ETABS v20.2.0 Release Notes

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Notice Date: 01-July-2022

This document lists changes made to ETABS since v20.1.0, released 31-March-2022. Items marked with an asterisk (*) in the first column are more significant.

Analysis
Enhancements Implemented

*	Ticket	Description
*	8405	A change has been made to the reporting of joint reactions and base reactions for nonlinear static and staged-construction load cases. Previously joint-force loads and acceleration loads applied at restrained degrees of freedom were excluded from the reported joint reactions at these degrees of freedom, including their contribution to overall base reactions. This was intentional for matching the reactions to the force reported in the connected frame objects when performing pushover-types of analyses. However, this is now changed to be consistent with the reactions reported for most other types of load cases, including linear static, nonlinear direct-integration time history, and modal time history, including FNA. This is a reporting issue only. No other results are affected, including the reactions at flexible supports (spring support and one-joint links). The only change in restraint reactions will be due to joint-force loads applied directly on the joint and apportioned acceleration loads from connected objects, including from mass directly assigned to the joint.
	8418	An enhancement has been made to speed up generation of the analysis model for models with nonlinear staged-construction load cases and many area objects using line constraints. Results are not affected.

API
Enhancements Implemented

*	Ticket	Description
	6915	The Application Programming Interface (API) has been enhanced with the addition of functions cFuncRS.GetNTC2018 and cFuncRS.SetNTC2018 to retrieve and set the parameters for the Italian NTC 2018 response-spectrum function.
	7486	The Application Programming Interface (API) has been enhanced with the addition of functions SetCase, Get/SetNumberModes, Get/SetInitialCase, Get/SetLoads, Get/SetNumberModes in classes cModalEigen and cModalRitz. In addition, functions Get/SetParameters have been added to class cModalEigen.
	8377	The Application Programming Interface (API) has been enhanced with the addition of functions get and set design preferences and design overwrites for steel frame code CSA-S16-19.
*	8530	The following enhancements have been made to the Application Programming Interface (API): (1.) The new function cHelper.GetObjectProcess() can be used to attach to any running instance of ETABS given its process ID. (2.) A new command "Set as active instance for API" has been added to the Tools menu. This command will make the current instance of ETABS the "active instance" so that it will then respond to subsequent calls to cHelper.GetObject() function. If the current instance is the active instance, then this command is disabled. In either case, the process ID of the current instance is displayed for use with the new function cHelper.GetObjectProcess(). (3.) A new interface cPluginContract has been added to simplify plugin development. (4.) Speed has been improved for external .NET clients that call the API by chaining properties and methods (e.g. mySapObject.SapModel.PointObj.GetElm) in deeply nested loops.

Data Files
Enhancements Implemented

*	Ticket	Description
	8379	A built-in material library has been added for Canada. The library contains steel materials per the CSA G40.20-13/G40.21-13 standard, concrete materials per the CSA A23.3 standard, and rebar materials per the CSA G30.18:21 standard.

Database Tables
Enhancements Implemented

*	Ticket	Description
	8356	An enhancement has been implemented to allow users to select which generalized displacements and section cuts will be output to database tables by clicking a button on the table selection form. Previously, these items could only be selected via a menu item under the Edit menu on the form.

Design – Slab
Enhancements Implemented

*	Ticket	Description
*	8197	The concrete code "CSA A23.3-19" has been added for reinforced-concrete and post-tensioned slab design.
	8643	Reinforced concrete slab and PT slab design have been updated for the NZS 3101-06 code to accommodate Amendments 1 to 3.
	8665	A new concrete slab design preference called "Overwrite Shear Lambdas to One for Mats and Footings?" is available for the "ACI 318-19" code. When set to "Yes", the depth-dependent shear-strength reduction factor, Lambda_s, will be set to 1.0 for mats and footings per ACI 318-19 13.2.6.2. The default value is "Yes". For older files, the value is taken as "No" so as to maintain the previous results, which were conservative. This can be changed, if desired, after opening the older model in the new version. The other slab types (Slab, Drop, Stiff, Ribbed, and Waffle) are unaffected by this design-preference toggle.

