

# ETABS® 2013 Version 13.0.0 Release Notes

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**Release Date: 2013-04-17**

ETABS 2013 is a major and comprehensive upgrade from ETABS v9.7.4, covering all aspects of modeling, analysis, design, and external interfacing to create a powerful and productive tool for building design. Because of the integrated nature of this upgrade, most enhancements are included in the following summary. A few specific enhancements will be listed at the end, followed by a list of incidents resolved.

## **Changes from v9.7.4 (Released 2011-12-20)**

### **Major Enhancements**

#### **Modeling**

- Model explorer for easy access to all program capabilities
- Non-modal forms for easy access to select, edit, assign and display
- Create models by converting AutoCAD Architectural plan to 3D ETABS objects
- Create models by tracing over AutoCAD plans
- Ability to add 2D/3D models from templates
- Live preview of changes while editing or drafting
- Explicit modeling of curved beams, curved floor edges and curved walls
- Tracing of building perimeter for quick draw of floor plates
- Zoom and rotation during model creation
- Create shearwall and elevator cores parametrically
- Enhanced editing and selection capabilities
- Intelligent snaps for easy model creation
- Introducing multi-tower concepts with tower dependent stories and grids
- Linear and nonlinear support properties for point, line, and area objects
- Area load set definitions for load assignments
- All input/output in user defined mixed units

#### **Analysis**

- 64 bit advanced SAPFire analysis engine for increased problem size and solution speed
- New advanced Sparse Solver
- New multi-threaded solver for multi-CPU, multi-core systems
- Analysis recognizes and uses 64 bit processing for enhanced performance
- Model Alive™ feature for instantly seeing the effects of model revision
- Enhanced meshing capability with more user control
- Range combination for enveloping pattern loads
- Construction sequencing allowing changes of members, loads and sections
- Time dependent concrete age effects, creep and shrinkage
- Geometric modification – shape finding for specified final geometry
- Nonlinear layered shell element for shear wall performance based design
- Nonlinear element to model triple pendulum base isolators
- Nonlinear element for multi-linear plasticity for modeling soil supports
- Automated nonlinear fiber hinge model for frame elements

- Buckling analysis for any applied load from any stressed condition
- Linear and nonlinear direct integration time history analysis
- Enhanced section cuts – results for wall, slab or diaphragm design
- Generalized displacement definitions for deformation measures

## ***Design***

- Automated static lateral seismic loads implemented for codes listed below
- Automated static lateral wind loads implemented for codes listed below
- Response spectrum functions implemented for codes listed below
- Auto-permutation of directions and eccentricities for static wind and seismic loads
- Updated generation of lateral notional loads for design
- Live load reduction factors implemented for codes listed below
- Enhanced design output
- Updated Steel frame design including seismic for codes listed below
- Special considerations for EBF and BRB
- Updated concrete frame design including seismic for codes listed below
- Updated composite beam design for codes listed below
- Added composite column design for codes listed below
- Updated shear wall design including seismic for codes listed below
- Added masonry shear wall design based on ACI 530-11
- Updated steel joist design based on SJI 2010
- Wall reinforcement design optimization
- Curved shear wall design
- Drift optimization for steel and concrete frame structures
- Drift optimization for shearwall structures
- Added steel connections design including base plates for AISC 360-10

## ***Graphical Display***

- Increased number of view windows
- Ray tracing, textures, lights and shadows for true rendering
- DirectX view window with fly through
- Display of forces acting on a diaphragm
- Vector direction plots of maximum forces/stresses in slabs and walls
- Story load, shear and moment diagrams over building height
- Print graphics using user specified drawing scale

## ***Output***

- All input, output and design viewable in table format
- Easy access to corresponding tables from model explorer
- Table display, including filters and selection
- Automated generation of standard reports
- Fully customizable report generation
- Report includes tabular and graphical output
- Named displays and user text can be added to reports
- Report viewable on screen
- Report can create .docx file

## ***Detailing***

- Creation of schematic construction drawings for concrete and steel structures
- Framing plans and schedules for steel frames
- Framing plans and schedules for composite floors

- Reinforcing schedules for concrete beams and columns
- Reinforcing details for concrete shear wall elevations and cross-sections
- Customizable detailing rules
- Customizable drawing sheets with multiple views
- Automated bill of quantities
- Print or export to AutoCAD

### ***External Interfacing***

- ETABS Open API for custom programming and interfacing
- Import/export of analytical and physical model using IFC 2x2, 2X3, 4
- Import/export model from/to Revit 2011, 2012 and 2013
- Import/export model from/to AutoCAD 2011, 2012 and 2013
- Export graphics to pdf, dxf, bmp, jpeg, gif, png formats

### ***Documentation***

- Enhanced online/offline help
- New user's manuals
- Updated analysis manual
- New tutorials and Watch and Learn movies
- New design manuals
- New verification manual

