor would cause the program to close unexpectedly.
  - Corrected a rare instance where the program was preventing the deck from being deleted.
- Detail Report:
  - Resolved an issue where the program would close unexpectedly when trying to open a detail report.
- Reporting:
  - Resolved a scaling issue with printing reports when the display scale for the screen is set to anything other than 100%.
- General:
  - Enhanced the behavior of the program to change unrecognized deck types to the default deck type.
  - Improved detective behavior of self-intersecting area load polygons.
  - Updated the location where user data files are stored during default installation to prevent certain file access issues.
  - Resolved an issue when solving a model with Composite Joists with no loads being applied that caused the program to close unexpectedly.
  - Fixed a rare instance where the program does not prompt to save the model when opening a different model.
  - Resolved an issue of shape/properties mismatch after deleting custom shapes in the database.
  - Updated text of 'Material Strengths' units to 'Material Stiffness' to better match the property the units represent apply to.
- Interface/Graphics:
  - Corrected an issue that prevented the Change Elevation of Selected Points tool from sloping in some scenarios.
  - Resolved an issue that caused a model to close unexpectedly when using the Generate Infill Beams tool in certain types of models.
  - Corrected a rare instance where the deflected shape of a single element in a model was inaccurate.
  - Fixed an issue that erroneously reported a message pertaining to BLC factors which are only used in RISA-3D.
  - Resolved an issue that caused the program to display 'No support for lateral column or wall at (X,Z)' warning at a location where there are no lateral elements.

## Version 15.0.4 Enhancements/Corrections

- Resolved an issue where the record counter did not match the number of records within the Wood Straps section of the model data file.
- Resolved an graphical display issue where the incorrect values were reported in the Beam Bending results for wood members utilizing the CSA code.

- Resolved an issue with skip loading not properly reporting the maximum uplift reactions as the governing uplift.
- Fixed an issue which reported erroneous One Way shear failures for some support lines.
- Resolved an issue where alpha for Punching Shear calculations was calculated using an exterior corner condition, resulting in overly conservative reinforcement requirements.

## Version 15.0.3 Enhancements/Corrections

- General:
  - Resolved an issue where the connector spacing 'a' was not being calculated correctly for CFS double studs within CFS walls.
  - Fixed an issue causing the program to close unexpectedly in some cases when designing connections.
  - Resolved an issue that was not allowing some columns attached to cantilever beams to be lifted via the sloping tool.
  - Resolved an issue where RISAFloor will close unexpectedly when importing from REVIT.

## Version 15.0.2 Enhancements/Corrections

- General:
  - Improved the meshing algorithm for wall panels by requiring a minimum wall panel length of 1.5 inches.
  - Corrected an issue preventing custom redesign lists for Canadian shapes.
  - Resolved an issue that prevented default units from converting properly when changing Design Regions.
  - Corrected an issue where stress properties were affected when strength units were changed from imperial to metric.
  - Resolved a graphical display error which reported  $L_e/d=0$  in Detail Reports.
  - Resolved a Polygon Meshing error that caused -NAN results.
  - Resolved a rare issue that was not allowing saved results to be read when the model file was saved to a cloud location.
  - Resolved an issue that occasionally prevented increasing the maximum number of Automatic Backups in the Application Settings.
- Hot Rolled Steel:
  - Fixed a unit conversion issue with deflection results for hot rolled steel beams and composite joists.
- Concrete:
  - Added the ability to consider new equations of effective moment of inertia ( $I_e$ ) per Section 24.2.3.5 of ACI 318-19 code.
  - Added the ability to consider the new length requirement (5d) of the top slab rebar per Fig. 8.7.4.1.3 of ACI 318-19 code.
  - Resolved an issue that prevented composite design from being performed due to an incorrect detection of concrete material properties.
- Cold Formed Steel:
  - Resolved a graphical display issue that showed the incorrect wall thickness for CFS Walls.
  - Resolved an issue where the internal coldform schedule counter could become mismatched.
  - Resolved an issue where the cold formed steel wall panel stud capacity was overly conservative.
  - Corrected an issue in the CFS Wall Panel Design Rules which was preventing models exported from Revit from opening.
- Wood:
  - Corrected an issue where  $C_p$  for wood members was calculated on the basis of ASD design when LRFD design was specified.
  - Corrected an issue where the  $C_r$  (repetitive use factor) would equal 1.0 regardless if it was enabled.
  - Resolved a small discrepancy in the calculation of  $E_{min}$  for SCL shapes.
- Wall Panels:

- Resolved an issue that made some wall panels difficult to double-click to open the Wall Panel Editor.
- Composite:
  - Corrected an issue where the stud count for some composite beams were not being optimized properly when using the Redesign tool.
  - Improved the Detail Reports and Material Takeoff spreadsheet for composite members by reporting the full height of the stud rather than just the height above the deck rib.
- Graphical Interface:
  - Added the ability to modify the value of 'a' for CFS members through the Modify Beams and Modify Columns dialogs.
  - Improved Column Forces spreadsheet scrolling and selection.
  - Improved the Columns spreadsheet to include CFS on the Steel/Wood tab.
  - Enhanced the Exclude feature in RISAFloor to only exclude results on the current floor.
  - Resolved an issue that prevented the option to Detach Child from Parent floor when in the Beam Floors tab of the Floors spreadsheet

## Version 15.0.1 Enhancements/Corrections

- General:
  - Added composite joist design for metric units.
  - Resolved an issue which caused errors while reading the input file and caused the program to unexpectedly close when using the undo/redo function.
  - Fixed an issue where the 3.5 inch normal weight 16ga Vulcraft decks were incorrectly using a slab depth of 4 inches.
  - Resolved an issue preventing the design of CFS ZU shapes.

## Version 15.0 Enhancements/Corrections

- General:
  - Added compatibility to integrate with RISA-3D v19.
  - Added the ability to exclude results based on selection.
  - Added the ability to specify a Design Rule when drawing columns.
  - Resolved an issue causing the program to close when attempting to view long term deflection graphically.
  - Resolved an issue where the color coded contour diagram for the Unity Check values displayed incorrectly when User Defined Rebar was specified.
  - Corrected a typo in the Verco PLW2-W2 Formlok deck database file where deck thickness was listed twice.
  - Corrected the unbraced length for columns which were affected by column splices at floor levels.
  - Resolved an issue causing a duplicate node for a plate generated by semi-rigid diaphragms.
  - Resolved an issue where the 'Detail Report for Current Item' feature opened up the wrong Detail Report when the spreadsheet was sorted.
  - Resolved rare issue of program crash during solution of model.
- Concrete:
  - Added the ACI 318-19 concrete code for beams, columns, slabs and wall panels.
  - Corrected a units issue with long term deflection which caused  $I_e/I_g$  to be incorrectly calculated.
  - Resolved an issue causing an erroneous 'Slab Failing Thickness Requirements' warning message when the CSA code was selected.
  - Corrected description of axis directions in the slab internal force summation dialog.
- Cold Formed Steel:
  - Added code checks for back-to-back cold formed steel members.
- Wall Panels:
  - Added Cold Formed Steel Wall Panels



- AISI S400-15 w/S1-16 & AISI S240-15.
- Corrected an issue where wall panels with a large number of narrow regions would cause the program to close.
- Improved the wall panel meshing algorithm and the snapping tolerance to handle walls with very small offsets (e.g. less than 1in).
- Wood:
  - Fixed an issue where the flat use factor, Cfu, was incorrectly applied to members which were not loaded on the wide face.
- Hot Rolled Steel:
  - Updated Material Defaults to Include ASTM A500 Grade C for Round and Rectangular HSS sections.
- Composite:
  - Added Composite Joist design per SJI specification 200-2015.
  - Resolved an issue causing an erroneous 'shear resistance provided by studs is inadequate' warning.
  - Enhanced the composite beam Detail Report to clarify the total shear force and corresponding stud capacity.
- Joists:
  - Updated the SJI 42nd edition joist capacities for LH-, DLH-, and SLH-series.
  - Updated the SJI 43rd/44th edition Safe Load capacities for the LH- and DLH\_series.
  - Added Detail Report warning messages to provide more information about why a steel joist was not designed.
  - Resolved an issue preventing the optimization of Joist Girders.
  - Modified the design length for joist and joist girder analysis to consider a 2" bearing seat length on either side of the member.
  - Fixed an issue where self-weight of joist girders were incorrectly reported.
- Interaction:
  - Added the ability to recover a file if the model file closes unexpectedly in an integrated program.
  - Resolved an issue where some models under RISAFloor would unexpectedly close during solution if the floor elevation was the same as the seismic base elevation.
  - Corrected an issue where saved results were incidentally deleted after integrating between RISAFloor and RISA-3D.
  - Resolved an issue preventing the camber design rule for % DL from being retained when transferring between RISAFloor and RISA-3D.
  - Resolved an issue where certain models with semi-rigid diaphragms integrating to RISA-3D were reporting a non-planar plate mesh error.
  - Resolved an issue where RISA-3D would close unexpectedly while 'reading wall results' after integrating from RISAFloor with saved results.
  - Resolved a rare issue where Concrete Wall Panel Regions in RISAFloor caused the program to close in RISA-3D.
  - Resolved an issue where wind loads were conservatively generated for internal bays on some semi-rigid diaphragms.
  - Corrected an issue where nodes from non-rigid diaphragms in RISAFloor were included in the Drift Definitions spreadsheet, which only supports rigid diaphragms.
  - Fixed an issue where RISAFloor member design rule camber information was not properly retained after integration to RISA-3D.
  - Resolved an issue causing an erroneous Invalid Connection error for columns assigned with a single column base plate connection.
  - Resolved an issue where custom report templates were not retained in the original program after using the Director tool to integrate between multiple programs.

## Version 14.0.2 Enhancements/Corrections

- Updated the plate detail report for concrete slab models using user defined rebar to report Mu on a per ft basis.
- Resolved an issue with the slab reinforcement calculation when user-defined reinforcement did not meet the minimum slab reinforcement requirements.
- Added functionality in new Licensing Dashboard.

## Version 14.0.1 Enhancements/Corrections

- General:
  - Added parent/child behaviors for wall panels.
  - Improved the DXF import for elevated concrete floors.
  - Improved construction line behavior to save with the model and not zoom fit the entire model during use.
  - Fixed an issue where drawing diaphragm regions on gravity edge members would cause the program to close unexpectedly.
  - Corrected an issue where deleting selected walls would inadvertently delete some unselected walls in some cases.
  - Resolved an issue where the Save As Defaults option was not properly saving the member design rules as default.
  - Fixed an erroneous “bad framing” error message when using cantilevers on a parent/child floor.
  - Resolved an issue where animating the long term sustained deflection would unexpectedly close the program.
  - Corrected an issue where the Bending Unity Check legend was always reporting LC 1.
  - Resolved an error with the controls of the font size for Applied Load magnitudes.
- Analysis:
  - Resolved an issue in the Hardy Cross method for columns with moment splices in between floors.
- Wood:
  - Resolved an issue where the thermal and density properties were swapped for glulam and SCL wood types.
  - Corrected an issue where the optimized glulam wood columns were sized conservatively.
  - Resolved an issue where wood wall fastener information was not properly retained.
  - Fixed an issue where selecting certain Wood Product shapes as explicit member shapes caused error code 1043.
- Concrete:
  - Added additional metric bar sizes for the ASTM A615M rebar set.
  - Added the AS/NZS 4671:2001 rebar set.
  - Added deep beam qualification criteria according to ACI 318-14 Section 9.9.1.1(a).
  - Updated the code reference for concrete wall slenderness warnings per ACI 318-14.
  - Refined the rebar area calculation which was overconservative for the user-defined method in RISAFloor ES.
- Composite:
  - Resolved erroneous “no composite design...” message shown in the warning log.
  - Resolved an issue where composite beams were erroneously flagged as having inadequate stud layout.
  - Fixed an issue where the reported moments for the Top Bending Check for user defined rebar was affected by the selected Length units.
  - Fixed an issue to enable the continuous top rebar option using the User-Defined method in RISAFloor ES.
  - Resolved an issue that prevented older RISAFloor models with concrete composite beams from opening.
- Joists:
  - Updated the steel joist vibration calculations to properly use the deck depth properties.
  - Resolved a units issue with the reported KCS moment demand and capacity.

- Integration:
  - Resolved an issue where custom detail reports were not retained in the original program after using the Director tool to integrate between multiple programs (pending future RISA-3D update).
  - Fixed an issue that prevented assigning hold downs and/or straps to a wood wall panel in RISA-3D. (pending future release).
  - Fixed an issue for some cases where dynamic mass line load was not contributing to the seismic weight used in RISA-3D.
  - Improved behavior for polygon mesher error in semi-rigid diaphragms transferred from RISAFloor to RISA-3D.
  - Resolved an issue where certain models with semi-rigid diaphragms were reporting a non-planar mesh error after integrating with RISA-3D (pending future update).
  - Resolved an issue where deleting slabs for some models would result in an "unable to read the common results file" error when integrating with RISA-3D.
  - Fixed an issue to retain member design rule camber information when integrating with RISA-3D (pending future update).

## Version 14.0 Enhancements/Corrections

- Wood:
  - Added LRFD wood design for NDS 2018 and 2015 codes.
  - Added wood product results to the code check spreadsheet.
- Steel:
  - Added AISC Design Guide 11 2nd Edition for hot-rolled steel beam vibration check.
- Steel Joists:
  - Added steel joist vibration analysis per Steel Joist Institute Technical Digest 5.
  - Fixed an issue where opening a saved model would always set the steel joist code to the 43rd/44th Edition.
  - Resolved an issue to allow joists to be set as an explicit shape from the Beams spreadsheet.
- General:
  - Corrected a units conversion error for the minimum beam camber length in the design rules.
  - Fixed an issue that prevented dynamic mass line load from contributing to seismic weight in some cases.
  - Corrected an issue on child floors where a beam incorrectly identified as a cantilever.
  - Resolved an issue where outrigger members were reporting a deflection span ratio of 1.
  - Fixed an issue that caused a false warning message stating failure to satisfy minimum reinforcement.
  - Resolved a rare instance that prevented the integration of specific models from RISAFloor to RISA-3D.
  - Resolved an issue that was preventing integration with RISACONNECTION for models with quotations in the material label.

