ETABS v22.3.0 Release Notes

Notice Date: 17-October-2024

This document lists changes made to ETABS since v22.2.0, released 01-October-2024. Items marked with an asterisk (*) in the first column are more significant.

Design – Composite Beam

Enhancements Implemented

*	Ticket	Description
	10880	An enhancement to composite beam design per Eurocode 4-2004 and IS11384 : 2022 was implemented. Users can now specify in the composite beam design preferences whether shear studs are to be welded through the deck, or threaded through holes in the deck. This choice affects the value of the stud strength for shear studs in filled deck ribs with ribs transverse to the beam being designed. Previous versions of ETABS assumed shear studs were always to be welded through the deck.
	10903	An enhancement to composite beam design per IS 11384:2022 was implemented. The plastic design capacity of composite beams is now computed with the equations listed in IS 11384 Table 17 for beams that support a solid slab, and with equivalent equations for beams that support a ribbed deck. The plastic design capacity was previously computed using slightly different assumptions regarding the stress distribution in the area of concrete in compression. Differences of up to 3% in resulting plastic capacity have been observed.

Installation and Licensing

Enhancements Implemented

*	Ticket	Description
*	10884	The version number has been changed to 22.3.0 for a new intermediate release.

Data Files

Incidents Resolved

*	Ticket	Description
*	10899	An incident was resolved where some models with links saved in ETABS v22.2.0 could not be reopened in the same version. This has been fixed and these models can now be opened in v22.3.0.

Design – Composite Beam

Incidents Resolved

*	Ticket	Description
	10904	An incident affecting composite beam design per IS 11384:2022 was resolved. The minimum percentage of composite action to be applied to beams was computed per Eurocode 4-2004 instead of IS 11384:2022 and accordingly underestimated for certain combinations of grade of steel and beam span, although it never went below 40%. When this occurred, the bending capacity and effective moment of inertia of the design were still sufficient to ensure its adequacy. Also the percentage of composite action of the designs was displayed in both the interactive design form and the output, with the user having the option to choose a higher percentage in the form.

Design – Shear Wall

Incidents Resolved

*	Ticket	Description
*	10900	An incident was resolved where spandrels could not be designed in ETABS v22.2.0. This has been fixed in v22.3.0.

ETABS v22.2.0 Release Notes

Notice Date: 30-September-2024

This document lists changes made to ETABS since v22.1.0, released 13-July-2024. Items marked with an asterisk (*) in the first column are more significant.

Analysis

Enhancements Implemented

*	Ticket	Description
	10194	The Diaphragm Forces (Display menu>Force/Stress Diagrams>Diaphragm Forces) option "Show Applied Loads" now shows applied joint forces for nonlinear load cases also.
*	10264	An enhancement has been implemented that allows users to perform frequency-domain analysis based upon the dynamical response of the structure to harmonically varying load. Two type of frequency-domain load cases can be defined under Define > Load Cases menu: deterministic Steady-State analysis and probabilistic Power-Spectral-Density analyses. The output for these analyses is currently only available in database table format. The display of deformed shape and force/stress diagrams in the GUI is not available and will be implemented in a future update to the program.

Design – Composite Beam

Enhancements Implemented

*	Ticket	Description
*	10676	An enhancement to composite beam design was made with design per the Chinese GB50017 code added.
	10759	An enhancement to the Interactive Composite Beam Design form was implemented. When the user interactively designs a beam which has an auto select section with the form Show All Alternates option selected and chooses a failing design as the final selection, ETABS displays a form asking for confirmation.
*	10776	An enhancement to composite beam design was made with design per the Indian IS 11384:2022 code added.
	10778	Two related incidents affecting composite beam design were resolved. 1) The composite properties of beams with a user-defined section and a non-zero fillet radius were computed on the basis of a zero fillet radius. When this occurred, the error was minimal and erred on the conservative side. 2) The shear capacities of built-up I sections or user-defined sections with a zero fillet radius were computed on the basis of a fillet radius equal to 10% of the thickness of the thickest flange, which led to an underestimation of the web slenderness. When this occurred, the error was minimal and seldom affected designs as shear capacity seldom controls the design of composite beams. Both incidents affected all versions of ETABS capable of designing composite beams.

Design – Steel Frame

Enhancements Implemented

*	Ticket	Description
	10790	An incident has been resolved in steel frame design code "Chinese 2018" in which the allowable fy values for grade Q460 have been modified as follows: (a) thickness <= 16 mm, fy = 460 MPa (no change), (b) 16 mm < thickness <= 40 mm, fy = 450 MPa (previously 440 MPa, (c) 40 mm < thickness <= 63 mm, fy = 430 MPa (previously 420 MPa), and (d) 63 mm < thickness <= 100 mm, fy = 410 MPa (previously 400 MPa). All other allowable values for fy remain unchanged.

*	Ticket	Description
	10796	An incident has been resolved in the steel frame design code “Chinese 2018” regarding the Beta_tx parameter. Previously, this parameter was not correctly set to 0.85 for beams subjected to lateral loads along the span, which also experienced end moments and underwent double curvature bending, where end moments had the same sign but had opposing signs in the middle of the span. Instead of the value of 0.85, it was set as 1.0. All other cases remain the same as before.