### ***List of Implemented Design Codes***

- **Static lateral seismic load codes:**
  - ASCE 7-10
  - AS/NZS 1170 2002
  - GB50011-2010
  - Eurocode 8 2004
  - IS 1893 2002
  - Italian NTC 2008
  - NBCC 2010
  - Turkish EDP 2007
  - NZS 1170 2004
  - BOCA 96
  - ASCE 7-02
  - ASCE 7-05
  - NBCC 95
  - NBCC 2005
  - NEHRP 97
  - UBC 94
  - UBC 97
  - UBC 97 Isolated
- **Static lateral wind loads codes:**
  - ASCE 7-10
  - AS/NZS 1170.2:2002
  - GB50009-2012
  - Eurocode 1 2005
  - Indian IS875:1987
  - Italian NTC 2008
  - NBCC 2010
  - Turkish TS 498-97
  - ASCE 7-88

- ASCE 7-95
  - ASCE 7-02
  - ASCE 7-05
  - BOCA96
  - BS 6399-95
  - NBCC 95
  - NBCC 2005
  - Mexican
  - UBC 94
  - UBC 97
- **Response spectrum functions codes:**
    - AS1170-2007
    - ASCE 7-02
    - ASCE 7-05
    - ASCE 7-10
    - BOCA 96
    - GB50011-2010
    - Eurocode 8-2004
    - IS 1893:2002
    - Italian NTC 2008
    - Italian3274
    - NBCC 2005
    - NBCC 2010
    - NBCC95
    - NEHRP97
    - NZS1170-2004
    - NZS 4203
    - Turkish EDP 2007
    - UBC 94
    - UBC 97
- **Live load reduction factors codes:**
    - ASCE 7-95
    - ASCE 7-05
    - ASCE 7-10
    - AS/NZ 1170.1-2002
    - GB 50009-2012
    - Eurocode 1991:2002
    - Hong Kong COP 2011
    - Indian IS 875-1987
    - NBCC95
    - NBCC2005
    - NBCC2010
    - UBC97
    - User Parameters (per Section 1607.5, UBC 1997)
    - User Defined Curves (By Tributary Area)
    - User Defined (By Stories Supported)
- **Steel frame design codes:**
    - AISC 360-10
    - AISC 360-05
    - AISC LRFD 93
    - AISC ASD 89
    - AS 4100-1998
    - BS 5950-2000

- CSA S16-09
  - Eurocode 3-2005
  - IS 800:2007
  - Italian NTC 2008
  - NZS 3404:1997
  - GB50017-2003 (Chinese version)
- **Concrete frame design codes:**
    - ACI 318-11
    - ACI 318-08
    - AS 3600-09
    - BS 8110-97
    - CSA A23.3-04
    - Eurocode 2-2004
    - Hong Kong CP 2004
    - IS 456:2000
    - Italian NTC 2008
    - KCI-1999
    - Mexican RCDF 2004
    - NZS 3101:2006
    - Singapore CP 65:99
    - TS 500-2000
    - GB50010-2010 (Chinese version)
- **Composite beam design codes:**
    - AISC 360-10
    - AISC 360-05
    - BS 5950-1990
    - CSA S16-09
    - Eurocode 4-2004
    - GB50017-2003 (Chinese version)
- **Composite column design codes:**
    - AISC 360-10
    - JGJ3-2010, CECS159:2004, JGJ138-2001 (Chinese version)
- **Shear wall design codes:**
    - ACI 318-11
    - ACI 318-08
    - AS 3600-09
    - BS 8110-97
    - CSA A23.3-04
    - Eurocode 2-2004
    - Hong Kong CP 2004
    - IS 456:2000
    - Mexican RCDF 2004
    - NZS 3101:2006
    - Singapore CP 65:99
    - TS 500-2000
    - GB50010-2010 (Chinese version)

## Other Enhancements

### License and Installation Enhancements Implemented

*	Incident	Description
	38377	Licensing has been upgraded to the version 8.5 of RMS. Version 8.5 or later of License Manager is required to serve network licenses. All licenses are now web-activated, requiring an internet connection to activate, deactivate, or renew a license. Users can move a license from one system to another provided they have administrative rights on both systems. The trial license is no longer available, but a separate Evaluation version of the product will be provided after the initial release of ETABS 2013.

### Modeling Minor Enhancements

*	Incident	Description
	51374	SidePlate® moment connections have been updated based on the latest design criteria provided by SidePlate Systems. The new options now include a tag for Wind or Seismic design to specify default SidePlate length.