## Version 13.0.4 Enhancements/Corrections

- Enhanced message to include required version number during use of the Director to transfer between programs of incompatibility.
- Corrected an issue that didn't allow program integration for models saved on a shared network location.
- Resolved an issue that was not allowing the program to fully close on exit due to a licensing error.
- Removed false error message of not being able to release subscription license on select machines.
- Resolved an issue that prevented the import of select file types from other programs.
- Resolved an issue that caused solution files to be deleted when transferring between programs.
- Resolved an issue where the internal wood diaphragm counter could become mismatched.
- Corrected an issue that prevented the design of non-cantilevered members, that were erroneously assigned as cantilevers.

- Corrected an issue where the program erroneously reported 'No 0 in. thickness values in database for Aspen Select Structural.'
- Resolved an issue where wood or steel products design results were not preserved after transferring back to RISAFloor from RISA-3D and RISAFoundation.
- Resolved an issue that caused RISACONNECTION to be unable to read previously saved solution files from RISAFloor.

## **Version 13.0.3 Enhancements/Corrections**

- Added A913 Gr.65 material to default U.S. hot rolled steel materials.
- Updated Ry and Rt for A1085 material in default U.S. hot rolled steel materials.
- Updated cross sectional properties of Canadian wide flange W690x802 in the shape database.
- Improved calculation of seismic mass for models with thickened slabs, drop panels or shear caps.
- Enhanced support for connection integration from the demonstration version of RISA-3D & RISAFloor into the demonstration version of RISACONNECTION.
- Added a new warning message for splice connections with incomplete connection rules.
- Improved integration functionality when exporting connection results from RISACONNECTION to automatically bring RISA-3D into the foreground.
- Updated the leaning column calculations by correcting the column length and wall centroid values.
- Updated the tributary height used to calculate wind load to only consider floors with diaphragms.
- Revised the User Defined Rebar detail report for rebar regions. Previously the user defined top rebar parameters were reported instead of the rebar region parameters.
- Added an error message for two-sided clip angle connections assigned to the wrong column orientation.
- Fixed an issue where user defined reinforcement was not prioritizing custom reinforcement regions over a continuous uniform rebar option.
- Corrected an issue for user defined concrete slabs where the additional top rebar design rule was not applied for design.
- Resolved an issue where the internal wood diaphragm counter could become mismatched.
- Added AISC 360-16 15th edition code as an option for connection design within RISAFloor.
- Corrected an issue where upsizing a member in RISA-3D and transferring back to RISAFloor would cause RISAFloor to close unexpectedly during solution.
- Resolved an issue where clicking a cell in the Connection Rules spreadsheet would change the connection type.
- Fixed an issue where diagonal brace seismic connection rules pertaining to RISA-3D were reported as invalid in RISAFloor.

## **Version 13.0.2 Enhancements/Corrections**

- Corrected an error for the 22K6 steel joist where the capacity value was taken as that for a span 1 foot longer than the member length in the SJI 43rd/44th database.
- Corrected an issue for models integrated with RISA-3D where semi-rigid wind loading would not apply to multiple diaphragms at the same level.

## **Version 13.0.1 Enhancements/Corrections**

- Added the ability to delete all construction lines in a concrete slab floor type.
- Improved description of loading diagram for members with live load reduction in Detail Report.
- Added the functionality to adjust analysis offsets graphically when integrated with RISA-3D.
- Resolved the inability to draw construction lines on a slab supported floor by offsetting from either project grid or wall.
- Resolved an issue which caused the program to close unexpectedly when the Redesign tool was used on a cantilevered member.

- Resolved an issue where custom saved Drawing Grid settings would prevent program integration to RISA-3D.
- Corrected an issue where the user defined reinforcement results would display incorrectly.
- Corrected an error where concrete wall panels were reporting a negative axial code check.
- Resolved the inability to open a model that had 100+ more nodal loads than the number of nodes in the model.
- Resolved an error with RISACONNECTION integration where properly assigned column splices would give erroneous warning messages and not get designed.
- Added support for connection integration from the demonstration version of RISAFloor into the demonstration version of RISACONNECTION.

## Version 13.0 Enhancements/Corrections

- Analysis:
  - Added compatibility with IBC 2018.
  - Added *ASCE 7-16*
    - Added Load Combination generation
  - Added *NBC 2015* Canadian building code provisions
    - Added Load Combination generation
  - Enhanced the Detail Report to clarify which loads are included in the deflection results.
- General:
  - Added Construction Lines to the Drawing Grid dialog.
  - Added Support Lines and Design Strip properties to the Criteria search.
  - Added an option to graphically copy beams, columns, walls and joints on a floor level to another existing floor level.
  - Added tabs to the Floors spreadsheet to improve the spreadsheet format and size.
  - Improved the copy and move tools in the Project Grid Line Editor.
  - Increased the DXF file limit for the number of polylines the program can import as a drawing grid to 5000.
  - Added an error message when wall system was "nested" inside of framing systems.
  - Corrected an error involving nested circuits on a one-way slab.
- Hot-Rolled Steel:
  - Added member design per the *AISC 15th Edition Manual (360-16): ASD & LRFD*.
- Steel Joists:
  - Added a message to the steel joist detail report indicating the controlling live load.
  - Corrected the display of the steel joist live load diagram that showed multiple roof live loads. This did not affect the design.
  - Fixed an issue to allow all joist girder sizes to be selected from the Draw Beams or Modify Beams dialog.
- Concrete:
  - Added the label "phi" to the Concrete beams spreadsheets.
  - Corrected the toggling functionality of the deflection diagrams in Detail Reports for concrete beams.
- Masonry:
  - Added the Masonry Lintel Design Rule input properties in RISAFloor for c/c spacing of layers, distance to the bottom fiber, and the stirrup size.
  - Fixed a display error in the detail reports for Masonry wall panels that showed fully grouted in place of partially grouted.
- Wood:
  - Corrected the double-click dialog display of the wood member shape group.
- Integration:
  - Added capability to transfer columns with pinned top and bottom (shear splice base) from RISAFloor to RISA-3D.
  - Resolved an issue where columns with pinned tops in RISAFloor had bending moment at the top of the column in RISA-3D.

- Corrected the Global Model Setting display of the stainless steel code selection which overlapped Live Load Reduction.

## Version 12.0.5 Enhancements/Corrections

- For models integrating with RISA-3D, corrected an error in the iteration of member design which caused an increase in solution time.

## Version 12.0.4 Enhancements/Corrections

- Resolved an issue introduced in the Windows 10 Semi-Annual Update (KB 4103721) which prevented Standalone Licensing functions from operating as expected.
- Resolved an issue in which subscription licenses would become non-responsive during the upgrade process.
- Corrected an issue where the new 43rd and 44th SJI joist design added a suffix to the size label when selecting an explicit member size.
- Corrected an issue where outriggers on "Child" floors were not connected properly and created unsupported member errors.

## Version 12.0.3 Enhancements/Corrections

- Corrected the Redesign tool functionality for iterative member optimization.

## Version 12.0.2 Enhancements/Corrections

- Improved the Member Label for Composite beams to show yes/no as shown in the Beam spreadsheet.
- Improved the Beam Labels to include length and vibration acceleration.
- Improved snapping to grid intersections.
- Added the governing load combination for shear in the detail reports and spreadsheet results for concrete column members.
- Updated RISAFloor Demo to allow you to open a Revit Exchange file, rather than closing out as soon as you try to open it.
- Fixed a problem where the new SJI Joist 43rd and 44th edition shape names added an odd suffix in the input and output.
- Fixed a problem where the program used  $0.0018*b*d$  rather than  $0.0018*b*h$  for slabs. The code refers to  $A_g$  which should be  $b*h$  instead of  $b*d$ .
- Corrected an issue where RISAFloor ES models using the 'User Defined' rebar design method would crash when erroneously looking for members which were modeled in RISA-3D rather than RISAFloor ES.
- Fixed a problem where reinforcement governed by the maximum spacing was over-conservative on spacing.
- Corrected a metric units error for the minimum flexural steel reported in a design cut detail report.
- Corrected an issue where KCS joist capacities were being incorrectly calculated.
- Fixed a problem where KCS joist optimization would not work properly.
- Fixed a problem with flat slabs in the *CSA S16-14* code that erroneously caused a warning about rib height for composite steel design.
- Fixed a plate mesher error that occurred only on thickened regions in slabs.
- Misaligned columns no longer display 'nan' in the detail report.
- Fixed a problem in viewing an Elevation View if there were miscellaneous RISA-3D members in that view.
- Corrected an issue where copying walls from floor to floor caused the openings to flip about the wall's vertical axis.
- RISACONNECTION integration now considers positive and negative shear sign convention when exporting connections for design.
- Added RISACONNECTION integration for double-sided Column/Beam and Girder/Beam shear connections.

## Version 12.0.1 Enhancements/Corrections

- Corrected an error where cantilever deflection ratios were being incorrectly calculated as half their actual value.
- Fixed a problem where using the undo command and saving would modify Custom Rebar Layouts in your model.
- Updated Subscription licensing behavior to prevent an erroneous failed log-in.
- Added an option to export a welded web plate on a Direct Weld Moment connection to RISACConnection.

## Version 12.0 Enhancements/Corrections

- General:
  - Modified deflection design/optimization to automatically account for Live Load Reduction.
  - Added interactive force and deflection diagrams for beam detail reports.
  - Added a new 'Framing Elevation View'.
  - Project Grid Improvements:
    - Added the ability to move the columns and walls with the Project Grid location change.
    - Added the ability to draw snap points between radial and straight grids.
    - Corrected the Project Grid screen refresh so that changes to the text are immediately visible.
    - Corrected the coordinate order of the DXF import of Project Grids.
    - Corrected the Project Grid generator for the X & Z project grid labels.
  - Revised the reporting for cantilevers to indicate that no end reactions are provided for the cantilevered end.
  - Corrected a graphical display issue which prevented wall panel openings from displaying in the Full Model view.
  - Corrected an error where the Seismic Load Generation approximate Period ( $T_a$ ) was being calculated at the parapet height, rather than the floor height.
  - 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 an issue where program could display incorrect deflection results (when in intermediate solution state only) for members changed using the Re-Design dialog.
  - Corrected an issue with the beam end reactions when a column point has the same orient point node.
  - Fixed a problem with the Framing command for unbraced lengths. Previously, if the Framing command was used for Lbyy, Lbzz, Lcomp-bot or L-torque, the program would use the LAST framing segment in the member as the unbraced length instead of the controlling unbraced length.
- Analysis:
  - Added skip loading for continuous beams.
  - Corrected an issue where vibration calculations were erroneously performed when composite properties were not known.
- Hot-Rolled Steel:
  - Added the 2014 EuroCode for steel member design (*EN 1993-1-1:2014*).
  - Added the British Annex 2014 to into the 2014 EuroCode (*EN 1993-1-1:2014*).
  - Added consideration of the L-Torqueunbraced length for EuroCode member design (*EN 1993-1-1:2014*).
  - Corrected an error where EuroCode Pipe and HSS shapes were using a Buckling Curve Imperfection factor of 0.34 instead of 0.49.
  - The program now correctly disqualifies composite steel design for steel decks with rib height greater than 3'.
  - Changed the buckling curve for EuroCode (*EN1993-1-1:2014*) 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.
- Steel Joists:
  - Updated the Steel Joist database to include the 43rd and 44th Edition SJI joist tables.
  - Corrected an erroneous load value for a single LH series joist in the Steel Joist database.

- Corrected an issue with KCS joists where the joist self weight was not considered in the code check.
- Floor ES:
  - Added User Defined Rebar for Concrete floor slabs.
  - Added Long Term Deflection including creep & shrinkage.
  - 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.
  - Fixed a problem in the detail report for individual design cuts where the distance 'd' reported was a very large or very small number.
  - Added all LL categories to the LL deflection checks for slab floors.
  - Fixed a metric unit bug when reporting the design cut results.
  - Fixed a problem where building an elevated slab floor could cause the program to shut down.
  - Updated our design strip reinforcement design to prevent reporting of more reinforcement than necessary.
- 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.
- Masonry:
  - Added the *TMS 402-16* masonry code.
  - Fixed the camera tool for Masonry Summary reports to be saved to the report.
- Wood:
  - Added design of Structural Composite Lumber materials per the Canadian *CSA 086-14* 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.
  - Corrected an error in the design of wood members using the Custom Wood Species. Previously custom wood species were always designed per the Sawn Lumber chapter of the code, now the program designs them per the appropriate chapter depending on the input 'Type'.
  - Corrected the graphical display of wood wall panel top plates on walls with sloping tops or parapets.
  - Corrected erroneous capacity equation references for wood members designed per the *CSA 086-14* code.
  - Corrected the graphics so that the straps and hold-downs are only visible in RISA-3D because they are designed in RISA-3D.
  - Corrected wood wall stud design to not consider live load reduction as specified by the design code.
- Cold-Formed Steel:
  - Added Cold Formed Steel design 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.
- Integration:
  - RISAFloor & RISA-3D:
    - Fixed an issue with semi-rigid wind loads, where a wind code update would cause loads to double. Also, changing the wind code to None would not cause the semi-rigid wind loads to delete.
    - Fixed an error in RISAFloor that caused a line load applied along a wall, that extends past the wall, to show up as two loads in RISA-3D.
    - Corrected an issue for certain models where RISAFloor beams were transferred to RISA-3D as sloped.