Design – Steel Frame
Enhancements Implemented

*	Ticket	Description
	8606	The "Chinese 2018" steel frame design code now has improved reporting of the appropriate load amplification factorN (0.8 vs. 1.25) used for Euler buckling of Double Angle, T-section, and Channel sections. Generally, the amplification factor is 1.0 / (1.0 - factorN * N / N_E), where the factorN = 0.8 for all sections with some exceptions: for the Double Angle and T-sections, factorN is 1.25 when considering the major direction, and for the Channel sections, factorN is 1.25 when considering the minor direction (GB50017-2017 8.2.1-1 =0.8, 8.2.1-4 =1.25, 8.2.4-1 =0.8, 8.2.5-1 =0.8, 8.2.5-2 =0.8). Previously the value of factorN was only reported when it was equal to 0.8. Now it will also be reported when the value is 1.25. This is a change in reporting only. In both cases, the correct value was used internally and design results are not changed.

Drafting and Editing
Enhancements Implemented

*	Ticket	Description
	7818	The option to select a tower has been removed from the forms used for adding slab panels, support lines, and design strips when the option Allow Multiple Towers is turned off for the model. This change is for clarity, but does not change any behavior.

Graphics
Enhancements Implemented

*	Ticket	Description
	8582	An enhancement was made to handle the case where the user runs ETABS on different machines with differing graphics-card capabilities. The settings in the ETABS.INI file now keep track of the graphics mode (Standard Graphics or DirectX) selected for each machine where ETABS is run. Note that this mainly affects users with a Windows roaming profile or who copy the ETABS.INI file between machines. The ETABS.INI file can be found in the folder "%localappdata%\Computers and Structures\ETABS 20", and it also can be accessed by clicking the link "User Settings Folder" under command Help > About ETABS.

Installation and Licensing
Enhancements Implemented

*	Ticket	Description
*	8351	The version number has been changed to 20.2.0 for a new intermediate release.

Loading
Enhancements Implemented

*	Ticket	Description
	8205	An enhancement was made so temperature loads on overlapping area objects will be applied additively. The most common use of this is where a drop panel overlaps a slab object. Previously, temperature loads assigned to the slab would not affect overlapping drop panel objects. Now, any temperature loads applied to the slab will be applied to all overlapping drop panel objects, which is consistent with SAFE.

Results Display and Output
Enhancements Implemented

*	Ticket	Description
	8656	An enhancement was made to add integrated wall reactions to tables and the on-screen display.

Structural Model
Enhancements Implemented

*	Ticket	Description
*	8446	An enhancement was made to the "Specified Rebar Layout" rebar option for wall hinges (Assign menu > Shell > Reinforcement for Wall Hinge) to allow the option of assigning the rebar in a Pier orientation or a Spandrel orientation. Previously, rebar could only be assigned in a Pier orientation. Usage is as follows: (1.) When used for a Vertical Shear Wall hinge, (1a.) specified rebar layouts with a Pier orientation will use the flexural (longitudinal) rebar detail for the generated hinge, and (1b.) specified rebar layouts with a Spandrel orientation will use the shear (transverse) rebar detail for the generated hinge. (2.) When used for a General Shear Wall hinge, (2a.) specified rebar layouts with a Pier orientation will use the flexural (longitudinal) rebar detail for the generated hinge in the vertical or S22 direction and the shear (transverse) rebar detail for the generated hinge in the horizontal or S11 direction, and (2b.) specified rebar layouts with a Spandrel orientation will use the flexural (longitudinal) rebar detail for the generated hinge in the horizontal or S11 direction and the shear (transverse) rebar detail for the generated hinge in the vertical or S22 direction.

*	Ticket	Description
*	8587	The viscous damper type link properties "Damper - Exponential" and "Damper - Bilinear" (Define menu > Section Properties > Link/Support Properties) have been enhanced to add a Fixed Length Damper option for the axial (U1) degree of freedom. When enabled, the Fixed Length Damper option allows the user to define the damper length as a fixed value and the modulus of elasticity and cross-sectional area for the extender which will span the additional length of the link that is not taken up by the damper. For analysis, the extender is effectively a linear spring that is in series with the damper. Note that this is in addition to the stiffness specified for the damper itself, which is primarily due to the fluid column in the device, and whose value should be obtained from the manufacturer of the device. The stiffness of the damper and the extender, when present, act in series so that their flexibilities are additive.