### Loading Minor Enhancements

*	Incident	Description
	51370	A new design load type "Construction" has been added for defining load combinations used in composite beam design. Load cases of this design type are now included automatically in the "AISC 36005" and "AISC 360-10" design load combination for pre-composite action as $1.2*Dead + 1.6*Construction$ . Previously this load combination was defined as $1.6*Dead + 1.6*(0.2)*Live$ .
	51371	A new design load type "Seismic (Drift)" has been added. The Seismic (Drift) load does not enforce the upper limit for time period for computing base shear as specified in most of the loading codes. This option now allows the seismic loading to be considered for serviceability.

### Frame Design Minor Enhancements

*	Incident	Description
	13830	For steel frame design using the "AISC 360-05" code, previously the D/C ratio was not available in "Stress Check Output" table when $KL/r > 4.0*\sqrt{E/fy}$ . Now the "Stress Check Output" table will show the D/C ratio whenever possible along with the Error Messages when section fails.
	39500	Concrete frame design using the "Eurocode 2-2004" code has been enhanced to now check the beam/column (B/C) capacity ratio for DCM_MRF for seismic design of concrete frames. Previously the B/C capacity ratio was only being checked for DCH_MRF concrete frames. Note that for Eurocode 3-2005 steel frame design, the B/C capacity ratio was being checked for both DCM_MRF and DCH_MRF steel frames.
	51373	Steel frame design using the "AISC 360-10" and "AISC 360-05" codes has been enhanced by providing a tag in Design Preferences to include/exclude stiffness reduction for the Direct Analysis Method. This option can be used to exclude steel-frame stiffness reduction for drift cases. Note that this preference applies to the model as a whole and affects both strength and deflection design.

**Results Display and Output**  
**Minor Enhancements**

*	Incident	Description
	27124	A database table including base reaction results has been added to the available analysis results tables.
	34390	An enhancement was implemented to report story forces for sequential construction cases at both the top and bottom of each story instead of averaging the top and bottom values.
	14342	The printed auto-seismic information for IBC 2006 has been enhanced to include additional information, comparable to IBC 2003.

## Incidents Resolved

Following are the Incidents Resolved in this release. **Most incidents do not affect most users.** Incidents marked with an asterisk (\*) in the first column of the tables below are more significant and are included in the ReadMe file.

### User Interface and Display Incidents Resolved

*	Incident	Description
	13580	An incident was resolved in which the default dimension lines did not update when the gridline ordinates were changed. This was a graphical issue and did not affect analysis results.
	13802	An incident was resolved in which the Area Diagram form used to display area contours did not update the story level if it was not closed between right-clicking on areas on different levels. This did not affect results.
	14597	An incident was resolved in which all content is not always displayed/refreshed when manipulating windows.
	14647	An incident was resolved to correct a spelling mistake on the Story Data form.
	17956	An incident was resolved in which it was possible to insert a new story with a blank name. This did not affect results.
	18856	An incident was resolved in which modifying the name of an auto-wind or auto-seismic load pattern would reset the load parameters to defaults, even if the design code was not changed. The results matched the parameters present in the form after they were reset to default. Now the values are not reset to default when changing the name of the load pattern unless the design code is also changed.
	19520	An incident was resolved in which a runtime error was generated when defining a time history function with a large numerical value, 1E10 or larger. This did not affect results.
	23449	An incident was resolved in which the time period targets for steel frame design were being cleared when the steel frame design was run.
	24261	An incident was resolved in which a runtime error was sometimes generated when using the Tab key to navigate through the data on the Edit Grid Data form. This would happen if there were more than 15 X or Y-grids defined.
	26452	An incident was resolved in which a runtime error would sometimes occur after right clicking on a frame member to show the bending moment diagram for an enveloped load combination, and then changing the units using the units dropdown in the lower right corner of the main window. This did not affect the results. It is no longer possible to change units while viewing the right-click diagram for frame forces and moments. The units settings are now fully customizable and it is rarely necessary to change them.
	27605 30509	An incident was resolved in which a runtime error was generated when overwriting the starting section for an auto-select list, if no section was chosen before clicking OK on the form. This did not affect results.
	30514	An incident was resolved in which a runtime error could occur when defining a joist section on a system that has regional settings that use a comma (,) as the decimal separator.
	34096	An incident was resolved in which a runtime error would sometimes occur when using the reshape tool to explicitly set the dimensions. This occurred if the mouse was moved while editing the dimensions and it came across a snap point.
	34704	An incident was resolved in which unchecking the "Include P-delta" option and then checking it would reset the scale factor for DEAD load cases to 1.0. The analysis results would correspond with the scale factors shown in the form.
	42058	An incident was resolved in which a runtime error was generated when renaming a diaphragm definition if both forms were not closed using the OK button before trying to modify the diaphragm definition for a second time. This did not affect results.