- Corrected an error where the seismic weight of floors with manually applied dynamic area loads was not calculating correctly in RISAFloor to RISA-3D integrated models.
- RISAFloor, RISA-3D & RISACONNECTION:
  - Added the option to save custom shapes to the local database when exporting a connection with a custom shape from RISA-3D or RISAFloor to RISACONNECTION.
  - Fixed an issue in a combined RISAFloor, RISA-3D and RISACONNECTION model where base plates would not be transferred if Connection Rules were only applied in RISA-3D.
  - Corrected an error where custom Connection Rule labels caused the connections to be ignored during the RISACONNECTION design export.
  - Corrected an error where Connection Rules with a quotation mark in the label did not properly export to RISACONNECTION for design.
  - Corrected an error where a beam to girder shear Connection Rule in RISAFloor would not properly recognize shape type for integration with RISACONNECTION.

## Version 11.0.3 & 11.0.4 Enhancements/Corrections

- Updated the program install to improve behavior for network licenses.
- Improved the subscription license functionality to make it more robust.
- Fixed a problem where the Masonry Wall tab of the Wall Design Rules spreadsheet would cause the program to shut down if selected.
- Fixed a problem with the Move command that would cause the program to shut down in a specific instance.
- Corrected an issue where the Exclude feature would not work properly in RISA-3D within a RISAFloor/RISA-3D integrated model.
- Fixed an issue where slabs would not give design results for design strips when two slabs were drawn next to one another.
- Fixed a problem with RISAFloor V15.0.2 where old file formats were not read in properly.
- Discontinued support of the 32-bit version of the program.

## Version 11.0.2 Enhancements/Corrections

- General:
  - Added the ability to round-off the joint coordinates.
  - Updated Vulcraft and Verco composite deck self-weight. Previously the program was conservatively adding extra weight of the deck itself that is already accounted for in the self-weight.
  - Corrected an issue where RISA-3D models created members that referred back to RISAFloor for the unbraced length value.
  - Using the Copy to Clipboard command from spreadsheets no longer copies blank cells to the clipboard.
  - Corrected an issue with a DXF import that gave a merge tolerance error.
- Hot Rolled Steel:
  - Added a new steel shape database for Paco Steel & Engineering.
  - Major improvements to the automatic model backup functionality.
  - Added lower bound moment of inertia to composite beam calculations.
  - Added a multiplier to allow the reduction of the effective moment of inertia for composite beams.
  - Added a composite beam option to assume "strong" vs "weak" position of studs for AISC design.
  - Added a composite beam option to assume "off-center" vs "centered" position of studs for CSA design.
  - Corrected a problem with the calculation of stud capacity of composite beams in the Canadian design code.
  - Corrected an error in the 'a' calculation for 100% composite beams when shear transfer was limited by concrete.
- Concrete/Elevated Slabs:
  - Fixed a metric units problem where punching shear on columns with shear caps produced incorrect geometry for the punching shear checks.

- Updated the punching shear unbalanced moment stress signage. Previously the unbalanced moment stress signage was reversed.
- Fixed a unit conversion problem where thickened portions of slabs did not convert units properly between imperial and metric.
- Fixed a semi-rigid diaphragm meshing error in RISAFloor.
- Corrected an error in the semi-rigid diaphragm mesh that created bad plates in RISA-3D.
- Corrected an issue with design strip detail reports where advancing between strips could cause the program to hang.
- Fixed a problem with reinforcement design for slabs where if  $4/3 \cdot A_s \text{ required} > A_s \text{ min flex}$ , the program will then only use  $A_s \text{ required}$ .
- Loading:
  - Fixed a problem with diaphragm surface loads that was causing a model corruption.
  - Corrected a problem that caused double load on a tapered area load for a steel joist.
  - Improved the member area load mesh accuracy.
- Wood:
  - 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 the program to automatically switch the wood database if it is determined that all materials in the model are using a different database than the default.
- Wall Panels:
  - Updated the Wall Panel Editor to add a check for the presence of a diaphragm before drawing the diaphragm in the graphics. Previously the program would draw all levels from the Floors spreadsheet, even if a level did not intersect a given wall panel.
  - Removed the check for lateral wall panels supported by gravity columns. Wall panels already require a beam or wall to support them so removing this check eliminated superfluous messaging for columns.
- RISACONNECTION Integration:
  - Added the ability to apply a column Base Plate Connection Rule to column members. Now column Base Plate connections may be exported to RISACONNECTION for design.
  - Added the interface to allow column splices to be applied through the Columns spreadsheet or the Column Stack Editor for column splice connection design integration with RISACONNECTION.
  - Corrected an error where invalid connection rule application crashed the program during connection export.

## Version 11.0.1 Enhancements/Corrections

- Corrected a problem where area loads applied to slab floors were considered additive even if the "Additive" checkbox is not checked.
- Corrected an issue with wall panel self-weight transferring from RISAFloor to RISA-3D incorrectly.
- Corrected a problem that occurred during load attribution for unusual framing layouts that would cause the program to shut down.
- 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.
- Corrected a problem when generating design strips in both orthogonal directions at the same time that could cause the program to shut down.

## Version 11.0 Enhancements/Corrections

- General:
  - Added compatibility with IBC 2015.
  - Added the ability to move elements linearly.
  - Added double-click information dialogs for beams and points.
  - Added a new & improved Project Grid system that supports skewed and arc grid lines.

- Added the live display of coordinates and deflection values to the mouse cursor.
- Added the ability to sort the Code Checks spreadsheet.
- Added parapet wind loading for main wind force resisting systems in integrated RISAFloor/RISA-3D models.
- Added parapets for walls.
- Added a No Wind/Drift checkbox to the Floors spreadsheet to allow mezzanine floor levels to be ignored for wind and drift calculations in integrated RISAFloor/RISA-3D models.
- Added an Area Load Query dialog to help users verify / validate the loading applied to their floors.
- Flexible diaphragms on sloped roofs can now attribute loads to the sloped members instead of just the members at the ceiling in integrated RISAFloor/RISA-3D models.
- Updated optimization messaging to clearly state which members are having convergence problems, rather than giving only the floor level.
- Removed the In-Plane reinforcement from the Wall Panel Editor.
- Fixed a problem with refreshing toolbars and the Floors drop-down menu when different windows are selected (slab floors vs non-slab floors for example).
- Added the ability to display and flip the wall local axis.
- Corrected an issue with the solver stalling on load attribution.
- Corrected a metric unit conversion error which caused erroneous warnings about composite deck stud heights.
- Corrected an issue where inactive walls in RISA-3D could affect RISAFloor behavior.
- Re-added ability to automatically relabel 3D-only elements under a RISAFloor model. This had been removed in RISAFloor v10.0.1.
- Hot Rolled Steel:
  - Added the CSA S16-14 Canadian steel design code.
- Concrete/Elevated Slabs:
  - Added the CSA A23.3-14 Canadian concrete design code.
  - Added the ability to manually control the width of the Column Strips.
  - Added a check for when columns on an Elevated Slab floor are too close to each other.
  - Added specific error messaging for when punching shear checks cannot be performed on columns near re-entrant corners.
  - Improved the concrete reinforcement optimization to fix a problem where reinforcement design could produce a code check of 1.02 instead of 1.00.
  - Corrected the display of the T-beam effective flange widths in the rebar design portion of the member detail report for concrete beams in RISAFloor ES.
  - Corrected an error with thickened slabs and drop panels overlapping.
  - Fixed display of the one-way slab direction arrow.
- Aluminum:
  - Added the AA ADM1-2015 aluminum design code.
- Wood:
  - Added wood member design per the Canadian CSA O86-2014 design code.
  - Added a plywood default Deck Definition.
  - Updated wood members to be drawn as Lateral elements by default.
- Cold-Formed Steel:
  - Fixed an initialization issue for cold-formed members when no design code is assigned.
- Analysis:
  - Added semi-rigid diaphragms for Beam Supported floors.
  - Improved speed / efficiency of column skip loading calculations.
  - Corrected the way the moment was reported when calculating the column moment with skip loading specified but with no column stiffness specified.
  - Fixed a mesher issue in a combined RISAFloor/RISA-3D model, where semi-rigid diaphragms were having a problem with joints located near but not on the diaphragm.
  - Fixed a problem with the mesher with thickened slab regions.
  - Fixed a mesher issue for very intricate openings imported via a DXF file.

## Version 10.0.2 Enhancements/Corrections

- Made significant improvements to the behavior of Subscription licensing, including adding the ability to view current license usage.
- Corrected the maximum wall limit used in the Copy command.
- Corrected the way the results are reported for wood headers when multiple load combinations are considered
- Fixed an issue with grid line generation to allow grid lines to be inserted at the beginning of an existing project grid.
- Sped up the program launch time of RISAFloor considerably.
- Fixed a problem where the program would give an erroneous warning log message about walls being unsupported.
- Updated the program so that walls and columns on a beam floor that land on a deck would get their loads attributed to the floor below rather than having a boundary condition generated

## Version 10.0.1 Enhancements/Corrections

- Concrete Floor Slabs:
  - Added a message to the 32-bit version explaining that Concrete Floor Slabs cannot be created/solved in this version.
  - Results are no longer cleared when editing the Slab Design Rules spreadsheet.
  - Fixed an issue where drawing invalid openings or thickened regions on a RISAFloor ES slab could cause valid openings or thickened regions to be deleted.
  - Corrected an error in the printed report in which it only included slab input information for the bottom-most floor level.
  - Removed the four inch thickness limitation for shear caps.
  - Corrected an issue with one-way concrete slab floors with re-entrant corners.
  - Fixed a mesher error in slab models where openings are drawn adjacent to beams.
- Concrete:
  - Governing load combinations for concrete beam shear and bending code checks have been added to the results spreadsheets and member detail reports.
  - Added a "13M" bar option to the *ASTM A615M* rebar set.
  - Fixed a problem with concrete beam code checks where a location other than the actual maximum force location was reported on a fixed-pinned beam.
  - Updated a beam reinforcement design issue where the bottom reinforcement provided was over conservative.
- Hot Rolled Steel:
  - Moved beam camber options into a Member Design Rule which can now be entered for each member individually.
  - Added a manual camber value which will force a specific value and override the camber design rules.
- Wood:
  - Added the ability to use Effective Length (K) Factors for both stud and chord axial compression design in wood wall panels.
- Wall Panels:
  - Corrected a problem that caused overconservative shear forces at the ends of masonry lintels, wood headers and regions above concrete openings.
  - Fixed a mesher error with wall panels in RISA-3D that was caused by RISAFloor data.
  - Added a tool to delete all wall panel regions. Regions are automatically regenerated the next time a model is solved.
- Analysis:
  - Added live load reduction for beams and columns in RISA-3D models linked to RISAFloor.
  - Updated warning messaging for columns and wall panels that are unsupported on multi-story structures.

- Added warnings to avoid bad framing caused by nested circuits.
- RISACONNECTION Integration:
  - Added an automatic repair when opening models with corrupted Connection Rules.
  - Corrected an error where RISAFloor connection results would not properly link to the RISACONNECTION model.
- General:
  - Removed the Tools - Merge Current Floor feature as this is no longer in use.
  - Added an option for subscription licensing.
  - Updated the wording in message boxes about Shape Database changes to clarify the behavior.
  - Corrected an error with the Find tool on the Hot Rolled tab of the Beams spreadsheet.
  - Fixed a problem that caused the program to crash when opening saved results with a very large number of transient loads.
  - Fixed a problem where the program would shut down at solution time due to changes made in the unbraced length code.
  - Fixed the Save As Defaults capability for the Deck Definitions spreadsheet. Previously some of the deck information was not being saved.
  - Corrected an error about exceeding the number of plates when trying to copy nodes.

## Version 10.0 Enhancements/Corrections

- Steel:
  - Added an SJI virtual joist database and associated design list.
  - Added missing AISC 6th edition double angle shapes to the AISC\_Historic database.
  - Fixed a problem where single angle KL/r was being incorrectly reported in the detail report for Canadian codes.
  - Corrected a display issue with composite steel beam detail reports when no precomposite load combinations were solved.
- Concrete:
  - Added the *ACI 318-14* concrete code.
  - Added drop panels to two-way elevated slab design.
  - Added thickened slabs to two-way elevated slab design.
  - Corrected an error in the Material Takeoff spreadsheet for one-way concrete slabs with non-default directions.
- Masonry:
  - Added a masonry wall summary detail report.
- Wood:
  - Added the *AWC NDS-2015 (ASD)* wood code.
  - Added *NDS-2015 Mechanically Graded (MSR & MEL)* material databases.
  - Updated the Custom Wood Materials spreadsheet to allow more specific material input (material Type and CF size factor).
  - Updated Weyerhaeuser Trus Joist materials in the wood SCL material database per updated published values.
  - Corrected an error where the custom wood material strengths were not properly reflecting the unit selection.
  - Corrected an error where the Canadian wood design System Factor (KH) was not properly assigned for built up members.
  - Fixed an error where the Canadian wood design System Factor (KH) would not save with the model.
- Cold-Formed:
  - Added 4" and 8" HDS shapes to the Dietrich Cold-Formed Shape database.
- Program Integration:
  - Corrected an issue that added extra dead load into a slab floor semi-rigid diaphragm once brought into RISA-3D.

