

ETABS v19.0.1 Release Notes

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Notice Date: 11-December-2020

This document lists changes made to ETABS since v19.0.0, released 28-October-2020. Items marked with an asterisk (*) in the first column are more significant.

Analysis

Enhancements Implemented

*	Ticket	Description
	5554	An enhancement has been made to speed-up the recovery of the "Element Nonlinear Energy By Group" and step-by-step "Base Reactions" response tables for load cases with a large number of output steps.
*	5656	An enhancement has been made to speed-up stiffness solution by parallelizing global stiffness assembly phase when using the Advanced or Multi-threaded Solver options. This should increase the speed of nonlinear static, nonlinear multi-step static, and nonlinear direct-integration time-history load cases for medium-sized models, especially when using Newton-Raphson iteration and/or event-to-event stepping.
	5780	Analysis results can now be recovered in certain uncommon cases where an unexpected termination of the graphical user interface occurs before the analysis results can be saved with the model. This can occur, for example, due to a power failure or a scheduled reboot following a Windows update during long-running analyses, or an inability to refresh the graphical user interface when reconnecting to remote desktop. For the recovery to be possible, the analysis must be run out-of-process (the default), and either (a) the entire run must finish when load cases are run in series (the default), or (b) some of the load cases must finish when load cases are run in parallel. In the latter case, only the load cases that have finished can be recovered. If recovery is possible, a message will be presented to the user next time the model is opened with the option to access the results or discard them. If the results are accessed, the user should review them carefully for validity, and then save the model to keep the results or unlock the model to delete them. Note that certain load cases should be re-run in any case, such as those applying code-based wind or seismic load patterns that depend on modal period, and response-spectrum load cases with accidental torsion or that apply equivalent static loads. If design is to be performed, it is recommended to run or re-run one or more linear load cases to trigger certain automatic calculations needed for design, such as for live-load reduction factors. The main purpose of this enhancement is to preserve the results of long-running nonlinear load cases and their preceding load cases.

Design – Composite Beam

Enhancements Implemented

*	Ticket	Description
	5634	An enhancement was made to composite beam design. The controlling load combinations are now included in the Constructability and Serviceability section of the detailed output.

Documentation

Enhancements Implemented

*	Ticket	Description
	5381	The "ETABS Introductory Tutorial" manual has been updated to reflect the latest features and graphical user interface.
	5645	The "Welcome to ETABS" manual has been updated to reflect the latest features and graphical user interface.

Installation and Licensing

Enhancements Implemented

*	Ticket	Description
	4933	The version number has been changed to 19.0.1 for a new minor release.

Loading

Enhancements Implemented

*	Ticket	Description
*	5175	An enhancement was made for the NBCC 2015 auto wind load where the Exposure Factor (Ce) is now available for the Dynamic procedure for Open and Rough Terrain.

Results Display and Output

Enhancements Implemented

*	Ticket	Description
	3856	An enhancement was added in the project report which now includes the calculation for NBCC 2015 auto wind loads.

Analysis
Incidents Resolved

*	Ticket	Description
*	5422	An incident was resolved where very sudden strength loss in single degree-of-freedom nonlinear hinges, nonlinear materials used in fiber hinges, or multi-linear plastic links could result in a stress value that is below the residual stress specified on the backbone curve. This issue could occur in nonlinear static, nonlinear staged construction, nonlinear direct-integration time-history, and nonlinear modal time-history (FNA) load cases. The affected hysteresis types were kinematic, isotropic, degrading, or BRB-hardening. Other types of hysteresis, as well as the Interacting and Parametric P-M2-M3 hinges, were not affected. This issue would be most noticeable for a backbone curve with significant loss of strength and when the strength-loss branch of the backbone curve was traversed quickly in only a few analysis steps. Additionally, the behavior of the kinematic, isotropic, degrading, and BRB-hardening hysteresis types, when reloading from the strength-loss branch of the backbone curve, were adjusted to be consistent with the other hysteresis types and the Interacting and Parametric P-M2-M3 hinges. Models which experience strength loss in single degree-of-freedom nonlinear hinges, nonlinear materials used in fiber hinges, or multi-linear plastic type links for the affected hysteresis types may now produce somewhat different results due to this change. In particular, the new results will tend to dissipate more energy following strength loss. Most models will not be affected.
*	5644	An incident was resolved where material creep behavior modeled by full-integration could cause a time-dependent staged-construction load case to terminate unexpectedly when the creep data became very large (more than 2GB), after which results were not available. This could occur in larger models after many steps, since the creep-history data grows with every stress increment when using full integration. This problem was not common. Using Dirichlet series to model creep behavior maintains a constant size for the creep-history data, and hence did not trigger this issue. The use of Dirichlet series for long-running models can still be useful to reduce disk storage and analysis time.

Data Files
Incidents Resolved

*	Ticket	Description
*	5697	An incident was resolved where model files (.EDB) could not be opened on machines with certain language configurations. When this occurred, an error message was given. This error affected version 19.0.0 only.
	5700	An incident was resolved where SidePlate property data could not be accessed on some machines due to permission issues. When this occurred, a warning message was shown when running the analysis.