## Graphics and Drafting Incidents Resolved

*	Incident	Description
	15047	An incident was resolved in which the database units were always used when drawing door and window openings, irrespective of the current display units. This did not affect results.
	15250	An incident was resolved in which the Delta Z value was ignored when trying to move a joint that had a z-coordinate of 0. This did not affect results.
	24280	An incident was resolved in which projected loads on areas were not displayed when using the Display > Show Loads command. This was a display issue only and did not affect results.
	25271	An incident was resolved in which drawing area objects in elevation view would orient the area local axes differently depending on whether the area object was drawn on a single story or drawn across multiple stories. This did not affect the accuracy of the results, but could affect the interpretation of the results with respect to the area local axes.
	28970	An incident was resolved in which turning on the object fill would cause the program to terminate for certain models.
	36439	An incident was resolved where the command Edit > Divide Lines > Break at Intersections with Visible Grid Lines did not always work. This command is now called Edit > Edit Frames > Divide Frames > Break at Intersections with Visible Grid Lines.
	37350	An incident was resolved where the Edit > Replicate command did not function correctly when replicating to a story with a negative Z elevation. The selected objects would instead be replicated to a different story.
	38815	An incident was resolved in which an exception (runtime error) was generated for certain models when performing a window selection. This did not affect results.
	39305	An incident has been resolved where the Draw Areas command did not work in an elevation view. The new Draw Floor/Wall commands work in plan, elevation, and in 3D (with appropriate restrictions).
	45265	An incident was resolved in which the story labels were not being displayed in elevation view when a gridline was defined as only being visible over a select range of stories.

## Modeling Incidents Resolved

*	Incident	Description
	12804	An incident was resolved in which duplicate wall objects were generated when using the Edit > Undo command to undo subdividing the wall for openings.
	13889	An incident was resolved in which story data was being included when using the "Choose .EDB" model initialization option to start a new model. This option is now called "Use Settings from a Model File".
	19293	An incident was resolved in which the HSS3.5x0.188 pipe section property in the AISC13 property libraries had an incorrect wall thickness of 0.0188in instead of 0.188in.
	29660	An incident was resolved in which a runtime error was sometimes generated when modifying point coordinates using the right-click point information form. This did not affect analysis results.
	36590	An incident was resolved in which a circular concrete frame section property would revert to a column design type even if specified as a beam (M3 design only) design type.
	43144	An incident was resolved where using the mirror option when replicating beam and column frame members sometimes resulted in the generated members being classified incorrectly as braces. This in turn could change the automatic end releases, since these do not apply to braces. Analysis and design results agreed with the model as replicated.
	43822	An incident was resolved in which user-defined gridlines specified to exist over a specific story range were being displayed to one story below the specified story range. This did not affect results.

* Incident	Description
49275	An incident was resolved where the automatic end offsets calculated for a column object were not correct in the special case where (1) the top of the beam framing into the column was below the story level, and (2) the column was divided into multiple objects. In this case the end offsets for a column object above the beam were being calculated from the beam below when they should not be. The end offsets for each object could be seen in the model, and the effect on results was small.

### Section Designer Incidents Resolved

* Incident	Description
15755	An incident was resolved in which a runtime error would occur when using the Section Designer and specifying a rebar size as NONE, then right-clicking on it. This was a user interface issue only and did not affect results.
44339	An incident was resolved in which the section properties calculated for a Section Designer section were not correct in the unusual case where an opening was present that touched the edge of a solid circle and for which the opening was partially overlapping the inside and the outside of the circle. In this case the opening was being ignored and the section properties were calculated as if the opening was not present.
46041	An incident was resolved for concrete frame design in which the interaction surface could not be computed for certain large or narrow wall-type sections modeled as frames. When this occurred the error was obvious.

### Loading Incidents Resolved

* Incident	Description
15169 17574 42905	An incident was resolved in which the automatic open structure wind loading using the ASCE 7-05 code was not being applied. This could be easily detected by reviewing the deformed shape of the load case.
23533 49795	An incident was resolved where applied parapet pressure was incorrect for ASCE 7-02 and ASCE 7-05 codes when Gust factor was less than 1.0. The value of GCpn was being calculated instead as GGCpn.
37466 41479	An incident was resolved in which distributed frame loads assigned in the frame local 1, 2, and 3 directions were not correctly accounted for when computing mass source from loads. The loads were being converted to mass as if they were applied in the gravity direction, with positive loads adding mass and negative loads subtracting mass (but not less than zero). This did not affect the mass computed from frame distributed loads assigned in the global directions. Mass computed from concentrated frame loads or load applied to any other objects were not affected. This error only affected the mass computed from frame distributed loads, not the frame distributed loads themselves.
41397	An incident was resolved where open-structure wind load was not being applied to some frame objects for which such loading had been specified. The behavior was inconsistent, however for each object either the correct loading was applied or no loading at all.
44422	An incident was resolved where the damping specified for response-spectrum functions was not being used for analysis. Now, the response spectrum function is adjusted at each modal period using Newmark's velocity formula from the damping specified for the function to the summed damping in the model from the response-spectrum load case, material damping, and link-object damping.
45653	An incident was resolved where the incorrect values for Fa and Fv were displayed when defining a seismic lateral load for the NBCC 2005 code. This was a display issue only for the form. The correct values were being used to calculate the load, and the results were not affected.
48382	An incident has been resolved where uniform temperature loading assigned to a frame object is not applied when the option to include joint temperatures has been specified for the same frame object in the same load pattern. Only the joint temperature load was being applied in such a case.