- Fixed an issue in combined RISAFloor and RISA-3D models where end offsets were causing an incorrect error which prevented the model from solving in RISA-3D.
- Fixed the auto-generation of boundary conditions in walls over semi-rigid diaphragms in a combined RISAFloor/RISA-3D model.
- Corrected a problem in the integration between RISAFloor and RISAConnection where an invalid connection could cause the program to shut down.
- Corrected RISAFloor models to now save the unbraced length of beams set in RISA-3D.
- Corrected a problem where using the "Insert New Line" on the Design Rules spreadsheet would shift the design rules assigned to everything on RISAFloor/RISA-3D/RISAFoundation integrated models.
- General:
  - Added the ability to graphically view the SuperDL deck loads.
  - Fixed an error where Canadian *NBC 2005* seismic design period ( $T_a$ ) values were not being saved with the model input.
  - Improved the solution convergence behavior for a member that is unable to optimize.
  - Corrected a problem where the programs won't close down properly from the taskbar.
  - Fixed an issue with the graphical display of enveloped reactions displaying with the opposite signage.
  - Corrected an issue where the RISAFloor ES design detail reports were using dimension units for the displayed deflections rather than the deflections dimensions designated in the Units dialog.
  - Corrected an issue with multiple slabs where the first slab without an opening or region would cause the program to shut down.
  - Fixed a Warning Message that indicated failing members that didn't exist on a concrete floor.
  - Fixed a floor solution convergence with floors where all members are explicitly defined.
  - Fixed an issue that would cause blank deck information.
  - Corrected an error where applied wall panel Design Rules would blank out when a new line was added to the top of the Wall Design Rules spreadsheet.
  - Corrected a bug where moments would not transfer from an outrigger into a column which supported no other members.
  - Corrected an error which caused a model to shut down when area loads and decking were applied over regions without a diaphragm edge.
  - Removed an incorrect error message about a lateral element being supported by a gravity element where the element is supported at an intersection of a lateral and gravity element below.
  - Fixed an error where the time stamp was no longer showing up on printed reports.
  - Fixed a problem with Help files not working when the program was installed to a folder with a period in the name.
  - Updated the orientation of a landscape image so the image is rotated counter-clockwise instead of clockwise.

## Version 9.0.2 Enhancements/Corrections

- Added compatibility with RISA-Revit 2016 Link.
- Corrected a problem with wood column slenderness reporting in Detail Reports.
- Fixed a problem related to an unbraced length change in V9.0.1 which caused the program to shut down at solution

## Version 9.0.1 Enhancements/Corrections

- Installation & Licensing Updates:
  - Released an update version of Sentinel RMS License Manager to be compatible with Windows Server 2012 R2.
  - Fixed the Network.ini behavior to allow for the file to be placed in the root RISA directory and still be seen by the client installs.
- Miscellaneous Updates:

- Added the ability to save a video of the animated deflected shape and mode shapes.
- Added links to all Warning Log messages that take you directly to the relevant section in the help file.
- Added a new "Select Marked Lines in the Model View" toolbar icon.
- Added a graphic verification that confirms if you are running in a demonstration version.
- Changed the name of the Global Parameters dialog to Model Settings. Changed the name of the Plot Options dialog to Model View Options. Changed the name of the Preferences dialog to Application Settings.
- Improved the calculation of Cb values in RISA-3D where the steel beam bracing is based on RISAFloor data.
- Moment forces from gravity outrigger members on lateral columns will now be transferred from RISAFloor to RISA-3D.
- Optimized the solver for line load attribution to greatly increase the solution speed for podium-type structures sitting RISAFloor ES slab floors.
- Added a non-coplanar warning message to RISAFloor models with roof wind loads where the wind load can't be applied because the roof joints are not coplanar.
- Corrected an issue where the footer for PDF reports was not included on the last page.
- Corrected flexible diaphragm load attribution to no longer consider "Column," "VBrace," or "None" member types.
- Corrected the behavior for drawing outriggers using the trim and extend tools that would cause invalid framing errors in the model.
- Fixed an issue with the Draw Cantilever tool that would cause the program to shut down.
- Fixed a problem with the meshing code for area loads that would cause an odd error message.
- Corrected an issue in column detail reports where the axial diagrams were not considering LL reduction.
- Corrected an issue where non-continuous column stacks would cause the program to shut down.
- Corrected an error introduced in RISAFloor v9.0, where KCS joists could inadvertently allow loads greater than 550 plf.
- Fixed a problem where saved results were not being read in for a model with multiple floors that uses the NBC wind code.
- Corrected a unit conversion problem for the column forces in the concrete column detail reports.
- Fixed a problem where the internal PDF writer would print spreadsheet results as images rather than text, causing PDF sizes to be much larger than necessary.

## Version 9.0 Enhancements/Corrections

- Semi-Rigid diaphragms added to RISAFloor ES.
  - Enhanced the LC Generator to create Semi-Rigid Diaphragm load combinations.
- Cold Formed Steel:
  - New Codes
    - AISI S100-12
    - CANACERO-2012
    - CSA S136-12
  - Added L-Torque to CFS members. L-Torque applies to compressive capacity computed per C4.1.2.
- Masonry:
  - Added the ACI 530-13 masonry code.
  - Fixed an issue where the masonry wall detail report dead weight was reported incorrectly. The proper value is used in design checks for the wall.
  - Addressed an issue where the default value of 1.0 for masonry wall panels Icr was overriding the user defined entry when closing and reopening a model.
- Hot Rolled Steel:
  - Added the AISC Historic shape database.

- Updated an error in the Chinese Single Angle Shape Database where the program was previously taking rx as rz.
- Wood:
  - Added wood member design per the Canadian CSA Standard 086-09 design code.
  - Added new glulam material databases per NDS Tables 5B and 5D.
  - Added Canadian wood I-joist databases and updated US wood I-joist databases.
  - Improved error reporting for mismatched wood sizes/species/grades.
  - Corrected a problem with explicit wood header materials unintentionally changing when deleting lines from the Wood Materials spreadsheet.
- Steel Joists:
  - Changed / improved internal LC's used for steel joist design and deflection checks to more intelligently consider roof loading.
  - Added max length to depth consideration for K and KCS joists per SJI specification section 5.2.
- Concrete:
  - Added DXF exporting of concrete slab reinforcement.
  - Updated the dimensioning of column reinforcement in the detail report to account for the presence of stirrups.
  - Updated the shear area of steel output to be on a per foot basis vs a per inch basis in the detail report.
  - Added an information button regarding RISAFloor ES to the Create a New Floor dialog.
  - Added a Help Menu option to launch the RISAFloor ES Demo
  - Corrected an issue with the viewing of detail reports for concrete round columns for the NZS code.
  - Fixed an issue with a slab floor where an opening with unsupported edges could cause the program to shut down.
  - Fixed an issue where multiple one-way slab bays could be drawn on top of one another which caused self-weight and load attribution errors.
  - Fixed an issue where one-way slab bays would not update if the thickness was changed and the old thickness would be used.
  - Fixed a model merging issue that caused an error in the program if nodes along a slab boundary were out of skew by a very, very small amount.
  - Fixed an issue with the Slab Definitions default file being written in the wrong units.
- Improved Install Behavior
  - Improved ability of Network Client versions to find a license server.
  - Reorganized all files (databases, defaults, etc) into new sub-folder locations.
  - Added an option in the installer to install to the Program Files and Documents folders.
- RISAFloor/RISA-3D to RISACONNECTION Integration Improvements.
  - Update to include new end plate moment configurations.
  - Update to allow transfer of channel connections as beams and braces.
  - Update to allow transfer of seismic moment connection parameters per AISC 341-10 and AISC 358-10
  - Added a Connection Type field to the Connection Rules spreadsheet to filter list of connections.
- Loading:
  - Enhanced the Load Combination Generator in order for each RISA program to read its own default settings.
  - Corrected load combination equations for the SBC 301 2007 Saudi Arabia code.
  - Corrected an error where Dyn Load line loads placed around floor openings were ignored for seismic weight.
  - Corrected an error which could cause tapered area loads applied to concave circuits to not be applied.
- Wall Panels:
  - Enhanced the Wall Panel Editor with local dimensions for openings and design regions.
  - Corrected a problem with line loads on walls in RISA-3D that came from RISAFloor that resulted in #Q0 reactions.
- General:
  - Linked the unbraced length and K factors for columns between RISA-3D and RISAFloor. Now the model will use the same values in both 3D and Floor instead of maintaining separate values.



- Corrected a units conversion error with the rebar detailing diagram in member detail reports.
- Fixed an issue where project grids were omitted from the creation of a flat file incorrectly.
- Improved the column behavior to determine whether a given floor supports a column laterally. Previously the program always assumed a floor level was a lateral support.
- Added the ability to set an end release for the top of columns as Pinned or Fixed.
- Allow negative Floor Elevations. Note, they cannot be round-tripped to Revit until the RISA-Revit 2016 Link.
- Updated the column force diagrams in the detail report to consider live load reduction per section rather than by what floor you are viewing results from, for a multi-story column. Previously you would see a different moment in a multi-story column depending on which floors detail report you were looking from.
- Set a minimum Splice Distance Below value of 1 inch to prevent divide by zero errors when resolving column moments into shears.
- Updated the Copy tool to include an option for copying unattached points.
- Fixed a problem where RISAFloor models would forget which metal deck was saved with the model.
- Fixed a problem with RISAFloor taking metal deck self weight as negative (uplift).
- Fixed a units issue with non-standard units that would cause a large shear due to a column eccentricity.
- Corrected a problem where the program would forget which Metal Deck was saved with the model.
- Fixed an issue with column design unbraced lengths for floor levels with a column splice in them. The program previously used the length from the floor to the splice and now takes the full floor to floor length as the unbraced length.

## **Version 8.0.2 Enhancements/Corrections**

- Eliminated the need to manually edit the Windows registry for Network Client Installations.
- Fixed a metric units issue with Column Forces where they were much higher than they were supposed to be.
- Corrected the Dyn Mass for Line Loads and Point Loads in RISAFloor ES. Previously these types of loads were not considered in the seismic weight of slab floors.

## **Version 8.0.1 Enhancements/Corrections**

### ***ES (Elevated Slab) Floors***

- Added Elevated Slab design, including:
  - One-way and two-way slab design.
  - Punching shear calculations.
  - Automatic or user defined Design Strips.
- Round concrete beams were removed from RISAFloor.
- Added the "Service" checkbox to the Load Combinations spreadsheet and the supporting XML files.
- Corrected an issue with L-beams that didn't indicate the correct negative reinforcement width in the Detail Report.

### ***Beam Supported Floors***

- Updated the design of the Wall Panel Editor dialog. This includes adding the saving of wall drawing grids and viewing wall panel nodes within the editor.
- Added an external utility to specify a license server for network client installs to use.
- Added a new unbraced length code "Lbyy" for Lcomp-top and Lcomp-bot, which allows you to reference and use the Lbyy unbraced length.
- Redefined the blank/empty condition for the Lcomp-top unbraced length so that it now uses the full length of the physical member.

- Added a new unbraced length code "Framing" for Lcomp-top and Lcomp-bot, which allows intersecting beams and the deck to provide bracing to the top flange, and intersecting beams to provide bracing for the bottom flange.
- Synchronized unbraced lengths in RISAFloor models so that they cannot be contradictory with the embedded RISA-3D model.
- Updated wood I-Joist behavior to allow multi-span conditions. Previously the program would not allow continuous wood I-Joists to be drawn.
- Added 2012 to the IBC Live Load Reduction reference for report printing.
- Composite beams with composite deck on only one side will now be designed as composite beams with zero effective flange width on one side. Previously they were not designed as composite.
- When disabling Column Eccentricity on lateral beams in RISAFloor, the rigid end offsets are now reset to zero in RISA-3D.
- Added warning to notify user when the design code type (ASD vs LRFD) does not match the load combinations.
- Removed the reporting of erroneous seismic detailing information from the Model Settings portion of the printed report.
- Fixed an issue that allowed Aluminum to be imported into RISAFloor from Revit.
- Corrected an issue where copying Wall Panels from floor to floor caused the openings to flip about the Wall's vertical axis.
- Corrected an error with passing the wrong tributary area from an upper floor wall panel to lower floor wall panels.
- Corrected wood wall panel design optimization to now account for the smallest required spacing as well as the highest UC value.
- Fixed a problem in a combined RISAFloor, RISA-3D and RISAFoundation model where saved RISA-3D and RISAFoundation results could be erroneously erased.
- Fixed a units problem for vibration analysis where beam accelerations were reported in their actual units rather than a percentage, which made the value off by a factor of 100. This was only the case for beam accelerations and not for panel accelerations.
- Fixed an issue in the design of Concrete Shear Reinforcing in RISA-3D where Floor interaction could cause some over conservative tie spacing.
- Fixed a problem for Cold Formed Steel members where fully braced members would provide a lower moment capacity than non-fully braced members.
- Corrected an issue with RISAFloor models where Wall Panel distributed loads could get corrupted when "Detaching" the model in RISA-3D.
- Fixed a problem in the calculation of Cb for some cantilever members in the AISC 360-10 code.
- Corrected a code check calculation error for an axial member in compression when using the AA ADM1-10: ASD Building Code.
- Corrected an issue with wood wall headers where a code check of 99 would be given if there were no wood load combinations in RISA-3D.
- Licensing enhancements:
  - Added an auto-save during a Windows shut down.
  - Updated the program to allow remote desktop connections for standalone versions.
  - Created an install / initialization log file to better diagnose commuting issues.

## Version 8.0 Enhancements/Corrections

### ***Enhancements***

- Enhanced Report Printing options:
  - Added the ability to include Detail Reports.
  - Added the ability to include RISA Screen Shots/Graphics.
  - Added the ability to include non-RISA images.
  - Now the user can add a Custom Logo to the report header.

- Added the ability to model outriggers off of column members (cantilevers with no back span).
- Added a Trim/Extend tool.
- Enhanced Concrete Design Rules to give a dialog with an image to show exactly what is being updated. An easier explicit reinforcement option is also available.
- Added ASTM A1085 material and Design Lists to U.S. program defaults.
- Added compatibility with Windows 8.1.
- Masonry wall updates:
  - Added the Icr Factor and Effective Height Factor, K, to be used for masonry wall design and analysis.
  - Added many additional pieces of information to masonry wall detail reports to make hand verification easier.
- RISA-Revit Link enhancements:
  - RISA wood walls now export sheathing and nailing information into Revit.
  - Added a parameter to Revit Levels to specify which Levels should be exported into RISAFloor.
  - Set default splice distance to 3.5 feet above the floor level below when exporting to RISAFloor.
- Moved registry information from HKey Local Machine to HKey Current User to better comply with Windows best practices.
- Added the ability to turn off the input of Detailing Information used only for exporting information to a steel detailing program.
- Updated the Node/Member labeling so that labels are synchronized in combined RISAFloor/RISA-3D/RISAFoundation models.
- Added Design Rules to Columns spreadsheet in RISAFloor.
- Added a Warning Log message to notify users if they have a column that lands on a floor below that is not landing on a beam, column, or wall. The load is not automatically transferred to the floor unless there is an element below.

