

ETABS® 2016 (Version 16.0.3) Release Notes

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Notice Date: 2017-01-25

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 v16.0.2 (Released 2016-11-22)

User Interface

Enhancements Implemented

*	Incident	Description
	99242	An enhancement was made to the tendon vertical profile definition form so that the data for all spans of the tendon are visible and editable at the same time. The previous version of this form displayed the data for only one tendon span at a time, requiring the user to step through the spans to view/edit data for a specific tendon span.

Analysis

Enhancements Implemented

*	Incident	Description
*	73043	Convergence behavior of the friction-pendulum isolator link element has been improved, particularly to deal with large variations in the axial force, which can cause alternating slip-stick behavior during lateral loading. Models that exhibited slow convergence behavior in previous versions should be re-run in the new version to verify the results. The new results will be more accurate in cases where a significant difference is observed between the old and new results, but this is not common. Furthermore, the friction model has been changed from the previous Wen formulation that exhibited a gradual transition between stick and slip to a bilinear model that exhibits a sudden transition. Some difference in results can be expected due to the new formulation, particularly for models where the initial stiffness specified for the isolator was small. In addition, for linear load cases that use the stiffness from the end of a nonlinear load case, the transverse stiffness of the isolator will be taken as the specified initial stiffness regardless of whether or not the isolator was sliding at the end of the nonlinear load case, provided that the isolator was in compression. Previously the sliding stiffness was used in such cases. For isolators in tension at the end of a nonlinear load case, zero stiffness is used, same as before. Linear load cases starting from zero initial conditions will use the specified linear effective stiffness, unchanged from previous versions.
*	75068 89099 97667	Convergence behavior of the triple-pendulum isolator link element has been improved, particularly to deal with large variations in the axial force, which can cause alternating slip-stick behavior during lateral loading. Models that exhibited slow convergence behavior in previous versions should be re-run in the new version to verify the results. The new results will be more accurate in cases where a significant difference is observed between the old and new results. In addition, for linear load cases that use the stiffness from the end of a nonlinear load case, the transverse stiffness of the isolator will be taken as the specified initial stiffness regardless of whether or not the isolator was sliding at the end of the nonlinear load case, provided that the

*	Incident	Description
		isolator was in compression. Previously the sliding stiffness was used in such cases. For isolators in tension at the end of a nonlinear load case, zero stiffness is used, same as before. Linear load cases starting from zero initial conditions will use the specified linear effective stiffness, unchanged from previous versions.

Frame and Shear Wall Design *Enhancements Implemented*

*	Incident	Description
*	99682	Superseded codes Korean 1999 and Hong Kong 2004 for concrete frame and shear wall design are no longer supported and will be replaced by Korean 2009 and Hong Kong 2013 codes, respectively, if the models are opened and re-run in the new version.

Slab Design *Enhancements Implemented*

*	Incident	Description
*	98629	An enhancement was implemented to add slab design according to the Russian SP 63.13330.2012 code.

Database Tables *Enhancements Implemented*

*	Incident	Description
	98458	An enhancement was implemented to add additional columns to the beam, column, and brace forces tables to provide the associated element name, element station, and element station location data.

Results Display and Output *Enhancements Implemented*

*	Incident	Description
	98983	An enhancement was implement to make certain response calculations faster with the use of parallel processing on multi-core machines. These include story-response plots and tabular output of story shears and drifts, and tabular output of sections cuts and generalized displacements.
	94230	An enhancement was implemented to expand the design details presented for concrete frame design according to the Russian SP 63.13330.2012 code.

Miscellaneous *Enhancements Implemented*

*	Incident	Description
	99363	The version number has been changed to v16.0.3 for a new minor release.

User Interface
Incidents Resolved

* Incident	Description
96350 99065	An incident was resolved where once "Story" was chosen as an object type in the Stage Data form for a staged-construction load case, it was not able to be changed later to an object type other than "Story".
98329	An incident was resolved where replicating or moving ten or more area objects at the same time could cause an abnormal termination error. Results were unaffected.
98363	An incident was resolved where the fiber hinge definition form would not correctly show the setting saved for the option that determines whether the specified length is relative to the member length. It always showed it as relative length when the form was opened.

Modeling
Incidents Resolved

* Incident	Description
* 97994	An incident was resolved where the slab local axis specification was not being applied to the analysis mesh if the slab meshing method was the default and the model was run for the first time with slab meshing or local axes changed. It only affected analysis results if orthotropic slab properties were either specified directly or created through bending modifiers. Shell stresses were also being reported in this case based on the default local axes (local axis angle = 0). Rerunning the model fixed the error. The error was inadvertently introduced in v16.0.0.
98908 99069	An incident was resolved where CoreBrace BRB section properties imported in v16.0.2 could be corrupted. This resulted in the effective stiffness of the brace becoming zero. The error has been corrected and when older files are opened the affected sections are reimported.

Section Designer
Incidents Resolved

* Incident	Description
98436	An incident was resolved where an error condition would occur when editing a Section Designer section or when saving certain files with pier sections defined. This happened when a material used in the definition of the Section Designer section and/or a pier section was deleted. The deletion of such materials is now not allowed.