## Analysis Incidents Resolved

*	Incident	Description
	23958	An incident was resolved where the distribution of frame moments near a concentrated frame span load was not correct for nonlinear static analysis. The total load applied was correct and overall equilibrium was correct. However, the moment diagram within the loaded element and distribution of moments near the element could differ between linear static and nonlinear static analysis for a linear structure. This error was only for concentrated span loads. Distributed span loads and concentrated loads on joints and areas were not affected.
	27270	An incident was resolved where, for certain models, error messages were generated (regarding frame results) when performing concrete frame design with load combinations that included a construction-sequence load case for dead load. When this occurred, the design results were all zero and the error was obvious.
	32794	An incident was resolved where the analysis became unresponsive and produced no results for a particular model file. No results were available.
	42003	An incident has been resolved where the analysis was being performed for the live-load reduction factors even when these were not needed.
	45828	An incident was resolved where the link elements internally created to model panel-zones were not being included in the groups used for staged-construction analysis. This resulted in beams and columns being disconnected for staged-construction load cases, and the error was obvious.

## Frame Design Incidents Resolved

*	Incident	Description
	13974	An incident was resolved for steel frame design using the "BS 5950-2000" code in which single and double-angle sections would be classified as Class 4 when their width-to-thickness ratio was exactly equal to $24 \cdot \epsilon$ . The code specifies the limit for Class 3 as $24 \cdot \epsilon$ , therefore they should have been classified as Class 3. This would only affect sections that resulted in a width-to-thickness ratio of exactly 24, which was rare. Classifying the section as Class 4 was slightly conservative.
	16744	An incident was resolved for steel frame design according to the "CSA-S16-01" code in which the design output reported the incorrect section class for the right-click deflection output. This was only a reporting issue and did not affect results. The reporting of the section class for deflection design output has been removed because it is not relevant.
	19509	An incident was resolved for steel frame design according to the AISC LRFD-93 code in which an error message was generated when the input value of $F_y$ was smaller than the code-mandated value of $F_r$ (10ksi for rolled shapes and 16.5 ksi for welded shapes). No results were reported in this case and the error was obvious.
	19527	An incident was resolved for steel frame design using the "Chinese 2010" code where the strength check was always using the gross area rather than the net area regardless of whether the design overwrite "Net Area to Total Area Ratio" was specified or not.
	24739	An incident was resolved in which the steel frame design optimization using lateral-displacement targets would sometimes not satisfy the specified targets even though larger sections were available in the auto-select list.
	29529	An incident was resolved in which the lateral bracing points used for steel frame design were not being initialized when a new model was created, but instead were using the values from the previous model if a previous model had been open in the same ETABS session. However, if a new model was created as the first model in a given ETABS session, then the initialization was correct. Design results were consistent with the lateral bracing points as initialized or subsequently assigned by the user, and were evident in the model.