## Corrections

- Corrected an issue where some lateral columns or walls were giving an erroneous warning message about being supported by a gravity only element.
- Corrected an issue with the AISC Design Guide 11 vibration calculations where concave slab edges could incorrectly flag some beams as being located at the slab edge.
- Corrected an issue that causes the units in RISAFoundation to be off when both the units are changed and an Undo is performed in RISAFloor or RISA-3D in a combined RISAFloor/RISA-3D/RISAFoundation model.
- Corrected an issue where a Camber Increment of 0 could cause the program to get lost in an infinite design loop.
- Corrected a problem in the Modify Design dialog where using the "Segment" command would instead result in "0" input as the unbraced length instead.
- Corrected a bug with the Canadian Composite Rib Height to account for studs being measured above the rib.
- Corrected a problem in the Column Results spreadsheet with spreadsheet value coloring. Previously red coloring was being used for the Lift column rather than the Code Check column. Now code checks greater than 1.0 are shown in red.
- Updated the Composite Deck databases to use the correct self-weight. Previously the weight of the metal deck itself was not included.
- Corrected a problem that was caused by running the envelope solution in RISA-3D under RISAFloor. If there were gravity-only walls and an envelope solution was run in RISA-3D the program would shut down.
- Corrected an issue with seismic dynamic loads applied as line loads where some of the loads would not be considered.
- Corrected an error with the Delete Unattached Nodes function which would delete the nodes associated with the base of a column if it was supported on the lower floor by a beam.
- Corrected an error where the K value was always being taken as zero in the deflection calculation for wood I-Joists.
- Corrected an issue where columns were not properly considered in skip loading for cases where cantilevers frame into the column.

## Version 7.0.2 Enhancements/Corrections

### *Enhancements/Corrections*

- Enhanced modeling with wood materials:
  - Revised dialogs for selecting and adding wood materials to be more user friendly.
  - Easier access to the Custom Wood Materials spreadsheet.
  - New dialogs allow the user to view/confirm the material design properties.
  - Updated the structural composite lumber design lists so that shape selections match proprietary products.
- Added the U.K. National Annex provisions to the 2005 EuroCode Hot-Rolled steel design (NA to BS EN 1993-1-1:2005).
- Improved design optimization of lateral members based on an envelope of gravity and lateral demands.
- Corrected an error where solving for footing design in RISA-3D under RISAFloor would cause the RISAFloor column detail reports to no longer be graphically selectable.
- Corrected a bug in Cold-Formed Cb calculations where Cb could change (conservatively) in a non-AISC Hot-Rolled steel code was selected.
- Corrected an error in the CF factor calculation for 12" wide members.
- Fixed an error in "Infill Beam" functionality while resolving the three infill beam choices (Bay Center, Green, Blue).
- Corrected an issue where 64-bit network clients were not displaying the Key ID in the Help-About dialog.
- Fixed values for H and HN sections in the Chilean Steel shapes database.
- Corrected a member optimization issue in RISA-3D under RISAFloor where RISA-3D would not recommend smaller shapes for members which were now well below failing due to a decrease in loads.
- Corrected the calculation of beam moment of inertia for vibration calculations of non-composite beams.
- Corrected the capacity of 10K1 joists in the steel joist database.
- Corrected an error where the program was incorrectly assigning camber to beams that were individually marked to be shored.
- Corrected an issue where some seismic wall loads were getting double-counted for walls with multiple regions.
- Fixed an issue that caused an error while using the Out-of-Plane-Flip tool on a wall panel.
- Corrected errors in the Chinese shape database for the following shapes: TM170X250 and TW150X300A.
- Fixed an issue with the spreadsheet axial code check value for masonry walls.
- Fixed errors with Hot-Rolled single angle local axes which caused negative reactions and forces.
- Fixed an issue that prevented the save of a dynamic solution in RISA-3D from under RISAFloor.
- Fixed an issue where RISAFloor would change the assigned member connection rules when new connection rules were added.
- Corrected moment diagrams for columns which have point-moments at their base due to a fixed beam at that location.
- Corrected an issue where outdated information was sent to RISACONNECTION from RISA-3D and/or RISAFloor due to inconsistencies.
- Moved some design optimization information from the results file to the model file to ensure consistent solutions even when results are not saved.

## Version 7.0.1 Enhancements/Corrections

- RISA-Revit Link Updates
  - Compatible with RISA-Revit Link 2013 version 2
  - Added BIM ID's for RISAFloor slab openings.
  - Fixed a wall panel issue where changes made to walls would affect all walls except one.
- RISACONNECTION Integration
  - Corrected column connection orientation when using the RISAFloor/RISA-3D to RISACONNECTION integration. Previously the integration was always producing a connection framed to the flange.

- RISACONNECTION/Tekla Structures Link Updates
  - Added compatibility to support the upcoming release of the RISACONNECTION/Tekla Structures Link
- Cold-Formed Steel Updates
  - Added AISI provision B4 to the check of the flanges for weak-axis bending.
  - Added the full elastic computation for the " $I_s$ " values in the AISI B4 provision.
  - Fixed an error in the calculation of  $S_{ey}$  for ZS shapes.

## Version 7.0 Enhancements/Corrections

### Enhancements

- Added 64-bit version capability.
  - The program will run in 64-bit addressing space, expanding Windows memory limits.
  - Allows for increased [program limits](#) when running on a 64 bit system.
- Added the ability to import a DXF underlay; Allows users to snap to the underlay when drawing members and walls.
- Added the AF&PA NDS-12 (ASD) wood code.
- Added the ACI 530-11 (ASD & Strength) masonry code.
  - Added many supplemental values and extra messaging to masonry wall detail reports.
  - Added option for masonry walls to define the wall area ([RMEH or NCMA](#)). Prior versions used only the Reinforced Masonry Engineer Handbook.
- Added the AISI S100-10 (ASD & LRFD)/CSA S136-10: LSD/CANACERO 2010 (ASD & LRFD) cold-formed steel code.
- Added the CSA S16-09 Canadian steel code.
  - Added code checks for Class 4 sections.
  - Added code checks for single angles for both bending and tension/compression.
  - Updated the Canadian steel database per the 10th edition manual.
- Added the NBC 2010 Canadian building code provisions.
  - Added wind and seismic load generation.
  - Added the load combinations (service and strength) to the Load Combination Generator.
- Added new RedBuilt I-Joist database per 2011 ICC report.
- Added the "Elevate Points" option to the Modify menu.
- Added new connection features for integration with RISACONNECTION 3.0
  - Added the AISC 360-10 (ASD & LRFD) code for RISACONNECTION integration.
  - Added support for slightly non-concentric braces.
  - Added new Connection Types to the Connection Rules spreadsheet.
- Reduced start-up times by using a faster shape-to-database comparison.

### Corrections

- Corrected an issue that caused an erroneous deck span warning log message.
- Corrected an issue with the depth of deck value that caused erroneous results for the AISC Design Guide #11 vibration analysis.
- Corrected an error where deck definitions "Super DL" loads did not save with the file.
- Corrected a problem which caused columns using the "Orient to Point" feature to corrupt the results.
- Corrected a calculation error relating to minimum vertical reinforcement in concrete shear walls.
- Corrected an issue where an install path with long file / directory names could cause the program to fail to launch when using file association.
- Corrected some issues with concrete column optimization which could cause overly conservative code checks.
- Corrected an issue that caused the program to close if there were multiple members cantilevering over one another.

- Corrected a problem with RISA-3D clearing results when using the Director tool to switch between RISAFloor and RISA-3D.

## **Version 6.0.1 Enhancements/Corrections**

### ***Enhancements***

- Enhanced performance on 64-bit operating systems to allow use of up to 4 GB of memory.
- Added spacing and minimum steel reinforcement area checks for concrete walls.
- Updated the Draw Wall Panels dialog to remember a previous action.
- Updated saving results behavior when working in linked programs so that clicking the Save Results button once will save the results for all linked programs.
- Added validation to confirm that all Design Rules are valid upon opening a model.
- Updated seismic weight calculations so the self weight of wall panels which fall partially outside of a diaphragm are now clipped instead of ignored.
- Enhanced spreadsheet behavior so that column widths will be remembered when they are updated.
- Updated steel joist girder behavior so that if the point loads applied to the girder are non-uniform, the program will call out the largest point load on the girder and add an "SP" designation.
- Renamed AISI NAS-07 to S100-07 based on code naming conventions.
- Added additional licensing information to Help - About screen for commuted licenses.
- Simplified database shape comparisons to reduce program start-up time.
- Updated wood wall header output to state whether the header is controlled by bending or shear.
- Added restriction on single angles such that "depth" leg cannot be shorter than "width" leg.
- Changed default orientation for single angles so that vertical legs point downward.
- Updated Chilean Steel database per Acero Diseño Estructural Manual – Segunda Edición.
- Made the calculation of the total seismic weight consistent between the Spectra Scaling Dialog and the Insert Seismic Loads dialog. Both now compute any load between the diaphragms (or base and 1st floor diaphragm) based on the distance of the load to the floor or base.
- Added the calculation of  $C_v$  for shear capacity of single angles for the AISC 14th Edition.
- Changed the value of  $R_p$  (upper limit of stud capacity) for composite beam design without metal deck for the AISC 14th Edition.
- Removed the upper limit of 3.0 on  $C_b$  for bending capacity for the AISC 14th Edition.
- Added new RedBuilt I-Joist database per 2011 ICC report.

### ***Corrections***

- Corrected an issue with network license validation that could cause a slow down with the user interface.
- Corrected an issue where network client computers could not find databases when launching in demonstration mode.
- Deck Corrections
  - Updated deck databases to correct the self-weight value. Previously program was using full depth slabs rather than using deck manufacturer values.
  - Updated the reading of decks when opening files. If a deck saved in an input file has the same name but different information than what is in the RISA Decks database, the program will use the values stored in the database.
  - Corrected the slab thickness to be the total slab thickness. This is defined in the deck catalogs as the bottom of the rib to the top of concrete.
  - Update the deck .def file to correct composite design issues.
  - Corrected all warning messages for stud heights checked against the total depth of the slab and rib height.
  - Corrected incorrect stud height usage. Stud height was incorrectly displayed, stored and used in design and assumed the stud was taken from the bottom of the rib instead of above the rib.

- Fixed an erroneous warning log for decks in RISAFloor which erroneously warned about the concrete weight for non-composite decks.
- Fixed a unit conversion issue with the Material Take Off output so that the volume of concrete is only based on the density unit.
- Fixed a problem with the load meshing for flexible diaphragms that would produce error code 2136.
- Fixed a problem that prevented the graphical deletion of slab edges in certain instances.
- Corrected Bending Results spreadsheet headers for the Canadian steel code.
- Fixed the flexible area load attribution in RISA-3D so that inactivated members do not have load attributed to them.
- Corrected an issue with the copy command where lateral RISAFloor columns did not get copied in the corresponding RISA-3D model.
- Fixed an issue with the steel joist capacity for a 12K3 joist. The program was conservatively using a smaller capacity than actual, assuming the joist was 1' longer than it actually is.

## Version 6.0 Enhancements/Corrections

### Enhancements

- Added AISC 360-10 (14th Edition) ASD and LRFD code checks for hot rolled steel members.
- The AISC Database has been updated to include new shapes in the 14th Edition AISC Manual.
- Added ACI 318-2011 concrete design code.
- Added the ability to assign openings to concrete wall panels.
- Added ASCE 7-10 to the Load Combination Generator.
- Added IBC 2012 and ASCE 7-10 Live Load Reduction.
- Added NBC-05 (Canadian) Live Load Reduction.
- Added single angle code checks for AISC 360-05 (13th Edition).
- Added a user defined torque length to the design properties for AISC 360-05 (13th Edition) and the AISC 360-10 (14th Edition).
- Added Load Combination Generation files for the Saudi SBC 301-2007 code.
- Added CSA S136-04 code checks for cold formed steel members.
- Added CSA S136-07 code checks for cold formed steel members.
- Added automatic skip-loading of column forces.
- Added new deck databases with customizable databases.
- Added Copy tools to RISAFloor.
- Added a Copy Offset tool.
- Added the ability to print section properties from the Shape Database dialogs.
- Added optional ability to copy headers with spreadsheet data. (Optional based on a Tools-Preference setting.)
- Added the ability to print section properties from the Shape Database dialogs.
- Added a RedBuilt wood I-Joist database per 2011 ICC report.
- Added a warning message when Live Load exceeds 100 psf which alerts the user to switch the category to Live Load Special (LLS).
- Expanded the Torsional Buckling / Flexural Torsional Buckling code checks for AISC 360-05 (13th Edition) and AISC 360-10 (14th Edition) to apply to shapes other than WT's and LL's.
- Improved the RISA-3D/RISAFloor interaction to automatically account for the leaning column / leaning wall effect.
- Improved masonry Wall Panel definitions to be based on Wall Design Rules so that it will be easier to change multiple walls at the same time.
- Automated the consideration of connection eccentricity on column moments.
- Revised the AISC Design Guide 11 Floor Vibration calculations to consider the 0.7\*adjacent span restriction on the Wj and Wg liberalization.
- Improved the Infill Beam Generator by giving an exact spacing option where beams are centered in the bay.
- Updated properties in the Cold Formed Steel Database (based on bend radius changes).

- Removed the obsolete Trade Arbed database from the installation routines.
- Improved flexible diaphragm load attribution to include Notional Loads.
- Improved the warning / error messaging system between RISAFloor and RISACONNECTION.

