ETABS® 2016 (Version 16.0.1)
Release Notes

© Copyright Computers and Structures, Inc., 2016

Notice Date: 2016-10-22

This file lists all changes made to ETABS since the previous version. **Most changes do not affect most users.** Incidents marked with an asterisk (*****) in the first column of the tables below are more significant.

Changes from v16.0.0 (Released 2016-08-24)

Analysis
Enhancements Implemented

*	Incident	Description
*	95326	The size of the saved analysis results files has been reduced for multi-step nonlinear static and nonlinear direct-integration time-history load cases. This will reduce the amount of disk space required for these types of load cases in models using non-isotropic single degree of freedom frame hinges, fiber P-M-M frame hinges, wall hinges, directional layered shell elements, and/or nonlinear link elements. Linear elastic shell and solid elements will also exhibit some reduction in disk-space requirements. This may also result in some speed increase when running the analysis and displaying results, particularly for load cases with many steps. The amount of data saved will be reduced for other types of elements in subsequent releases of the product.

Frame Design
Enhancements Implemented

*	Incident	Description
*	83293	Seismic performance-based design has been added to the Chinese version based on the Chinese codes provisions of JGJ3-2010 3.11. For concrete frame and shear-wall designs the following Seismic Performance Levels are recognized: (1.) Normal - Design is based on specified seismic loads and loading combinations that cover the GB50009 3, GB 50011-2010 5.4 and JGJ 3-2000 5.6 codes. Seismic modifiers and GammaRE are considered and the design strength of materials is used. (2.) Normal + Level I - The same as (1.) plus an added Level I check. The Level I check increases the specified seismic load to the Design Intensity level and uses a load combination based on JGJ3-2010 3.11.3-1. Seismic modifiers are not considered, but GammaRE is considered and the design strength of materials is used for this Level I check. (3.) Normal + Level II (DI) - The same as (2.) but with the following difference: All beams and spandrels tagged as energy dissipating are not checked for flexure using the JGJ3-2010 11.3-1 load combination, but instead use the JGJ3-2010 3.11.3-2 load combination. For this check the characteristic strength of the materials is used, and GammaRE is not considered. (4.) Normal + Level II (Rare) - The same as (3.) except that the specified seismic load is increased to the Rare level for loading combinations based on JGJ3-2010 3.11.3-1 and JGJ3-2010 3.11.3-2.

Shear Wall Design
Enhancements Implemented

*	Incident	Description
	95603	An enhancement was added for shear wall design based on the BS 8110-1997 code where pier design now automatically determines the unbraced-length ratio in the major- and minor-axis bending for computing additional pier moments. Previously, the wall height used for this purpose was always assumed to be the story height.

Miscellaneous
Enhancements Implemented

*	Incident	Description
	96553	The version number has been changed to v16.0.1 for a new minor release.

Installation and Licensing
Incidents Resolved

*	Incident	Description
*	96437 96860	An incident was resolved where isotopic frame hinges (single degree-of-freedom and P-M2-M3) were not being considered during analysis when using the Nonlinear license level. Only version 16.0.0 was affected by this error. When this occurred, the model behaved linearly and the effect was generally obvious. This has been corrected so that all single-degree-of-freedom hinges, as well as isotropic P-M2-M3 hinges, are available at the nonlinear level when modeled in frames. As with ETABS 2015 (v15), the Ultimate license level is required for fiber hinges, wall hinges, and all hinges modeled in links. The parametric P-M2-M3 hinge was introduced in ETABS 2016 (v16) and is only available at the Ultimate level.

Modeling
Incidents Resolved

*	Incident	Description
	94407	An incident was resolved where the weak-axis section properties (IY, SY, ZY, and RY) were incorrect in the database provided for ArcelorMittal BritishHistar steel UB and UC frame sections. Analysis and design results agreed with the section properties as imported and reported in the model. These could be seen in the section property forms, tables, and reports.
	95724	An incident was resolved where it was possible to delete a material property that was being used to define tendon properties. Following the deletion of the material property, an abnormal termination occurred if the user tried to edit the affected tendon properties. Now, tendon materials cannot be deleted if they are used to define any tendon property. Also, for models created in the released version 16.0.0 of ETABS 2016 and opened in a subsequent version, if a tendon section is found to have no material assigned, the first available tendon material will be assigned to it. If no tendon material is available, then a default tendon material will be created and assigned to the tendon.