*	Incident	Description
	29862	The classification of tee sections for steel frame design using the "Eurocode 3-2005" code has been enhanced to remove a minor conservatism in the classification of the web outstand. The error message for Class 4 sections was also modified to simply report a Class 4 section without a code clause.
	31442	An incident has been resolved where the minimum torsional reinforcement requirement as given in AS3600-2001 section AS 8.2.8 was not accounting for unit conversion. Models with default database units in N-mm produced the correct results. For other units, conservative results were generally produced when torsional reinforcement was governed by $Asv_{min}$ .
	31545	An incident was resolved for composite beam design using the Canadian "CISC 95" code in which the reaction factor specified in the design overwrites was not accounted for in the composite-beam design-reaction output. The affected code "CISC 95" has been replaced by the newer code "CSA S16-09" for which the incident is resolved.
	33319	An incident was resolved for concrete frame design using Eurocode 2-2004 that addressed two issues: (1) The normalized axial force limit of 0.55 was enforced for DCM column design, whereas Eurocode 8-2004 allows the use of 0.65 for this factor. The value of 0.55 is still used for DCH column design. These limits are only applicable when seismic load is present. (2) The "Axial Compression Ratio" was computed and reported for the characteristic concrete strength ( $f_{ck}$ ) instead of design concrete strength ( $f_{cd}$ ). In rare cases, this may produce unconservative results. Users should rerun the design for older models to verify the acceptability of design results.
	34651	An incident was resolved for steel frame design using the "Eurocode 3-2005" code in which the "GammaOV" design overwrite was not retained after setting it in the overwrites form, and hence had no effect. The results matched the settings.
*	35291	An incident was resolved for concrete frame design using the "ACI 318-08" code in which the column design for minor-direction shear was not being checked for capacity shear in Special Moment Frames, but was instead reporting the results for major-direction shear. The column was being designed correctly for major-direction shear. This error could be unconservative.
*	36554	An incident was resolved for continuity-plate design at the beam-column joints of steel frames in which the reported continuity-plate areas for certain cases could be incorrect. This occurred when a continuity plate was needed at the beam-column joint and the beam-flange force was large. The required area of the continuity plate that was reported could be unconservative (too small) in certain rare cases when the continuity plate design was governed by continuity plate buckling. However, any design that uses the thickness of the beam flange for the continuity plate will be sufficient. This affected the following codes: "AISC 360-05/IBC2006", "Eurocode 3-2005", "CAN/CSA-S16-01" (no longer supported), and "CSA-S16-09". All other codes are unaffected by this issue. Users should review previous designs by these codes where continuity plates were required and the areas of the plates actually used were less than that of the corresponding beam flanges. The previous implementation was consistent with the documentation, and the documentation has also been corrected.
	37634	An incident has been resolved for steel frame design in variants of AISC codes in which Q was unconservatively being taken as 1.0 in the case where the web of the I, Box, and Channel sections is slender in axial mode but not slender in flexural mode. This has been changed so that now the Q factor is being calculated correctly for this case. Factor Q was always being calculated correctly for sections where web is slender in flexural mode. The affected codes are "AISC360-05", "AISC-LRFD93" and "AISC-ASD89". Similar changes have also been made for the "CSA S16-09" code. (Previous codes that were also affected but are no longer supported include: "AISC-ASD01", "AISC-LRFD99", "UBC97-ASD", and "UBC97-LRFD"). This error rarely affected results.
	38903	An incident has been resolved for concrete frame design using the Indian "IS 456:2000" code where, for certain specific model files, an error message was generated during design indicating that there was an error calculating the Q factors. The reported Q factors were zero and the design was performed for these values.
	40074	An incident was resolved for steel frame design using the "AISC 360-05" code where the shear capacity was not being multiplied by the Phi factor when $P_r/P_y$ was less than or equal to 0.15 for EBF (eccentrically braced frame) link beams. This affected versions 9.0.0 to 9.7.4. The error was obvious because the capacity being used was reported.

*	Incident	Description
	40565 42041	An incident was resolved for concrete frame design using the Eurocode 2-2004 code where the design detail results were incorrectly reporting a load combination containing seismic load as being non-seismic when the axial force in the member was tensile. In this case, the reporting of compression capacity check was omitted. However, the compression capacity is not relevant in such a case. This was a reporting issue only. All design checks were correct, and no results were affected.
	41129	An incident was resolved for composite beam design using the "AISC 360-05" code in which the compactness was not being calculated correctly for the case of a coverplate attached to the bottom flange of the beam. Beams without cover plates were designed correctly. If cover plates were present, the program was unnecessarily showing a message that the section is slender, which could be over-conservative. All other design results were correct.
	41931	An incident has been resolved for concrete frame design using the Eurocode 2-2004 code where the Design Overwrites form provided the following extraneous parameters that were not being used: Moment coefficients Cm Major and Cm Minor, NonSway Moment Factors Dns Major and Dns Minor, and Sway Moment Factors Ds Major and Ds Minor. These parameters were not documented and were not being used for design. No results were affected. These parameters have now been removed.
	42274	An incident was resolved in which joint shear checks were unnecessarily being performed for intermediate moment frames. This affected all versions of the ACI 318 concrete frame design code. The effect was conservative.
	43502	An incident was resolved in which the unbraced length factors reported on the right click design detail sheets for steel frame design were not correct if the value(s) had been overwritten by the user and the member had end offsets assigned explicitly or determined from connectivity. This did not affect the design results.
	43806	An incident was resolved for composite beam design using the "AISC 360-05" code in which the resistance factor for shear, phi_v, was taken as 0.9 even when the size of the section met the limits of clause G2.1(a) which allows phi_v to be taken as 1.0 in the case of composite action. This resulted in an over-conservative value of the shear capacity being used.
	48052	An incident was resolved for concrete frame design where, on rare occasions, an over-stressed (OS) condition was reported when the design moment was very close to but not exactly equal to zero. This could occur due to a numerical tolerance problem. This was a rare problem and was over-conservative when it occurred.
	48586	An incident was resolved error for steel frame design using codes "AISC 360-05" and "AISC-LRFD99" (no longer supported) where all T-sections were being classified as Seismically Not Compact even when that was not true. The error was obvious and conservative.
	49532	An incident has been resolved for steel frame design where the adjustment factor for moment capacity due to the lateral-torsional-buckling limit state could be inaccurate for cases where the end offsets at the two ends of the frame object were not exactly the same. This factor is called Cb in AISC codes, Alpha_m in Australian codes, n factor in BS codes, Omega2 in CSA codes, and C1 in Euro, Italian and Indian codes. This error was of a round-off/truncation type and primarily affected the case where one of the end offsets was set to zero and the other to a large value relative to the length of the member. This most commonly could affect columns where the end offset at the bottom is typically zero. Results were usually unaffected for beams and other members where the end offsets are similar at the two ends. When the error did occur, it was small and led to over-conservative results. Results were unaffected if user-specified lateral bracing was specified using the command Design > Steel Frame Design > Lateral Bracing.