## **Corrections**

- Corrected an issue with the AISC Design Guide 11 Floor Vibration calculations where edge girders were not using the correct  $W_g$  value.
- Corrected an issue with the calculation of  $A_s$  for the IS456 Indian concrete design code.
- Corrected an issue related to moment distribution for multi-story column stacks which went through multiple iterations during optimization.
- Corrected a problem with beam end forces in non-orthogonal moment frames when "Use Column Stiffness" was selected.
- Corrected an issue with RISA-Revit link which could result in loads being deleted during a round trip.
- Corrected an issue where RISAFloor could delete user-created RISA-3D loading without notification or warning. (This only occurred when loads were assigned to Basic Load Cases 24 through 27.)
- Corrected an issue where several Model Settings values were omitted from printed output or were printed incorrectly.
- Corrected an issue where wall panel input data was printed multiple times.
- Corrected an issue where wall regions may not auto-generate for RISAFloor models while running in RISA-3D.

## **Version 5.1.1 Enhancements/Corrections**

- Added integration with RISACONNECTION for hot rolled steel connection design
- Made a number of enhancements associated with database shape values and presentation
  - The AISC Database has been updated to include new shapes in the 13th Edition AISC Manual.
  - The section properties of AISC shapes have been updated to reflect new values in the 13th Edition AISC Manual.
  - When installing over an older version, the database of obsolete AISC shapes is retained as an "AISC\_Backup" shape database.
  - AISC shapes in existing models, which have section properties that differ from current database values by less than a specific tolerance, are automatically assigned the new section properties. However, if the difference in section properties exceeds the tolerance then the existing section properties are retained with a new shape name which has an \_HRA suffix.
  - Added "k" values to hot rolled steel databases to allow for better integration with RISACONNECTION
  - Design Lists updated for the new AISC shapes. Backups of older design lists are saved with a \*.bak extension.
  - Enhanced integration with RISASECTION (version 2.0) to allow for code checks on imported Hot Rolled Steel shapes
  - Added a Print function to the Edit/View dialog in the Shape Database.
  - Enhanced the graphical rendering of General and Arbitrary Shapes to allow for easier identification of strong and weak axes
- Added the IS 800-2007 Indian Steel code
- Improved the processing time for the creation of results browsers or flat file printing.
- Added a warning log message for masonry walls that use uncommon material strengths with uncommon block sizes. Self-weight will not be accounted for these walls and must be applied manually.
- Adjusted self weights of some of the LH and DLH joists to include more significant figures in order to improve joist optimization.
- Updated the cold-formed steel databases to be fully editable.



- Added a graphical Re-Labeling options so that users can selectively re-label existing items based on the current selection state. This also allows user to apply a different prefix to selected items.
- Fixed an optimization issue where RISAFloor could have erroneously downsized columns which had been explicitly sized in RISA-3D.
- Corrected a units issue in the RISAFloor display of member end reactions.
- Corrected a problem with DXF imports and stacked walls.
- Corrected a problem that caused an error with tapered area loads on two-way decks.
- Fixed an issue with wall panels between RISAFloor and RISA-3D, where having wall panels only in the RISA-3D portion of the model could cause an error in RISAFloor when creating a new floor.
- Fixed an issue with Joist Girders where the calculation for moment of inertia was off when the units of force were not in kips.
- Corrected an issue with the calculation of tributary area of columns which support continuous beams. The tributary area from the I end of Beam segment had been erroneously assigned to the J end and vice versa.
- Fixed an issue where the program wouldn't run if there was a multi-story concrete wall without a deck at a lower level.
- Fixed an issue where printing of the Masonry Wall Reinforcement results browser could cause the program to crash
- Fixed an error which could cause the Custom Wood Species counter to be off, preventing the model from opening.
- Fixed a graphics problem that would cause the program to randomly shut down.
- Corrected an issue with the sign convention used for end reactions displayed when members are bent about their weak axis.

## Version 5.1 Enhancements/Corrections

### *Enhancements*

- Added Concrete Wall Panels per ACI 318-05 and ACI 318-08 specifications for axial design
- Made changes to the Masonry and Concrete Materials spreadsheets:
  - Moved the definition of the yield strength of the reinforcement ( $F_y$ ) from the Design Rules spreadsheet to the concrete and masonry tabs of the materials spreadsheet.
  - Moved the masonry self weight definition from the Design Rules spreadsheet to the Materials spreadsheet.
  - This could result in reduced backwards compatibility of Concrete and Masonry Materials with older versions of the program.
- Added a number of improvements for the Cold Formed Steel code checks
  - AISI 2004 Cold Formed Steel code
  - AISI 2007 Cold Formed Steel code
  - Added Mexican (Canacero) 2004 and 2007 codes
  - Updated the AISI and SSMA database shape properties to reflect the new 2007 code provisions.
  - Added Omega and Phi factors to cold formed steel detail reports and spreadsheets.
- Added AF & PA NDS-08:ASD Wood code.
- Added ACI 530-08 Masonry code.
- Added ACI 318-08 Concrete code.
- Added back in the ability of the program to launch in "Demo Mode" when a license is not detected. Feature now requires the creation of a Demo sub-folder.
- Updated internal defaults for Area Load Definitions with a Roof Load option and more realistic values for Dyn Loads.
- Improved the Area Load attribution for two-way deck.
- Modified the CL calculations for glu-lams with  $d/w < 2.0$ .
- Added the ability to graphically display wall panel Design Rules.
- Added the  $C_b$  calculation for cold formed steel members.

- Improved the automated generation of boundary conditions for walls that come over from RISAFloor into RISA-3D.
- Simplified the interface by splitting the Design Rules spreadsheet into a Wall Design Rules and a separate Member Design Rules spreadsheet. This could result in reduced backwards compatibility of design rules with older versions of the program.

## **Corrections**

- Corrected an issue where trying to delete unattached points (for models with a very large number of points) could cause the program to crash.
- Corrected an issue with the Tee beam flange width calculations for the Canadian Concrete code. Previously, slab thickness (conservatively) and span length (non-conservatively) limits were based on the ACI code.
- Corrected a display issue where the CV value for glu-lams was not being properly displayed in the member detail report.
- Corrected an issue with the Chinese shape database where the x-bar values for channels were incorrect and were preventing code checks from being calculated.
- Corrected issues with the calculation of wall self weight used for seismic force calculations. Issues were most apparent in base weight calculations and for Masonry Walls with large openings.
- Corrected an issue with the unbraced lengths where the program was over conservatively ignoring the deck unbraced length for the Lcomp-top.
- Corrected a memory issue which could prevent the user from printing the Warning Log spreadsheet.
- Corrected an issue where a wall drawn by the user was not properly remembering its assigned design rules.
- Corrected an issue with sloped floors where member self weight was being erroneously interpreted as a projected (PY) distributed load.
- Corrected an issue which caused the program to consider only one "OL" (Other Load) area load category when multiple were assigned to the RISAFloor model.
- Corrected an issue with pinned end concrete beams which could result in un-conservative design or rebar optimization.
- Corrected some issues with the databases installed for certain wood products (Pacific Wood and Standard Structures).

## **Version 5.0.1 Enhancements/Corrections**

### **Enhancements**

- Added drawing of flexural reinforcement in the column cross section to concrete column detail reports.
- Modified the Concrete Column detail reports so that they always show the interaction diagram regardless of what loading is applied to them.
- Improved the custom rebar layout dialog to be easier to use.
- Added options on the main menu bar (under the Tools sub-menu) for re-labeling Beams and Column Stacks

### **Corrections**

- Corrected issues with some of the wood I Joist database files which prevented the information from being read in properly.
- Changed a misleading Warning Log Message to be more descriptive. Instead of "Not enough solution data", the message will now inform the user that their results were generated by an older version of the program.
- Updated notation for design coefficients for EuroCode. Previously, the EC3 2004 code was mistakenly using the naming convention from the 1992 version of the code.
- Corrected an issue where pinned end joists could erroneously report a moment reaction at the end of the joist.
- Corrected an issue where unbraced lengths with blank entries were being read in as if their unbraced lengths were set to "Segment".

- Corrected an issue where inactive floors (or floors without any slab edge) would affect the RISA-3D wind load generation.
- Corrected an issue with the wood database for the "Western Cedar" species.
- Corrected an issue where RISAFloor could corrupt a custom wood species if it were given the same name as pre-defined wood species.
- Corrected an issue where a sloped roof may not be created properly when cantilevers existed on the floor.
- Corrected an issue where performing a model merge could merge out the cantilever extension of a beam resulting in a framing error.
- Corrected a display issue where the member detail report displayed a different Fv value than was actually used in the F'v calculation for Glulam members..

## **Version 5.0 Enhancements/Corrections**

### ***Enhancements***

- Enhanced loading for sloping roof models taken into RISA-3D.
  - Enabled flexible diaphragm load attribution (wind and seismic) for sloped roofs.
  - Added the ability for the wind load generator to include perpendicular sloped roof wind loads per Figure 6-6 of ASCE-7.
  - Added wind load calculations for walls and wall areas that extend above the base roof elevation. These were previously ignored.
  - Gravity loads are now brought into RISA-3D at the tops of sloped walls. They were previously applied at the base floor level elevation.
- Enhanced Wood I-joist capabilities by adding user customizable XML databases.
- Added wood I-Joist databases provided by manufacturers
- Added the ability to specify a bottom elevation for each individual wall.
- Updated the names assigned to all design code options to match ANSI naming convention.
- Added network file security to prevent multiple users from opening / editing the same file at once.
- Added the multi-ply wood column design adjustment factor per NDS 15.3.2
- Improved the wall panel alignment code to also account for cases where walls are sitting on beams.
- Added a Global Parameter option to allow users to eliminate minimum studs from non-composite beams.

### ***Corrections***

- Corrected an issue which could cause overloaded joists to report a code check of 1.#INF.
- Corrected an issue where the column forces could be calculated incorrectly for floors that were very closely spaced.
- Corrected an issue where load diagrams were not being displayed properly for members with shored construction.
- Improved wood header design and loading for openings close to the top edge of wood wall panels.
- Corrected an issue where some report printing sections were printing out the wrong sections.
- Corrected an issue where code check information for SJI joists was not being displayed.
- Corrected an issue where the Cb calculation could be over-conservative for some members.
- Corrected an issue where the Load Duration Factor (Cd) was not being properly considered for header design.
- Corrected an issue where conversion of units could change Joist Girder design.
- Corrected a bug with the DXF importing where files with more than 500 wall panels would not import properly.
- Corrected an issue where wall regions would not be generated properly for closely spaced floor levels.

## Version 4.1.4 Update

- Added RISA-Revit 2011 Link compatibility. These enhancements were previously covered in the 4.1.3.1 Beta version and have now been fully tested.
- Corrected a bug with the seismic weight calculations for shear walls. The weight of upper floor walls was adding into the seismic weight at the lower floors resulting in overly conservative seismic loads. This issue existed in version 4.1.2 and 4.1.3.

## Version 4.1.3 Wall Panel Enhancements

- Added wood header design into RISAFloor.
- Added a Specific Gravity adjustment factor for diaphragm capacity (based on framing members that support the diaphragm) in the diaphragms spreadsheet.
- Changed the nomenclature for the diaphragm nailing schedules. The term "\_OT" was replaced with "\_RS". Both terms were always intended to mean "Other Rated Sheathing".
- Improved auto-region generation for multi-story walls. Regions are now broken up for each floor level.

## Version 4.1.3 General Enhancements

- Added automatic **Notional Load** generation utility similar to the existing wind and seismic load generation.
- Added the 2007 edition of the Saudi concrete code (*SBC 304*).
- Added axial code check details to wood column detail reports.
- Added **Bending Span** results to column detail reports for members with custom rebar layouts
- Modified program to be more compatible for future link to the 2011 release of Revit Structure.
- Added the ability to graphically modify column rebar layouts.
- Added the ability to graphically display moment reactions in addition to the existing shear reactions.
- Added the ability to adjust the number of internal sections from within RISAFloor.
- Added the ability to modify rebar layouts in RISA-3D for elements that had been assigned custom rebar layouts from within RISAFloor.
- Improved speed of graphics for models with more than one slab edge.
- Improved the display of beam reactions for cantilevers to show reactions on each side of a beam at support locations.
- Added the ability to attribute load to areas which are non-coplanar on a sloping level, though attribution will be based on a constant elevation.
- Modified custom toolbar registry settings to allow users who are not administrators to customize their toolbars.
- Added parent child functionality for design parameters that were not present when parent/child feature was originally implemented.
- Modified concrete shear tie design to round to the nearest 10mm when metric units are being used.
- Modified RISA-3D/RISAFloor optimization routine for members explicitly defined by the user.
- Improved the error detection and reporting for invalid wood material / design code combinations.
- Improved the auto update detection sequence so that it cannot falsely report the presence of an update.

## Version 4.1.3 Corrections

- Corrected a member optimization issue which could result in a member getting chosen which had a code check 1 or 2 percent higher than 1.00.
- Corrected an issue where the program was not allowing the user to modify the diaphragm eccentricity fields.
- Corrected a **Warning Log** message where elements were incorrectly being viewed as unsupported or as supported only by gravity elements.

- Corrected a display issue with the detail reports for concrete members with custom rebar layouts specified with a non-default rebar set.
- Corrected an issue where the spacing of shear ties was not properly taking into account the **Model Settings** setting for increments.
- Corrected an issue where wall panel results would not be remembered when opening a saved solution.
- Corrected an issue where cantilever members were not behaving well when going back and forth multiple times between RISAFloor and Revit Structure
- Corrected an issue where *2001 NDS* stress values were used when doing code checks for Glu-Lam beams per *91/97 NDS*.
- Corrected an issue where the self weight of masonry lintels was getting improperly calculated.
- Corrected an issue where bad framing layouts were not being properly detected.
- Corrected a unit conversion error with some column design parameters.
- Corrected a unit conversion issue with the Canadian seismic force generation for braced frames.
- Corrected an issue where **Floor Vibration** results could be reported as 1#.inf.
- Corrected an issue where the self weight of the triangular portion of a wall panel at a sloped roof level could cause problems with transferring the model into RISA-3D.
- Corrected an issue where the program was not properly accounting for the  $I_{cracked}$  factor for concrete column stiffness.
- Corrected an issue where the **Undo/Redo** feature was not working properly for column stacks when a US to metric unit conversion was performed.
- Corrected an issue where inactive floors were still creating diaphragms in the RISA-3D model.
- Corrected a bug where doing a units conversion in RISA-3D on a model that was created in RISAFloor with inactive floor levels could cause a crash.