Graphics

Enhancements Implemented

*	Ticket	Description
	10674	An enhancement was made for setting edge color for extruded frames view. The option to select edge color for shell edges and positive and negative faces was also added.

Installation and Licensing

Enhancements Implemented

*	Ticket	Description
*	10729	The version number has been changed to 22.2.0 for a new intermediate release.

Results Display and Output

Enhancements Implemented

*	Ticket	Description
*	10594	An enhancement was made to display frame force/moment diagrams with colored contours. Mouse hover works to trace the moment value at a specific frame location.

Section Designer

Enhancements Implemented

*	Ticket	Description
	10649	An enhancement has been made to add circular reinforcement for rectangular concrete shapes and rectangular reinforcement for circular concrete shapes in section designer. Previously, only rectangular reinforcement could be defined for rectangular concrete shapes and only circular reinforcement could be defined for circular concrete shapes.

Structural Model

Enhancements Implemented

*	Ticket	Description
*	10538	A new link property "Sumitomo Viscoelastic Damper" has been implemented to represent the behavior of high-damping rubber vibration control damper devices produced by Sumitomo Rubber Industries. The nonlinear damper behavior is a combination of elastic, plastic, and viscous damping behavior and can be enabled for any of the translational degrees of freedom independently. Information about the damper and its parameters is available in the "Sumitomo Viscoelastic Damper Link Property" technical note provided with the program.
	10862	Definition of point spring property has been enhanced in the program. Previously, the nonlinear behavior of the point spring could only be defined through link properties. The enhancement now allows users to specify the nonlinearity in two ways - Quick Specifications or From Link Properties. Under Quick Specifications, user can choose nonlinear options as None, Tension Only, Compression Only, or Elasto-plastic. This option only applies to translation Z direction. The second option (i.e. From Link Properties) works as before. If the source of nonlinearity is from Link Properties then for a given direction, link effective stiffness and simple spring stiffness specified for the point spring are additive.

User Interface

Enhancements Implemented

*	Ticket	Description
	10635	An enhancement was made to display the design overwrites for steel and concrete frames using the right click information form.
	10713	Enhancement added to display frame local axes color in section definition form and local axes numbers in model assignment display.
	10734	An enhancement was made to select/unselect link objects for similar and all stories.
	10857	An enhancement was added to display rebar detailing information for concrete columns and beams in object right click form when detailing results are available.
	10858	An enhancement was made to display rebar detailing editor for strip rebar at the right click on the design strip > Detailing tab when slab detailing results are available.

Analysis

Incidents Resolved

*	Ticket	Description
	10811	An incident was resolved where nonlinear static load cases that have mode(s) applied as load(s) and were run quasi-statically (as time-history) didn't automatically schedule and run the prerequisite modal load case and failed to start when running load cases in parallel.
	10853	An incident was resolved where a Parametric P-M2-M3 hinge may produce invalid results (NaN) when the hinge transitioned through the yield and ultimate points on the backbone curve with an extremely small step size. The analysis would not be able to continue after the issue occurred, and further results were unavailable. All results prior to the issue occurring are valid and unaffected.

Database Tables

Incidents Resolved

*	Ticket	Description
	10722	An incident has been resolved where the selection of objects via the database table was not working for the load assignment tables for frame objects and the assignment tables for link objects. For frame load assignment tables, joint object would get selected instead of frame objects when any of the selection options was used. For link assignment tables, no link objects were selected when any of the available selection options was used.
	10735	An incident was resolved where the program would terminate abnormally when an attempt was made to interactively edit the table for frame section concrete column reinforcing when program was being run in Chinese language. This issue was not there when the program was run in English language.
	10738	An incident has been resolved where the button on the database tables form to set output selections was always disabled. This prevented the user from selecting the output selections by clicking on the button. As a workaround, the user had the option to set the output selections via Edit command that was working without any issues.
	10780	An incident was resolved where the "Diaphragm Forces" database table did not show joints at the edge of floor elements where shell edge releases were applied. This was a reporting issue with the database table and did not affect the diaphragm forces shown on the display.
	10878	An incident was resolved where, when a Tendon Object is added using Interactive Database editing (Edit menu>Interactive Database) through the "Tendon Object Connectivity" database table, an error would occur when trying to apply the changes. This issue affected Interactive Database Editing in the graphical user interface as well as through cDatabaseTables in the API and the import of ETABS text files (File menu>Import).

Design – Concrete Frame

Incidents Resolved

*	Ticket	Description
	10824	An incident has been resolved for the Eurocode 2-2004 concrete frame design for serviceability in which some of design parameters are not available for beam sections. These includes Serviceability: Conc. Comp. Stress Limit k1, Serviceability: Steel Tensile Stress Limit k3, Serviceability: Exposure Class, Serviceability: Crack Width Limit, and Serviceability: Concrete Age at Cracking.