Database Tables
Incidents Resolved

*	Ticket	Description
	4103	An incident was resolved where the "Material Behavior" parameter in the tables "Slab Property Definitions - Layers" and "Wall Property Definitions - Layers" was always imported as "Directional", even if it was specified to be "Coupled" in the tables. This affected tables imported from external files as well as tables edited in the interactive database editor. Only slab and wall properties defined as layered were affected. Thin-shell, thick-shell, membrane, and plate shell properties were not affected.
	5567	An incident was resolved where, when using the interactive database editor to modify the "Time History - Linear Direct Integration" or "Time History - Nonlin Direct Integration" tables, the modal case specified for load cases that use more than one row in those database tables may be reset to the default modal load case. When this issue occurred, the

*	Ticket	Description
		change was reflected in the subsequently displayed database tables and in the load case definition forms.
	5709	An incident was resolved where, when the interactive database (Edit menu>Interactive Database) is used to modify the Load Combination Definitions table, load combinations with a combination type not set to "Linear Add" will be changed to have a combination type of Envelope. When this issue occurred, the change is reflected in the Load Combination Data form (Define menu>Load Combinations) and the Load Combination Definitions database table once the interactive database form is closed.
	5713	An incident was resolved where the table for nonlinear staged construction load case definitions could be missing some data if multiple nonlinear staged construction load cases were defined.

Design – Composite Beam Incidents Resolved

*	Ticket	Description
	5632	An incident was resolved which affected composite beam design per all codes except AISC 360-16. When the composite beam design code was set to AISC 360-16 and the Consider Axial Force option was set to True in the Composite Beam Design Preferences or in any of the beam Composite Beam Design Overwrites, and then the design code was subsequently changed to a code other than AISC 360-16, any axial force present in composite beams was still being taken into account during design and its effect significantly overestimated. When the beam section was an Auto-Select section, this could produce designs that were over-conservative. When the beam section was a regular steel section, this could produce design warnings in the Interactive Composite Design form and in the output. This affected ETABS Versions 18.0.0 through 19.0.0. No unconservative designs were produced.
	5636	An incident was resolved which affected composite beam design. When the load combinations selected for composite beam deflection included load cases that themselves included notional load patterns, the dead load deflection and total deflection of the beam were underestimated. This affected all versions of ETABS that design composite beams. When this occurred, the strength of the composite beams designed by ETABS was not affected and the error was obvious in the output. Prior to designing composite beams, ETABS now checks that the load combinations selected for composite beam deflection do not include load cases that themselves included notional load patterns. Also attempts to include such load combinations in the list of load combinations selected for deflection check in the Design Load Combos Selection form now cause an error message to be displayed.
	5717	An incident was resolved which affected composite beam design per the Eurocode. When computing the plastic moment capacity of beams, ETABS assumed the steel was stressed to its yield strength, f_y , instead of assuming it was stressed to its design yield strength f_{yd} . These two strengths differ when the Eurocode factor γ_{M0} has been set in the composite beam design preferences to a value other than its default value of 1.0. When this happened, the plastic moment capacity was somewhat overestimated by ETABS. This affected all versions of ETABS capable of designing composite beams per the Eurocode, versions 13.0.0 to 19.0.0.
	5718	An incident was resolved which affected the design of composite beams with user-specified shear-stud distributions. The shear strength of such beams was checked by ETABS without making allowance for any coping at the ends of the beam. Also, the factored shear force in the output and the shear demand/capacity ratios displayed on screen and listed in the output were based on the construction strengths only. This affected ETABS versions 16.2.0 to 19.0.0. Composite beams with default shear-stud distributions were not affected.

Documentation

Incidents Resolved

*	Ticket	Description
	5703	A change was made in the Composite Beam Design Manual Eurocode 4-2004. The Manual previously gave a wrong value of the concrete modulus of elasticity, E_c , used to check beam vibrations. The Manual now gives the proper value of E_c . The program used the correct value and the results are unaffected.

External Import and Export

Incidents Resolved

*	Ticket	Description
	5529	An incident was resolved which affected the import of curved walls with openings at their base from .EXR files produced by CSI/Revit. These walls were imported with an incorrect geometry. When this occurred, the error was visually obvious, and the results agreed with the model as imported. This issue only affected ETABS v19.0.0, as these walls were not imported in ETABS v18 and earlier.
	5671	An incident was resolved where ETABS story levels were not exported from ETABS to .EXR files. This affected ETABS v19.0.0 only. When the .EXR files exported from ETABS were imported into Revit projects which did not already contain story levels matching the ETABS levels, the error was visually obvious.

Installation and Licensing

Incidents Resolved

*	Ticket	Description
*	5612	An incident was resolved where an abnormal termination error would occur when closing ETABS on some machines. This did not affect models or any results.

Results Display and Output

Incidents Resolved

*	Ticket	Description
	5596	An incident was resolved where the energy output of linear link elements with non-zero damping coefficient could have been reported incorrectly. This occurred in nonlinear direct-integration time-history load cases using the event-to-event solution scheme for time steps that had intermediate event steps. This error only affected the reported nonlinear viscous energy, and it caused a corresponding energy error to be reported. No other results were affected.

Structural Model

Incidents Resolved

*	Ticket	Description
*	5572	An incident was resolved for cracked slab analysis where the modulus of rupture for concrete that was being used in the analysis was only correct for ACI codes and for models in lb-inch units. The modulus of rupture for other design codes or for any user-specified value was being overwritten by the ACI values in lb-inch units. The error only affected the recently released ETABS v19.0.0. Models with cracked slab analysis requested in that version should be re-run.

User Interface

Incidents Resolved

*	Ticket	Description
*	5484	An incident was resolved where opening the form to modify the angles in a P-M3 hinge sometimes caused an abnormal termination.

*	Ticket	Description
	5681	An incident was resolved where an error message could occur when opening the PMM interaction surface form for a hinge. Results were not affected.