User Interface
Enhancements Implemented

*	Ticket	Description
	8360	A change was made to enable the Options menu commands Graphics Mode and Show Model Explorer before starting a new model or opening an existing model.The command Show Start Page at Startup is also enabled, though this will not take effect until the next time ETABS is started.

Analysis
Incidents Resolved

*	Ticket	Description
*	8416	An incident was resolved where link elements with a viscous damper property (Linear with non-zero damping coefficients, Exponential Damper, or Bilinear Damper) could experience forces that did not correspond to the velocity of the element. This issue only occurred in direct-integration time-history analyses where the Geometric Nonlinearity option was set to "P-Delta plus Large Displacements". When this issue occurred, the damper elements notably did not return to a small or nearly-zero force value after the structure had come to a standstill.
*	8512	An incident was resolved where the flexibility of fiber hinges in frame objects was not included in the stiffness-proportional damping used for direct-integration time-history load cases. This issue was most apparent in Vertical Shear Wall hinges in models where hinges were modeled within elements and resulted in very large stiffness-proportional damping forces which could prevent the wall hinge from experiencing significant deformations in time-history analyses. The effect on frame objects with fibers hinges that covered a small part of the object length was significantly less pronounced. This issue was only present in ETABS v20.1.0 and did not affect older versions of the software. This issue only affected direct-integration time-history load cases where stiffness-proportional damping was used. Models that were affected by this issue should be rerun.
*	8623	An incident was resolved where the program-generated load case for computing accidental eccentricity (~Torsion) in a response spectrum load case always started from the initial state. This behavior has been changed so that the accidental eccentricity load case will use the stiffness consistent with the modal load case specified in the response spectrum load case. Using the wrong stiffness state for the torsional load case could lead to inconsistent torsional results when there were significant P-delta or other nonlinear effects in the modal-stiffness load cases, or if the structure was different between the stiffness states due to staged-construction. In most common situations, the effect was minimal.
	8625	An incident was resolved where the column rebar ratio for creep and shrinkage used in analysis could have been underestimated as it was only accounting for the rebars on the +2 and -2 faces of the column (effective for major direction moment). This was not an issue if the user had explicitly provided the rebar ratio. This issue only affected versions 20.0.0 and 20.1.0.

API
Incidents Resolved

*	Ticket	Description
	8371	An incident was resolved for the Application Programming Interface (API) where the function cPointObj.GetMass returned the error code 1 for point objects that did not have additional mass assigned. This behavior has been changed so that, when used for a point object without additional mass, the function will return an array of zeroes to indicate no additional mass is assigned.

Data Files
Incidents Resolved

*	Ticket	Description
	8443	An incident was resolved where link section properties become set to "None" when imported from the ETABS .E2K text file.
	8573	An incident was resolved where the definition of plot functions for wall forces, stresses, and strains was not being exported to the .e2k (and .$et) model text file. Consequently, the definitions for such plot functions were lost upon exporting and importing a model through the text format. This data is now saved in the model text file.

*	Ticket	Description
	8584	An incident was resolved where an ETABS v9 model with hinge properties opened into ETABS v20 could not be saved due to corruption in the translated hinge data. Additionally, hinges assigned to frame objects were incorrectly located at a relative location of 0 along the length of the object.
	8622	An incident was resolved where, in certain instances, importing a database file into an existing model using the Add To Existing Model option could result in an error condition. When this occurred, the software would terminate abnormally, and the model was not imported. This was not common.

Database Tables
Incidents Resolved

*	Ticket	Description
	8393	An incident was resolved where using certain settings with the "Add to Existing Model" database import option could cause an abnormal termination to occur during the import.
	8398	An incident was resolved where the interactive database editing of tendon connectivity resulted in other existing tendon data being reset to default.
	8523	An incident was resolved that addressed two issues related to the import of Section Designer section properties: (1.) Importing a Section Designer section that included steel-plate shapes might calculate incorrect section properties until you opened the section in Section Designer and clicked OK to save the section, even without making any changes. (2.) Using the Add to Existing Model database import feature could, in certain instances, result in a Section Designer section incorrectly having duplicate section shapes.
	8603	An incident was resolved where the database table "Objects and Elements - Frames" was unable to display in models where wall objects were present. This issue also affected the ability to retrieve data from the "Objects and Elements - Frames" table through API cDatabaseTables functions.