## Version 4.1.2 Enhancements

- Added 1% loading method for seismic loading for structures assigned to Seismic Design Category A.
- Improved displayed  $F_v$  and  $F_v'$  values for Glu-Lam beams to better distinguish between strong and weak axes.
- Improved the reporting of concrete column results designed by the PCA Load Contour Method.
- Added the ability to put a sketch number (and prefix) with graphic printing.
- Added the ability to specify Plane Stress plates when using RISA-3D under RISAFloor.
- Changed tolerance for reporting the  $KL/r$  limit for compression member. Limit now enforced for compression members where compression demand is 1% or greater of the compression capacity.
- Added sorting ability to the Floors spreadsheet.

## Version 4.1.2 Miscellaneous Corrections

- Added a warning message to the Euro Steel detail report which reports a flaw in the Euro spec which creates moment capacities equal to zero whenever  $\rho$  approaches 1.0.
- Corrected an issue where an inactive floor would interfere with the rendering of the walls in a full model view.
- Corrected the member labeling for shape to properly display the shape rather than the design list.
- Corrected the  $I_{zz}$  value for the 358TSB18 shape in the Dietrich database.
- Corrected an issue which could cause the undo/redo counter to get off track resulting in an inability to redo changes that were made.
- Corrected an issue with the reading of the Model Display Options default file which could cause interface issues and/or incorrectly trigger error messages.
- Corrected a tolerance issue which could result in over conservative steel joist design.
- Corrected an issue where the shear in columns supporting a sloped floors could be creating axial force in the beams on the floor below.
- Corrected a units conversion issue which affected column results. Issue would have been corrected after a re-solve.

- Corrected an issue where RISAFloor was erroneously discarding some 3D results when you used the director button to re-enter the program.
- Corrected issues with the load transfer between stacked walls. Issue could occur when floors were listed out-of-order on the Floors spreadsheet and which upper wall had multiple openings or regions.
- Corrected an issue where the self weight of Masonry walls with openings was not being included in the seismic weight / diaphragm mass when the model was brought into RISA-3D.
- Corrected issues with the calculation of NBC (Canadian) Seismic Loads
- Corrected an issue where uplift reactions on a girder could cause the vibration results for the member to be reported as 1#Q0.

## Version 4.1.2 Wood Design Changes

- Added Select / Unselect functionality in RISA-3D for diaphragm regions that came from RISAFloor.
- Modified diaphragm deflection calculation for diaphragms especially for diaphragms with multiple nailing zones. Only affects diaphragms that came from RISAFloor.
- Changed a number of miscellaneous things in the design of wood walls:
  - o Various issues with units conversion
  - o Ability to read saved results.
  - o Eliminated "inadequate hold down" message from RISAFloor

## Version 4.1.1 Enhancements / Corrections

- Enhanced the wood wall panel feature so that wall panels can be copied above or below, with the windows automatically copying as well.
- Enhanced the graphics so that on a frozen model, if the composite flag is removed we will not show studs on that member.
- Enhanced the diaphragm region validation and error checking during creation and prior to solution.
- Added an option in the elevate joints tools to return all joints to the zero elevation. This allows the user to quickly correct a model that has an invalid slope to the roof.
- Added a "composite" check box to the generate infill framing tool.
- Replaced some toolbar icons in RISAFloor to be more consistent for similar features in RISA-3D.
- Improved the behavior of wall openings to be tied to the distance to the floor below. Previously this information could be disassociated when changing floor elevation.
- Improved the Tools - RISA-3D Data options to better allow for the removal of RISAFloor information from the RISA-3D model.
- Improved plotting options for diaphragms and diaphragm regions.
- Deflection calculations for multi-zone diaphragms now consider multiple rows when calculating 'load per nail' for calculation of Apparent Shear Stiffness.
- Fixed a problem that would cause load attribution errors for models that had inactive floors at any level except the top.
- Corrected an issue where the program would still generate flexible diaphragm loads for diaphragms that were tagged as inactive.
- Corrected an issue where the program would generate flexible diaphragm detail reports even though no LC's were chosen for wood design.
- Corrected an issue associated with column load attribution caused by the presence of an inactive floor at an elevation between two active floors.
- Corrected an issue where the changing of solution options in RISAFloor could affect some unassociated RISA-3D Model Settings.
- Corrected an issue with concrete design where the RISA-3D force and moment demand would be reported as the capacity of the member designed by RISAFloor.

- Corrected a graphical display issue where the program was showing studs for members that were marked as non-composite. Design values were not affected.
- Corrected an issue where the Masonry Wall Reinforcement results in RISA-3D were getting corrupted by the RISAFloor solution.
- Corrected a point load attribution error which caused a crash during the Masonry Lintel design.
- Fixed a program crash which originated from large number of bars (200+) in a Custom Rebar Layout.
- Corrected a problem where flexible diaphragms could not be set to inactive.
- Corrected a problem where unbraced length values entered in RISA-3D were not getting saved when the model was brought back and forth from a RISAFloor model. Issue affected beams, but not columns.
- Corrected problem with seismic mass value used in  $F_p$  calculation for diaphragms in Envelope Solutions.
- Fixed a problem where the diaphragm loads from a RISAFloor model with saved results would incorrectly read the transient loads in RISA-3D.
- Fixed a bug where duplicate nodes were being created during the transition from RISAFloor to RISA-3D.
- Corrected a problem that would cause the Wall Results spreadsheet to not display results for masonry walls, though the detail report showed results.
- Corrected an issue with the naming convention of diaphragms. Previously deleted diaphragms could cause a duplicate labeling issue which affected the application of diaphragm loads.
- Corrected an issue where girders receiving a negative load from supported members were displaying a 1#Q0 in the Vibration Results spreadsheet.

## Version 4.1 Enhancements / Corrections

### ***Enhancements***

- Added flexible diaphragm analysis / loading option for RISAFloor diaphragms that are brought into RISA-3D
- Added wood diaphragm design for flexible diaphragms that are brought from RISAFloor into RISA-3D.
- Added the ability to model wood shear walls with openings, incorporating three design options: segmented, perforated and force transfer around openings.
- Added a customizable graphic toolbar with new Model Display Options button for easier graphical review of results.
- Added an automatic region generator for wall panels to expedite the creation of regions especially for walls that have openings.
- Added EC3 2005 Euro steel code.
- Added BSEN 2004 Euro concrete code.
- Added "Commercial Sawn" species to the wood database and to the default wood materials.
- Added common Glu-Lam and Composite Lumber to default wood materials.

### ***Corrections***

- Corrected a Revit issue where a copy of an existing floor would also copy the BIM ID's. Inserted floors now have unique BIM ID's.
- Corrected a compatibility issue in the concrete code settings between the current version and RISAFloor version 3.0. Issue could cause an incorrect concrete code to be set when reading a version 3.0 (or older) file into version 3.1 or 4.0. Correction only applies to older files being opened in the new version (4.1 or higher). New files opened in old versions can still experience the issue.

## Version 4.0.3 Enhancements and Corrections

- Enhanced the status bar display for multi-monitor or odd resolution screens.
- Enhanced concrete column optimization for situations where the starting shape had a  $P_u > 0.75P_c$ .
- Corrected a hatching display problem on steel joist detail reports for members with applied uplift forces.

- Enhanced program mesher for wall panels, eliminating errors.
- Fixed a RISAFloor / RISA-3D issue where the moment of inertia for a diaphragm could be reported as infinity which caused errors during a dynamic analysis.
- Fixed a problem in wood design where the  $R_s$  calculation was computed as if the bottom flange was in compression when the top flange was actually in compression.
- Corrected an error where duplicate nodes would be created when a RISA-3D model came in from RISAFloor.
- Corrected issue with column force diagrams when sloped roofs were used in conjunction with the "use column stiffness" flag.
- Fixed a bug whereby general walls were always created as 12" thick regardless of thickness specified by user in "Draw Walls" dialog.
- Modified the default boundary conditions for wood walls to be consistent with the stand-alone version of RISA-3D.
- Corrected an issue where lateral members that could not be sized or designed in Floor were receiving bad information when their 3D design / optimization results were transferred back into Floor.
- Fixed a memory issue with using the Cancel button to exit out of the Wall Panel Editor.
- Fixed an issue which occurred when performing a model merge on wall panels that had duplicate, but distinct joints in the 3D and Floor models.
- Corrected an issue that could occur when sorting the Joint Reactions spreadsheet from within 3D. Should only occur with RISAFloor models brought into RISA-3D.
- Corrected a display issue which would cause the full model view to render openings in a wall one floor above where they should have appeared. This issue did not affect calculations at all.
- Corrected a DXF importing issue where the import failed if the model did not already have an existing floor level defined.
- Fixed an error which occurred when modifying columns on floors that were flagged as inactive.
- Modified Masonry Wall Panel detail reports to more consistently report out of plane forces on a per foot basis instead of basing it on the distance between reinforcing bars.
- Modified code checks for Gravity only Masonry Wall Panels to be based solely on the  $f_a/F_a$  value rather than including a term for  $F_b$ .

## Version 4.0.2 Corrections

- Removed requirement for users to break their wall panels at deck corners and edges of openings (Error Code 2130). RISAFloor now addresses these situations automatically.
- Added the automatic generation of a backup file (\*.RF3) for all legacy files opened in version 4.0.
- Corrected issue with line load attribution which could result in incorrect load distribution to members.
- Corrected an issue with the End Reactions spreadsheet which could result in reported reactions of #Q0.
- Corrected column moments that were reported incorrectly below sloped floors.
- Corrected an issue where the wood wall results spreadsheet showed "No val" for all entries.
- Corrected point load transfer on wood walls to walls below.
- Corrected miscellaneous meshing errors and region errors associated with wall panels.
- Corrected an issue which prevented RISAFloor models from performing a dynamic analysis in RISA-3D.

## Version 4.0.1 Corrections

- Corrected an issue where the link from RISAFloor to RISA-3D would not guard the bottom two joints in a wall panel from being manipulated independently in RISA-3D
- Activated the "Detail Report For Current Item" in cases where it was not working.
- Corrected printing of the Project Grid spreadsheet
- Corrected the "orient to point" option for columns.
- Fixed a bug where files that included RISAFoundation data no longer change the "include SW & overburden."
- Corrected the display of grout weight in the wall panel editor.



- Fixed a bug where when you copy a floor with wall panels to a new floor, the wall panels on the copied floor were deleted.
- Fixed a bug where the program was not properly re-assigning a rebar layout that had naming conflicts.
- Corrected an issue where crack control requirements for concrete members could produce tight bar spacing.
- Corrected wall panel rendering issues when all floors of the model were displayed in Full Model View
- Corrected wall panel meshing issues.

## **Version 4.0 Enhancements / Corrections**

### ***Wall Panels Enhancement***

- Added Wall Panels, giving user the ability to model entire portions of walls without using plates.
  - Ability to create Masonry walls with openings to get gravity design. The model can be brought into RISA-3D for design for in plane and out of plane forces, as well as the ability to design lintels.
  - Ability to create Wood walls (currently without openings) and get analysis results for gravity loads. The model can be brought into RISA-3D for design for in plane and out of plane forces,.
  - Ability to create General walls with uniform properties and openings for analysis. A way for analysis of concrete walls.

### ***Interface & Graphics Enhancements/Corrections***

- Added the option of changing design rules from the Modify Walls dialog box.
- Added Lbyy and Lbzz to Beams spreadsheet for cases where beams receive significant axial load.
- Added beam axial info (e.g. unbraced length, KL/r, P, fa) into data.
- Changed H,V,E rotation toolbar icons to X,Y,Z.
- Corrected the display of incorrect stress block selection in the concrete detail reports
- Fixed a bug where the program was not properly re-assigning a rebar layout that had naming conflicts.

### ***Interaction Enhancements/Corrections***

- Added the ability for the Lbyy and Lbzz values to be transferred into RISA3D when using the Director tool.
- Added ability to retain “inactive” flag for RISAFloor diaphragms in RISA-3D. Previously, this value was being reset every time user entered RISA-3D from within RISAFloor.

### ***Concrete Design Enhancements/Corrections***

- Added a slender compression check to RISAFloor concrete column design.
- Corrected concrete beam code check to consider the last span in continuous concrete beams for the governing code check. The steel reinforcing call out in this span was not affected.
- Corrected the Shear UC to not always be taken at the first section of a continuous beam.

### ***Sloping Members Enhancement***

- Ability to slope the top floor in a model to add sloping roof functionality.
- Switched to a 6 Degree of Freedom solution to allow for sloped floors

### ***Miscellaneous Enhancements/Corrections***

- Corrected callouts for minimum studs in the exported DXF drawing file.
- Fixed Unity Check problem for columns that need rebar close to the maximum specified for the Mexican Code.

- Corrected the display of saved Cold Formed code checks. Phi was not being properly stored in or read from the results file.
- Added program exception where is Lcomp-top is left blank while Lbyy is entered, Lcomp-top will default to Lbyy.

## **Version 3.2.3 Corrections**

- Corrected a serious bug that could result in the deleting of embedded RISAFoundation data. If a RISA-3D file with embedded RISAFoundation were saved without having first viewed the Footing data during that session, then the Foundation information would NOT be embedded in the 3D file.
- Corrected a bug related to the validation of RISAFoot version 3.0 licensing. Previously the network version of RISAFoot was not correctly authorizing.
- Corrected a 2nd bug related to RISAFoot authorization that related to launching RISA-3D from within a RISAFloor session.
- Corrected a bug associated with the Beam to Beam drawing behavior using 2nd beam offsets. 3.2 and 3.2.1 were creating a joint at the correct locations, but were not connecting the new beam to those nodes.
- Corrected a bug associated with the Self Weight of Lateral walls that were brought into RISAFoundation. Essentially the self weight of the wall was being included twice.
- Corrected a bug associated with the saving and retrieving of drawing grids.
- Corrected a bug with the optimization of concrete reinforcement. The bug would have prevented the program from adding steel that is above the min flexural steel requirements.
- Corrected a Steel Database error in AISCDB32.FIL associated with HSS6.625x0.375.
- Corrected a bug where RISA-3D could not design footings if the program were initiated from RISAFloor through the Director menu.