Loading
Incidents Resolved

* Incident	Description
98173	An incident was resolved for auto seismic loads where time period for "As Per code Specification" option was not working correctly. The error was obvious as results for these cases were zeros.
98445	An incident was resolved for NBCC 2015 auto seismic loading and response spectrum function where F(2.0) for Site Class B was incorrectly set to 0.58 instead of 0.63. All other site classes were correct.
99512	An incident was resolved for the NBCC 2015 auto-seismic load and response-spectrum function where PGAref was always assumed to be PGA instead of 0.8 PGA when $S_a(0.2) / PGA < 2.0$, as given in NBCC 2015 section 4.1.8.4(4).

Analysis
Incidents Resolved

*	Incident	Description
	95867	An incident was resolved where the wall local axis specification, specifically the reverse normal direction option, was not always applied correctly to the analysis model. This happened when the model had already been run and the analysis mesh got stored before the reverse normal direction option was used. Any editing, which caused the stored analysis mesh to get deleted, corrected the problem. The error was inadvertently introduced in v16.0.0.
	97209 99310	An incident was resolved where the area meshing process would sometimes leave extraneous unconnected joints in the analysis model. These normally would not cause any problem, but in some rare cases they would get attached to the structure through area edge constraints. This could, in even rarer cases, result in a locally numerically sensitive system. Re-running the model would usually remove of the unconnected joints, possibly changing the connectivity in those cases where extraneous edge constraints had been created. These unconnected joints are now removed in all cases to avoid these issues.
	98787	An incident was resolved where the force response for the non-hinge degrees of freedom in frame and wall hinges could be incorrect when there was an internal event for the hinge and the analysis model for nonlinear hinges was set to "Model Hinges as Separate Link Elements". This issue affected nonlinear static and nonlinear direct-integration time-history load cases using events with iteration. Affected models could experience poor convergence, reduction of global step size, and/or convergence error. When convergence was achieved, the effect on force response was small, with an error usually significantly less than one percent. This issue affected ETABS 2016 v16.0.0 to 16.0.2.

Frame Design
Incidents Resolved

*	Incident	Description
	99385	An incident was resolved where concrete column design would fail because the rebar yield strength was set to zero. This happened when the rebar material specified for the concrete design was allowed to be deleted or was otherwise corrupted. This is now detected and corrected automatically.

Shear-wall Design
Incidents Resolved

*	Incident	Description
*	97862 98595 99058	An incident was resolved for Eurocode 2-2004 shear wall design where pier shear design was not performed when design combinations did not have any seismic load case included. No shear design results were available in this case.

Detailing
Incidents Resolved

*	Incident	Description
	96398	An incident was resolved where detailing drawings were not able to be exported to DXF files.

Results Display and Output

Incidents Resolved

* Incident	Description
97923	An incident was resolved where the units used for on-screen display and table display for area additional mass were different causing confusion. The values were correct for the units shown. The units have now been made the same.
98017	An incident was resolved in which the ground type for Eurocode 8 auto seismic loads and response-spectrum functions was incorrectly reported in database tables and reports when the country was specified as Singapore. This was a reporting issue only and did not affect the results.
98763	An incident was resolved where saving a model after viewing shell stresses with the contour range set to some user defined values, reopening the model and viewing the stresses again would result in the contour range getting changed. Results shown were still correct, except the contour range had been modified.

Database Tables

Incidents Resolved

* Incident	Description
97723 98419	An incident was resolved where the table display might not work in certain cases if the specified number of decimal places in the output was set to the maximum allowed value of 10. A lower value worked.
97809	An incident was resolved where models with 3-node area objects might not be able to display the Fiber Hinge Fiber States table.
98760	An incident was resolved in which an abnormal termination could occur when the model explorer was closed and a new table set was trying to be added from within the Set Load Cases to Run form.

Data Files

Incidents Resolved

* Incident	Description
97667 97837	An incident was resolved where the properties for the outer bottom surface of a triple-pendulum isolator property are not properly set when importing a model from the text file (.E2K, .SET) if the option "Outer Bottom Surface is Symmetric to Outer Top Surface" is used for that isolator property. Default values were used instead. Results agreed with the model as imported. This error did not affect triple-pendulum isolator properties where the symmetry option was not used.
97912	An incident was resolved where the design/check option for section designer sections used for columns was not being correctly imported from text files.
97960 98210 98289	An incident was resolved where text import of auto seismic loads of type User Specified or User Coefficient was not working correctly. The error was obvious as results for these cases were zeros.
99383	An incident was resolved where a "subscript out of range" error could sometimes result upon saving a model if a rebar property used in the concrete slab design preferences had been deleted. The binary (.EDB) model file was saved, but the text (.SET) model file was incomplete. This has been corrected.

Documentation

Incidents Resolved

* Incident	Description
97259	An incident was resolved in which the help topic Auto Hinge Assignment Data Form incorrectly documented concrete shear wall hinges which were not available from this form.