Design – Composite Beam
Incidents Resolved

*	Ticket	Description
	8440	An incident affecting composite beam design overwrites has been resolved. Once composite beam design overwrites had been reviewed from the Interactive Composite Beam Design form, it was no longer possible to view their current values from the Composite Beam Design Overwrites command. All the fields in the form displayed read *Varies*, even when only one beam was selected. Furthermore, attempting to change the bracing overwrites caused ETABS to terminate. This issue could be avoided by restarting ETABS, or by continuing to review and change overwrites from the Interactive Composite Beam design form instead. This affected ETABS v20.0.0 and v20.1.0 only. Design results were not affected.
	8528	An incident affecting composite beam design was resolved. ETABS did not take into account any user-specified value of the "Bay Frequency" composite beam overwrite when checking the acceptability of composite beam vibrations. Instead ETABS computed the bay frequency as specified in AISC Design Guide 11. When this occurred, the strength and deflection of the beams designed were unaffected by the overwrite, and the design output listed the values of the bay frequency actually used. This incident affected all versions of ETABS capable of designing composite beams.
	8580	An incident was resolved for composite beam design per the AISC 360-16 code where the design-overwrites section was missing from the generated design reports, even when it had been selected in the User Report form. Composite beam design reports were generated as expected for all other composite beam design codes. This issue affected ETABS v18.0.0 or later and was a reporting issue only.

Design – Concrete Frame
Incidents Resolved

*	Ticket	Description
	8496	An incident was resolved for all concrete frame design codes where the reported longitudinal rebars for detailing the beams were the top and bottom rebars required for flexural strength only. Now the reported top and bottom total longitudinal rebars for detailing are calculated from the flexural-, torsional-, and shear-strength requirements (for the applicable codes like "AS 3600-2018", "CSA A23.3-14","CSA A23.3-19", "Eurocode 2-2004", and "SP 63.13330.2012") . The display also shows "Torsional Longitudinal Reinforcing", "Shear Longitudinal Reinforcing", and "Flexural Longitudinal Reinforcing" for the codes where shear and torsion affect the longitudinal rebar design. The reported "Shear Plus Torsion Reinforcing" stirrup rebars are calculated from the shear and torsional strength requirements, and this is unchanged. Likewise, the reported "Shear Reinforcing" stirrup rebars in the beam are those for shear strength, as before. The previous design calculations were correct, only the detailing of the longitudinal rebars was incorrect under the conditions described above.
	8513	An incident was resolved for AISC 360-16 composite column design where encased-column design summary was not available in the database tables. Also, detailed design output was not available in the Project report for AISC 360-10 and AISC 360-16 composite-column design.
*	8519	An incident was resolved where for frame or wall design results for multi-step load cases created by auto-pattern loading were being recovered as envelope max/min (enveloping results from individual load patterns) instead of envelope range max/min (enveloping results from any combination of one or more load patterns). Slab design was not affected by this error. The error affects ETABS v20.0.0 to v20.1.0. Any frame or wall designed in these versions in models that used auto-pattern loading should be re-evaluated.
	8618	An incident was resolved for concrete frame design where the software could terminate abnormally when viewing the design detail diagrams and then results were requested for a different load combination selected from the drop-down box on the concrete frame design diagrams form.

Design – Shear Wall
Incidents Resolved

*	Ticket	Description
	8632	An incident was resolved for Eurocode 2-2004 shear wall design to enforce stricter limits on the axial load in ductile walls. Now the axial load cannot exceed 0.4*fcd*Ag for DCM walls (EC8 section 5.4.3.4.1(2)) and cannot exceed 0.35*fcd*Ag for DCH walls (EC8 section 5.5.3.4.1(2)). Previously the DCH wall was using a limit of 0.4*fcd*Ag, while no limit was enforced for DCM walls.
	8654	An incident was resolved for concrete shear wall design code Chinese 2010 where the resulting value of q did not match the expected results of the stability check for the piers. The axial force was reduced by using the multiplication factor gamma_RE. The factor gamma_RE is now removed.
	8674	An incident was resolved where the pier and spandrel design overwrite "Design is Seismic" is now removed as this was no longer applicable in AS 3600-2018 wall design. The shear wall design manual for AS 3600-2018 has been updated accordingly. This overwrite was not being used, and design results are not affected.
	8675	An incident was resolved for Eurocode 2-2008 shear wall design where shear amplification is no longer applied to DCL walls. The corresponding Shear Wall Design manual has been updated to reflect this change.