### Shear Wall Design Incidents Resolved

*	Incident	Description
	13104	An incident was resolved for shear wall design where the D/C ratio was not being displayed graphically for Piers when the checking option was used. The results were available in the design details.

* Incident	Description
25524	An incident was resolved for shear wall design where, in very rare cases, multiple wall objects at a given story level making up a single pier were not properly merged into a single object for design purposes. When this happened, the shape was treated as triangular rather than rectangular, and only a single layer of reinforcement was generated instead of two. This caused flexural failure in shear wall due to lack of significant flexural capacity. When this occurred, the error was obvious and conservative.
27915	An incident was resolved in which the PMM interaction surface was not able to be computed for certain section designer wall-pier sections.
46247	An incident was resolved for shear wall design using the "BS8110-97" code for simplified C and T design where the default material reduction factors $\gamma_c$ and $\gamma_s$ were always being used even when different values had been specified by the user in the Design Preferences.

## Results Display and Output

### Incidents Resolved

* Incident	Description
17170	An incident was resolved in which a runtime error was sometimes generated when defining time-history traces for section cuts and trying to modify/show the time-history function from within the time history traces form. This was a user interface error only and did not affect results. This feature is now called plot functions and has been substantially revised.
19323	An incident was resolved in which enveloped printed analysis results would include sequential case results, even when the case was not selected for output. This was a display issue only and did not affect individual case results.
21908	An incident was resolved in which the load combinations table would repeat data when there were 15 or more load combinations defined in a model. This did not affect results.
24288	An incident was resolved in which the coordinates defining the shear wall legs in the shear wall design output were sometimes missing a negative sign. This was a reporting issue only and did not affect results.
27972	An incident was resolved for concrete frame design for the "Chinese 2010" code where the summary results incorrectly provided the rebar design strength instead of design moment envelope.
31443	An incident was resolved in which the AS and NZS auto-seismic load input was not available through the File > Print Tables > Input command. This was a limitation of the program and did not affect results.
31549	An incident was resolved in which the number of decimal places shown on results displays did not change after modifying the Options > Preferences > Output Decimals settings. This did not affect results. The number of decimal places for each type of input and output quantity is now controlled by the comprehensive settings for units.
33301	An incident was resolved in which drawn section cuts would sometimes mistakenly categorize area objects as ramps, such that toggling on/off the ramps or walls on the section cut results form would result in incorrect values. The totals with both walls and ramps on were correct.
36789	An incident was resolved in which the File > Print Tables command sometimes presented incorrect summed values of the joint reactions table for the moment values. The correct values were available using the Display > Show Tables command. The sum of the Joint Reactions are now presented in a separate table called Base Reactions.
40946	An incident was resolved where joint reactions (and spring forces) did not include the effects of response-spectrum eccentricity. The reported reactions were those of the response-spectrum case without the eccentricity. All other response quantities (displacements, forces, stresses, story shears, etc.) correctly included the effect of specified eccentricity.
41127	An incident was resolved where the plotting of spandrel forces for a very short spandrel sometimes showed zero force when non-zero values were present. Plotting of shell stresses and section-cut forces showed the correct values.
41681	An incident was resolved in which the shear wall design output database table used the column heading "End Spacing" instead of "Edge Spacing" for edge bars. This was a terminology issue only and did not affect results.

<b>*</b>	<b>Incident</b>	<b>Description</b>
	43157	An incident was resolved in which the details of the auto seismic calculation per the NZS code were not being included in the text output. This output has been enhanced in ETABS 2013 and is now available for all codes.
	44605	An incident was resolved in which the Chinese 2010 pier shear wall design output was not available in tabular format or for printing. The results were not affected.
	45354	An incident was resolved in which the story drifts obtained via the File > Print Tables command were missing data for certain models and/or load cases. This was a results display issue only. Complete results were available using the Display > Show Tables command.
	45797	An incident was resolved in which the option to show time-history traces for a single mode was not working, but was instead showing the same superposed results for all modes as when this option was not used. This option has been removed from ETABS 2013 as it is rarely used and does not apply to most plot functions.
	47291	An incident was resolved in which a runtime error was generated in some cases when using the Draw > Section Cut option while displaying frame shear forces. The error would occur before the section cut results were reported.