Design – Shear Wall

Incidents Resolved

*	Ticket	Description
	10736	An incident was resolved for ACI 318-19 shear wall design where capacity design based on SD section was unable to compute section capacity of the wall at critical section. This issue only affected v22.0.0 and v22.1.0.

Design – Steel Frame
Incidents Resolved

*	Ticket	Description
	10800	An incident was resolved for AISC 360-22, AISC 360-16 and AISC 360-10 where capacity design of Reduce Beam Section (RBS) was not performed. This only affected v22.0.0 and v22.1.0.

Drafting and Editing
Incidents Resolved

*	Ticket	Description
	10692	An incident was resolved where the undo/redo commands were not available after a column rotation command was given.

External Import and Export
Incidents Resolved

*	Ticket	Description
	10847	An incident was resolved to fix the import of Perform3D models into ETABS if an older version of Perform3D (v5 or v7) was not installed on the machine.

Results Display and Output
Incidents Resolved

*	Ticket	Description
	10714	An incident was resolved where for high-rise buildings, ETABS was not able to create the report for wind and seismic calculation tables.
	10720	An incident was resolved where, user-defined interacting hinges (P-M2, P-M3, M2-M3, or P-M2-M3) with a user-specified scale factor for rotation may display an incorrect backbone curve in the Hinge Response window (Display menu>Hinge Results). This was a display issue that only affected the backbone curve display. Analysis results were not affected.
	10733	An incident was resolved where program was not able to display deformed joint information in Plan and Elevation views. Right click to show joint displacement information was also fixed in Plan and Elevation view.
*	10744	An incident was resolved where joint reactions, element joint forces, and spring forces response could get corrupted and/or lead to errors during response recovery for a modal time history load case with a large number of applied load patterns (unique) on a medium to large model.
	10786	An incident was resolved where, for nonlinear static, staged construction, and nonlinear direct-integration time-history load cases, joint loads applied to restrained degrees-of-freedom applied in previous load cases/stages were not being reported in the base reactions and joint reactions output. Joint loads applied in a load case/stage would be reported correctly in that load case/stage but left out in any subsequently load case/stage which continued from it. This is a reporting issue.
	10846	An incident was resolved where in some instances displaying beam design diagrams would cause an error condition.
	10864	An incident was resolved in the floor vibration design (AISC Design Guide 11). The incident affected the design output of high frequency floors (>9 Hz). Similarly, another incident affecting the design output of low frequency floors when a damping value of 3% was specified.

Structural Model
Incidents Resolved

*	Ticket	Description
	10721	An incident was resolved for the Indian IS 875-1987 live load reduction factor (LLRF) where the LLRF for stories over 10 was taken as 0.6 instead of 0.5. The results were conservative.

*	Ticket	Description
	10743	An incident was resolved where an "Error in assigning area hinges" message occurred when assigning Auto Fiber P-M3 Vertical Shear Wall type wall hinges to wall objects, preventing the wall hinge from being able to be assigned. This issue only affected Vertical Shear Wall type hinges and only occurred in ETABS v22.0.0 and v22.1.0.
	10754	An incident was resolved where assigning a Parametric P-M2-M3 type ASCE41-23 auto-hinge to a frame object (Assign menu>Frame>Hinges) would result in an incomplete hinge assignment that would error when the model was run. This issue only occurred in ETABS v22.0.0 and v22.1.0 and affected ASCE41-23 auto hinges of the Parametric P-M2-M3 type, which is only available for concrete and steel column hinges.

User Interface

Incidents Resolved

*	Ticket	Description
	10727	An incident was resolved where reinforcement assignment for certain wall hinges was causing an error condition.
	10739	An incident was resolved where the selected/unselected items in the tree view in the replicate options form and the paste assign forms for joints/frames/shells/links were not getting saved.
	10758	An incident was resolved where the frame auto-hinge assignment form "Auto Hinge Assignment Data" for ASCE 41-23 Concrete Column hinges may have the group box "Shear Demand at Flexural Yielding/Shear Capacity" disabled if the hinge assignment was previously an ASCE41-17 Concrete Column hinge with the Concrete Column Behavior set to "Controlled by Inadequate Development or Spacing". This issue only prevented the group box "Shear Demand at Flexural Yielding/Shear Capacity" from being edited and would be resolved by closing and re-opening the form. This issue did not affect analysis results and the model was consistent with the information displayed on the form.
	10789	An incident has been resolved where the program would terminate abnormally when an attempt was made to view or edit the inelastic data for an imported Core BRB frame section. The issue was introduced in v22.0.0 of ETABS.
	10809	An incident was resolved where Time History Function button was not available when all time history functions were deleted.
	10850	An incident was resolved where changing a member section property from steel to concrete (or vice versa) using the right click of mouse on any frame was causing an abnormal termination.
*	10866	An incident was resolved where running many load cases that iterated very quickly in parallel for a long time caused (1) frequent flickering on the analysis monitor form, (2) missing messages on individual analysis monitor tabs, (3) incorrect total progress on the main form, and (4) sometimes unexpected termination of the program.