*	Incident	Description
	96205	An incident was resolved for CoreBrace BRB sections where the default clearance dimensions for bolted and pinned connections have been updated as requested by CoreBrace. The previous default clearance was always 3 inches, which only applies to welded connections. The user was and still is able to override these values.
	96310	An incident was resolved where the "Transverse Reinforcing is Conforming" checkbox for auto hinge assignments for concrete beams using ASCE 41-13 did not work correctly, causing the transverse reinforcing to always be assumed to be conforming.

Section Designer
Incidents Resolved

*	Incident	Description
	95244	An incident was resolved where switching between concrete and steel materials for an embedded section in section designer did not immediately update the effective properties. The properties were updated when the model was analyzed so the analysis results were correct.

Loading
Incidents Resolved

*	Incident	Description
*	95247 95649	An incident was resolved where auto static seismic load could give zero loads if the user had specified the period. This was happening only in certain particular situations, and the error was obvious because the loads were zero. When the loads were non-zero they were correct.
	96165	An incident was resolved for NBCC 2015 auto seismic load pattern where option to choose “Structure Type" was not available in the form.
	96725	An incident was resolved where an Abnormal termination error could be generated when defining a time-history function matched to a response spectrum (command Define > Functions > Time History > Matched to Response Spectrum) if the target response spectrum function was defined for certain newer codes. No results were affected, but the desired time-history function could not be generated. The following response-spectrum codes were affected: Argentina INPRES-CIRSOC 103; Chile Norma NCh433+DS61; Chile Norma NCh2369-2003; Columbia NSR-10; Costa Rica Seismic Code 2010; Dominican Republic R-001; Ecuador NEC-11 Capitulo 2; Ecuador Norma NEC-SE-DS 2015; Guatemala AGIES NSE 2-10; Korean KBC 2009; Mexico CFE-93; Mexico CFE-2008; Mexico NTC-2004; NBCC 2015; Peru NTE E.030 2014; Peru Norma E.030; SI 413 (1995); SP 14.13330 2014; Venezuela COVENIN 1756-2:2001.

Analysis
Incidents Resolved

*	Incident	Description
*	96296	An incident was resolved where wall elements with hinges were sometimes not able to converge on the first step of nonlinear load cases. When this occurred, no results were available for those load cases. This issue only affected models in ETABS 2016 v16.0.0 when the “Model Hinges Within Elements” option was selected using the command Analyze > Analysis Model for Nonlinear Hinges. Previous versions were not affected, and hinges modeled in links were not affected. In addition, the behavior in the out-of-plane bending direction for wall elements with hinges is enhanced to have better agreement with that of linear elastic wall elements without hinges. Previously the out-of-plane bending behavior of walls with hinges was too flexible, affecting all versions of ETABS 2015 (v15).

*	Incident	Description
	96302	An incident was resolved where, in certain rare cases, beams were not being auto-meshed at intermediate joints that were created as the result of meshing an adjacent shell object. This could affect the local continuity of the beam and slab, but did not affect equilibrium, and normally would have little effect on overall behavior of the structure.
	96761	An incident was resolved where some of the files created when the analysis is run were not being deleted when the model was unlocked. No results were affected.

Frame Design
Incidents Resolved

*	Incident	Description
	94244	An incident was resolved for Chinese concrete frame design code where computations was incorrect for adjustment coefficients (i.e., MMF, SMF) for various framing types. The design results showed the actual values used in design.
	94423	An incident was resolved for Chinese frame design where the calculation of dual system modification factors based on frame story-shears ratios may be incorrect for some structural systems under certain conditions. The factors were mostly calculated assuming Frame-shearwall structural systems, and for these systems they were correct.
	96265	An incident was resolved for concrete frame design using the ACI 318-14 and ACI 318-11 codes where intermediate column shear design was not using the Omega0 factor specified in the Concrete frame design procedure. The design was being performed by amplifying the seismic forces by a factor of 2 instead of the Omega0 factor.
	96538	An incident was resolved for concrete frame design using the Russian code "SP 63.13330.2012" where the parameter "Consider Torsion?" as specified in the Design Preferences was being ignored. Instead, each member always used the default value unless the parameter "Consider Torsion?" was assigned to that member in the Design Overwrites, in which case it correctly used the specified Overwrite value. Results were consistent with value of the parameter actually used and reported.