### **Database Tables Incidents Resolved**

<b>*</b>	<b>Incident</b>	<b>Description</b>
	18557 35361	An incident was resolved in which the load combinations table would repeat data when there were 15 or more load combinations defined in a model. This did not affect results.
	23043	An incident was resolved in which negative-valued insertion point distances were reported as blank in the database tables. This was a reporting issue only and did not affect results.
	27023	An incident was resolved in which the Force Assignments to Points table was blank for certain models. This did not affect results.
	27694	An incident was resolved in which exporting the auto wind load tables for the IS 875 code to a Microsoft Access (*.MDB) file would generate an error and result in a blank table. This did not affect model results.
	32400	An incident was resolved in which data copied from some database tables would not paste properly into Microsoft Excel. This did not affect results. Now a direct export to Excel is available as well as copy/paste operations.
	35256	An incident was resolved in which the frame and area temperature load database tables were blank for some models. This did not affect results.
	39793	An incident was resolved in which exporting the auto wind load tables for code IS 875 to a Microsoft Access *.mdb file would generate an error and result in a blank table. This did not affect model results.

### **Data Files (.EDB, .E2K, \$.SET) Incidents Resolved**

<b>*</b>	<b>Incident</b>	<b>Description</b>
	18460	An incident was resolved in which the *.WRN file is deleted when the analysis is run, if it is present in the model folder.
	20320	An incident was resolved in which steel orthotropic materials imported from an ETABS text file (.E2K) had their modulus of elasticity values reset to default values. The results from analysis would match these reset material properties.
	26661	An incident was resolved in which multistory spandrels were not exported to the *.e2k text file. The multistory spandrel assignment was properly saved in the regular *.edb model file.
	30718	An incident was resolved where the assignments of tension/compression limits to frame objects was not exported to the model text file (.E2K or \$.SET), causing these assignments to be lost when importing the model back from the text file. Results were consistent with the model as imported.

* Incident	Description
31785	An incident was resolved where the cross-sectional area of Section Designer sections imported from the text file (*.E2K, *.SET) was not always correct unless the user opened and saved the imported property in Section Designer. The error was obvious because the area being used was shown in the tables.

### External Import/Export Incidents Resolved

* Incident	Description
14773	An incident was resolved for the export to IFC of models represented by the IFC Structural Analysis Domain where member end releases were not being exported and member cross-section dimensions were sometimes exported in the wrong units. This did not affect the export of models represented by the IFC Building Physical Model.
24269 40418	An incident was resolved in which importing STAAD (*.std) files would generate a runtime error if there were trailing blank characters at the end of certain data lines, cause the import to fail. No results were available.
24502	An incident was resolved where attempting to export certain models to SAFE using either of the options "Export Floor Loads and Loads from Above" or "Export Floor Loads plus Column and Wall Distortions" would generate a runtime error or cause the software to become unresponsive. When this error occurred, the model was not exported. No results were affected.
38743 40144	An incident has been resolved where an exception (runtime error) occurred during the import of certain STAAD (*.std) data files.
41185	An incident was resolved in which the SDNF export was not working when the model had not yet been analyzed.
42744	An incident was resolved for the export to SAFE where beam forces and moments that were specified in the frame local-axis directions were not being exporting. However, beam forces and moments that were specified in the global directions were being exported.
44809	An incident was resolved in which exporting a model to CIS/2 would generate an error when the "Loads from elements only" option was used. This resulted in no CIS/2 file being written. It did not affect numerical results.
46161	An incident was resolved in which errors are generated when trying to export the auto-wind load data for Indian code to a MS Access (*.mdb) file.
47085	An incident was resolved in which the export of a floor to SAFE omitted some walls in certain models.
52137	An incident has been resolved where program was generating a runtime error when a specific ETABS model containing wind load was exported to Revit Structure.

### Documentation Incidents Resolved

* Incident	Description
15951	An incident was resolved in which the help topic "Align Joints/Frames/Edges" referred to a "specified maximum move allowed" value for the "Align Joints to Nearest Frame or Edge" option. This setting does not exist and the help topic has been modified accordingly.
33294	An incident was resolved in which the steel frame design manual for the "AISC 360-05" indicated that there was a design overwrite for Omega0, but this option wasn't actually available in the program. This design overwrite has now been added to be consistent with the documentation.
36249	An incident was resolved in which the IS 456-2000 concrete frame manual indicates that the partial safety factor for concrete, gamma_c, defaults to 1.15. The manual has been corrected to indicate that the default value actually used is 1.5. There is no change to the behavior of the software.
50681	A documentation error was resolved where the formula for the lateral torsional buckling modification factor in the steel frame design manual for the Indian "IS:800-1998" code did not show the actual Eurocode formula that is being used for design. This was a documentation error only. Results were not affected.