## **Version 3.2.1 Corrections**

- Corrected a bug in the File I/O where Member Area Loads or Plate Surface Loads (from the linked 3D information) were not being read in properly.
- Corrected a crash associated with the printing of Flat File results related to Inactive Floors and Beam Deflections.

## **Version 3.2 Enhancements / Corrections**

### ***Interface and Graphics Enhancements / Corrections***

- Improved dialog behavior by highlighting the Use? Checkboxes and added in a Clear Use Boxes button
- Fixed a bug with the rendering of deflection diagrams for pipe shapes
- Dynamic\_graphics in the INI file
- Model Display Options for viewing splices at a floor level
- Added ability to display EITHER the floor above or below the current floor

### ***Steel Design Enhancements / Corrections***

- Added changes to the AISC database based on the 13th Edition Manual
- Added a Roll Back On Cancel action to the Model Settings – Code settings to properly account for cases where users change from 13th Edition ASD to 13th Edition LRFD and cancel the change before exiting
- Changed logic for using R value for cold formed / light gage steel
- Slenderness checks for Indian code IS 800
- Corrected a Cb calculation error for column design where the Cb was being erroneously set to -1 and was unconservatively REDUCING the code checks

- Added warning messages for why a composite beam was not designed compositely
- Enhanced the composite beam stud optimization code
- Enhanced code to provide better messages for why a stud layout failed
- Added message to Open Web Joist reports stating that "OL Loads are not included in Joist Design"
- Changed "actual UTL and UDL" to "equivalent UTL and UDL" in Open Web Joist reports
- Improved Parent / Child floor behavior for physical columns allowing better interaction with column stacks.
- Improved column splice behavior when floors are moved, inactivated or deleted.

### ***Concrete Design Enhancements / Corrections***

- Added ACI 2005
- Changed  $F_y$  in the rebar layout dialog so that it is tied to stress units to be consistent with definition of  $F_y$  in the Design Rules
- Corrected a Canadian code bug that could result in too many bars being selected in RISA-3D for concrete columns that originated in RISAFloor.
- Corrected warnings in shear rebar layouts for Floor
- Concrete T-beams modified in RISAFloor (negative reinforcement over  $L/10$ )
- Fixed bugs related to rebar optimization for extremely, extremely wide beams

### ***Wall Enhancements / Corrections***

- Corrected a units bug for line load / wall reactions in RISAFoundation
- Added LL Reduction factor calculation to wall results
- Corrected errors with wall tributary area calculations. Related to line load unit conversion issue.
- DXF importing will now export Polyline to new Wall layer so that files can be "round tripped"
- Added an error check for walls of zero thickness. Previously these types of walls could cause a RISA-3D crash during lateral analysis.

### ***Column Design Enhancements / Corrections***

- Corrected error in the Max Base Reaction in the Column Forces spreadsheet. All LC's (even the ones that weren't solved) were being used to calculate the max forces.
- Modified Max Base Reaction in the Column Forces Spreadsheet to reflect the reduced live load forces
- Parent / Child fix for L values of columns
- Column Stack Manager tool
- Corrected issue where column sizes were not Freezing
- Corrected a number of column stack issues
- Corrected units display issue with the status bar in the Columns, Column Stacks and Detailing spreadsheets.

### ***Loading Enhancements / Corrections***

- Increased Load Combination limit to 5000
- ASCE 7 - 2005 and IBC 2006 Live Load Reduction
- Improved load attribution routine for 2-way deck. This specifically corrects a bug with the Tapered area loads applied to 2-way deck.

### ***Miscellaneous Enhancements / Corrections***

- Added additional check to prevent Steel Products and Wood Products from being transferred into the Lateral model which could cause a solution crash in RISA-3D.

- Corrected a bug where the program was incorrectly handling duplicate shapes. This bug only occurred when a file was opened which contained a shape that matched the name (but not the properties) of an existing database shape. Program would incorrectly re-assign the member to the member to the database shape.
- CIS/2 Detailing
- CF correction for SCL lumber in 2005 NDS
- Added in better status bar support for Dual Monitors
- Added restrictions on spreadsheet printing for Demo versions. Now limited to a maximum of 5 rows for each spreadsheet.
- Corrected report printing to re-adjust report widths to allow for wider / Landscape pages
- Corrected a bug where copying and pasting from results browsers could result in a memory error based on an "out of range" spreadsheet setting
- KeyID added to input file
- Demo Versions will now run out of HKEY\_Current\_User if Local\_Machine is unavailable
- Ability to turn off the time / date stamp
- Log of members that had invalid or missing design lists
- Added a warning log that will tell you which entries were not read properly or caused the file to be considered "corrupted"
- Corrected End Reaction Calculation for beams that had a cantilever on their J end
- Changed abbreviations for column headers from "non-reducible LL" to "LL-Non" and "LLS-None", et cetera
- Corrected a crash with the K-Factor calculation when moving from RISAFloor to RISA-3D
- Fixed bug that disabled RISA-3D's ability to enter RISAFoundation after you had detached a RISA-3D model from RISAFloor
- Added units display to Mass and MMOI entries for Floor Diaphragms
- Wood and concrete Columns will be color coded based on lateral / gravity same as steel columns
- Corrected a bug in which the opening of a detail report would cause the Deflection Results spreadsheet to become corrupted for that member.
- 

## **Version 3.1.2 Enhancements / Corrections**

### ***Miscellaneous Enhancements / Corrections***

- Primarily released to address some corrections in the RISAFoundation program. Refer to RISAFoundation release notes for more information.
- Corrected an error with the display of un-selected beams. This only occurs in RISAFoundation when it is launched from RISAFloor.
- Corrected a length conversion bug in the rebar database. If length units were other than feet, the program had been erroneously converting rebar cutoff lengths entered in as a % of length.
- Added Security Codes for REVIT Structure Versions. There is no direct impact to the program.
- Correction to Cb calculation for columns for ASD 13th Edition. This was previously being set to -1 resulting in un-conservative column code checks.
- Corrected bug in the end reaction calculations that made it possible to receive a negative value for reducible area in the live load reduction calculation

## **Version 3.1.1 Enhancements / Corrections**

### ***Enhanced Loading Features***

- Added ASCE 2005/ IBC 2006 Wind Loading Code
- Added ASCE 2005/ IBC 2006 Seismic Loading Code
- Added ASCE 2002/2005 Live Load Reductions

- Added IBC 2003/2006 Live Load Reductions
- Added Mexican Seismic Loading Code
- Negative Base Elevations for Calculation of Wind and Seismic Forces are Now Allowed

### ***Enhanced Results***

- Changed the Max Base Reaction Results for Columns to Consider Live Load Reductions

### ***Enhanced Hot Rolled Steel Design Features***

- Minor Changes To Stud Placement Code to Allow Better Consistency Between Segmented and Uniform Stud Options

### ***Enhanced Concrete Design Features***

- Added Mexican Concrete Design Code
- Corrected a Bug In the Self Weight Calculations of Concrete Columns

### ***Miscellaneous Enhancements***

- Added Member Detailing Information to be Used with Upcoming CIS/2 Translator
- Added INI Only Option to Turn off the Dynamic Mouse Graphics Features

### ***Miscellaneous Corrections***

- Correction to the AISC 'Cb' Calculation (Most Likely to Affect the Model When Using the "Segment" Code)
- Correction to the Units Conversion for Parametric Concrete Shapes
- Correction to the Use of the Max UC Checks in the Design Rules for Composite Beams
- Correction to the Deleting Unattached Points Function where Points Along Beams Could Get Deleted

## **Version 3.1.0 Enhancements / Corrections**

### ***Enhanced Loading Features***

- Added ASCE-7 2005 Load Combinations to the Load Combination Generator
- Added the ability to eliminate the weight that would be tributary to the foundation from Seismic Weight of the structure
- Added the calculated "base" weight of the structure to the seismic force dialog
- Added mass nodes for diaphragms that are below the base elevation

### ***Enhanced Analysis Features***

- Added a Sparse Solver to speed up solution times and reduce memory requirements

### ***Enhanced Steel Design Features***

- Added AISC 13th Edition Steel Code
- Added Canadian Composite Steel Design

- Changed the BS steel code to distinguish between H and I sections when choosing which strut curve to use for columns
- Corrected a number of little bugs related to Composite Beam design using metric units
- Corrected display of shear and moment capacities for the detail report for LRFD Composite beams
- Corrected a problem in the Physical Column code that could result in "1#0" error messages

### ***Enhanced Wood Features***

- Added NDS 2005 Wood Code
- Corrected a bug in the 2001 wood database that was using a lower Fc value for DFL #2 Post and Timbers

### ***Miscellaneous Enhancements / Corrections***

- Corrected a problem with the color hatching of decks that are displayed "as input"
- Corrected display error which caused an Lcomp-Bottom value set to 'Segment' to display as "-2"

## **Version 3.0.1 Enhancements / Corrections**

### ***Enhanced General Design Features***

- Added Gravity Design of Wood, Concrete, and Cold Formed Columns
- Added Ability to Manage Column Stacks and Column Splices
- Added Ability to Change the Bottom Elevation of Columns to account for varying ground floor elevations
- Added Ability to Account for Edge Parapet Columns
- Greatly Modified/Enhanced the Column Results Browsers
- Added a Column Detail Report
- Added Ability to Apply User Design Rules to Column Members
- Added a Wall Results Browser

### ***Enhanced Wood Design Features***

- Added Glu-Lam Design per the 2001 NDS

### ***Enhanced Concrete Design Features***

- Added User Defined Reinforcement Layouts for Flexure and Shear for Both Beams and Columns
- Added New Zealand Concrete Design NZS3101 -1995
- Added Australian Concrete Design AS 3600 -2001

### ***Enhanced Steel Design Features***

- Added New Zealand Hot Rolled Steel Design NZS 3404-1:1997
- Added Australian Hot Rolled Steel Design AS 4100-1998
- Added US Cold Formed Steel Design AISI 2001
- Added Mexican Cold Formed Steel Design AISI 2001/CANACERO
- Added Canadian Cold Formed Steel Design AISI 2001/CSA S136-01
- Added New Hot Rolled Steel Shapes per the LRFD 3rd Edition Manual
- Added New AISI and SSMA Shapes per the AISI 2001 Manual
- Added support for Back to Back CS and CU channels
- Added support for Front to Front CS and CU channels

- Corrected bug in the steel joist design related to the application of negative loads

### ***Enhanced Analysis Features***

- Improved Lateral Wall Meshing in RISA-3D
- Improved Vibration Calculations to Account for the Girder Panel Mode Weights that are lost directly into column supports
- Added the infrastructure for switching between Skyline and Sparse solvers

### ***Enhanced Loading Features***

- Added Load Combination Generation Options
- Added California Building Code (CBC 2001) to Seismic Load Generator
- Added Ability to Specify a 'Base Elevation' for Seismic Load Generation to account for sloped sites and/or basements
- Added Ability to Specify a 'Base Elevation' for Wind Load Generation to account for sloped sites and/or basements
- Added Ability to Account for Edge Parapet Columns for Wind Load Generation
- Added Ability to Generate Code Specific Load Combinations from a User Editable XML File
- Improved Load Attribution Routine to Eliminate Polygon Errors
- Improved Load Attribution Routine to Handle Most Cases with 'Concave Circuits'
- Corrected bug with 2 way load attribution
- Corrected bug with the attribution of tapered loads to slab edges
- Corrected problem with area load attribution related to the application of negative area loads

### ***Enhanced Graphics and Drawing Features***

- Added Dynamic Zoom, Pan, and Rotate to All Model View Windows
- Added Ability to Generate Infill Beams in a 'Concave Circuit'
- Added a Hot Key Command (F5) to Call Up a Distance Measuring Tool
- Added Expanded Font Control in Tools - Application Settings
- Accelerated Model Rendering - Up to 5x Faster
- Added Translucent Plate and Member Rendering and Member Diagram Graphics
- Corrected Graphical Display of Lcomp-top and Lcomp-Bottom. They now display "segment" rather than "-2" when the segment command is used for the beam.

### ***Enhanced Interaction with Other Software***

- Linked to Revit Structure
- Added Ability to Import Walls from a DXF File
- Added link to RISAFoundation

### ***Miscellaneous Enhancements / Corrections***

- Added Registry Entry for User to Specify a Server List for License Management
- Modified Network Versions to Check Licensing Less Frequently than the Stand Alone Versions
- Corrected bug where the program was not recognizing that user took control of a center of mass node in RISA-3D by applying a joint load
- Corrected error in Diaphragm connectivity in 3D diaphragms related to re-entrant corners

## ***Features Specific to the Indian Region***

- IS 456 : 2000 — Plain and Reinforced Concrete Code of Practice
- IS 800 : 1998 — Code of Practice for General Construction in Steel
- IS 875 (Part 3) : 1987 — Code of Practice for Design Loads (Wind Loads)
- IS 1893 : 2002 — Criteria for Earthquake Resistance Design of Structure
- Load Combinations can be automatically generated from the following codes:
  - IS 456 : 2000 — LSD (Collapse)
  - IS 456 : 2000 — LSD (Serviceability)
  - IS 1893 : 2002 — LSD
  - IS 875 (Part 5) : 1987 — WSD
- Added Pre-Generated Indian Materials:
  - Standard Indian Concrete Materials (M15, M20, etc.)
  - Standard Indian Steel Materials (Fe-410, Fe-570, etc.)