Results Display and Output
Incidents Resolved

*	Incident	Description
	56932 95340	An incident was resolved where the deflection plots shown when right-clicking on a frame member while viewing frame forces did not show major-axis deflection for load combinations until after first switching the option to show minor-axis values. Results for load cases were not affected. All results that were plotted were correct.
	94253	An incident was resolved where the Chinese Summary report was not being created when wind loads with the across wind or torsional wind were specified. The Wind Load table could not be created, which affected the report. The wind load was still being applied, and no other results were affected.
	94852	An incident was resolved that addressed two issues that did not affect results: (1.) The Set Vertical Plot Functions form would abnormally terminate if you clicked the OK button with no vertical functions specified. (2.) In certain cases, opening a new model while the Hinge Results form was displayed could cause an error message to appear. These issues were already corrected for the release ETABS 2016 v16.0.0, but were inadvertently omitted from the Release Notes.
	95311	An incident was resolved where, in rare cases, the displacement plot under "Combined Story Response Plots" was not correct. When this happened the error was obvious. The story displacement plot under "Story Response Plots" was not affected by this error. Similarly, the other items plotted under "Combined Story Response Plots" were not affected by this error. No other results were affected.

*	Incident	Description
	95342	An incident was resolved where right-clicking on slab design strips to display detailed results would not show the report if a beam was coincident with the strip centerline, unless the Ctrl key was used with the right-click. Priority is now given to design strips instead of beams when displaying strip results.
	95916	An incident was resolved in which a saved named display that was specified to be included in a user report was not actually being added to the generated report.
	96296 96372	An incident was resolved where a display error might occur plotting shell stresses for layered shells using the Display > Plot Function command. When this occurred, the requested results were not shown. No other results were affected.
	96541	An incident was resolved where the Shell Forces/Stresses form (command Display > Force/Stress Diagrams > Shell Stresses/Forces) was showing some options (strains) that are not yet implemented. These have been turned off until they are complete. Also stresses for layered shells were not being displayed. This has now been corrected.

User Interface and Display
Incidents Resolved

*	Incident	Description
	95345 95402	An incident was resolved where the Assign Area Thickness Overwrites form might abnormally terminate if you clicked on it again after making an assignment.
	95711	An incident was resolved where the scrolling of the list boxes in the Mass Multipliers for Load Patterns area of the Mass Source Data form was not synchronized. No results were affected.
	96882	An incident was resolved where an Abnormal termination error could occur when modifying frame section properties if a material property used in a frame section had been previously deleted. No results were affected.

Database Tables
Incidents Resolved

*	Incident	Description
	95869	An incident was resolved for the Pier Overwrites where overwritten values such as "EndBar", "EdgeBar", "EdgeBarSpc" and "Cover" were reported as negative values. This was only a reporting issue and no design results were affected.
	96654	An incident was resolved where exporting the model file to Excel was saving model file with the older Excel *.xls file extension instead of with the newer *.xlsx file extension.
	96822	An incident was resolved in which the concrete frame design preferences and shear wall design preferences database tables for Eurocode 2-2004 displayed the incorrect country in certain cases. This was only an issue with the database tables and did not affect the design.

Application Programming Interface (API)
Incidents Resolved

*	Incident	Description
	87454	The Application Programming Interface (API) help documentation has been updated to provide new example code for connecting to Matlab. The new code shows how to use Matlab's .NET interface rather than its COM interface. This helps to avoid memory errors that can occur when passing arrays from Matlab that may be re-dimensioned in ETABS.

Documentation

Incidents Resolved

*	Incident	Description
	95091	An incident was resolved to include a help topic for the concrete slab "Design Details" form that was inadvertently omitted from v16.0.0.
	95107	An incident was resolved to update the "Shell Assignment - Area Springs" help topic to correctly indicate that area springs can be linear or nonlinear.
	95143	A documentation error has been resolved for the AISC 360-10 and AISC 360-05 steel frame design manuals where Appendix B, Table B-1 incorrectly listed the default value for item "Analysis Method" as being "taub Variable" instead of the actual default "taub Fixed" . This was just a documentation inconsistency. Results were not affected and were consistent with the method actually chosen.
	95477	An incident was resolved where a help topic was missing for the "Shell Load Assignment - Non-uniform" form, accessed via the **Assign > Shell Loads > Non-uniform** command.
	95776	A minor correction was made to the Lateral Loads Manual for Eurocode 1991-1-4 wind loading where one input parameter was defined as turbulence intensity Iv(z) instead of turbulence factor k1. No results were affected.
	96325	A documentation error was resolved for the ACI 318-14, ACI 318-11, and ACI 318-08 concrete frame design manuals where the equation for computing As1 on page 3-32 was incorrectly using Mus instead of Muc. No design results were affected.