Design – Slab
Incidents Resolved

*	Ticket	Description
	8550	An incident was resolved for the Eurocode 2-2004 and Italian NTC 2008 concrete slab design codes where the value of fywd,ef used for computing shear rebar or shear studs was incorrect. The fywd,ef calculation was using the value of d in m instead of mm units, and therefore the design was always conservative. A small change was also made to the calculation of the number of stud rails required which may have sometimes reported one extra rail required.
	8690	An incident was resolved for Chinese 2010 slab design where design preference "Crack Class" was inadvertently exposed. It was not being used. This parameter has now been removed form the design preferences and design preference table has been updated accordingly.

Design – Steel Frame
Incidents Resolved

*	Ticket	Description
	8302	An incident has been resolved in steel frame design codes in which the critical buckling capacity of unequal legged angle sections, where web height was more than flange width, was not calculated correctly for certain design codes. However, the critical buckling capacity was calculated correctly for equal-legged angle sections and unequal-legged angle sections with flange width larger than web height. The affected codes are as follows: "AISC 360-10", "AISC 360-05", "AISC ASD 89", "Chinese 2018", "CSA S16-14", "IS 800:2007", "AISC LRFD 93", "SP 16.13330.2017",, "KBC 2009", "KBC 2016".
	8431	An incident was resolved for CSA S16-19 steel frame design where the design documentation regarding angle-section bending capacity was referencing sections from the AISC 360-16 code instead of from CSA S16-19. The document has been updated to reflect the correct sections from the CSA S16-19 code.
	8492	An incident was resolved for steel frame design codes "Chinese 2018" and "Chinese 2010" where the shear-stress calculation in the minor direction was incorrect for box sections. The previous calculation was conservative, giving higher stress ratios as the stress was doubled.

Documentation
Incidents Resolved

*	Ticket	Description
	7586	An incident was resolved where the Help topics for column-stack detailing were, in some cases, not correctly connected to their associated forms. Additionally, the Help content has been expanded to provide further information about this feature.
	8279	Help topic "Set Lateral Displacement Targets" has been updated to clarify that this option is only applicable for steel frame, composite beam, and composite columns. It does not apply to concrete frames, as previously indicated. There have been no changes to the actual behavior of the software.
	8403	An incident was resolved for steel frame design codes "Eurocode 3-2005" and "Italian NTC 2018" where the description of the item "Consider Torsion?" in the Steel Frame Design Preferences form indicated that torsion was checked for Channel sections in addition to the I, Rectangular Hollow, Square Hollow, and Circular Hollow sections. Now the word "Channel" has been removed from the list, since channel sections are not checked for torsion. This was a change to the description only. Design behavior has not been changed, and now this description is consistent with the manual and the actual design behavior.
	8521	The Indian IS 456:2000 shear wall design manual has been updated to remove the reference to boundary-zone transverse reinforcement (manual Section 2.2.2) as this feature is not present in the Indian shear-wall design.
	8564	An incident was resolved where erroneous references to "composite beam design" and "steel design" were present in the SWD-EC-2-2004 design manual. These have been corrected to say "concrete shear wall design".

*	Ticket	Description
	8680	An incident was resolved that corrects several typographical errors in the Lateral Loads manual: (1.) Page 2-32: The equation for braced frames referenced the NBCC 2005 code, but it should reference NBCC 2010. (2.) Page 2-35: Ft was said to be 0.7TV, but it should be 0.07TV (Clause 4.1.8.11(6)-2) (3.) Page 2-37: The equation for braced frames referenced the NBCC 2005 code, but it should reference NBCC 2015. (4.) Page 2-41: Ft was said to be 0.7TV, but it should be 0.07TV (Clause 4.1.8.11(7)-2)

Drafting and Editing
Incidents Resolved

*	Ticket	Description
	8395	An incident was resolved where performing a zoom operation while drawing a support line could change the drafting coordinates. This issue only occurred when working in Standard Graphics mode.
	8413	An incident was resolved where snaps to the architectural layer were not working after importing a DXF/DWG Architectural layer.
	8417	An Incident was resolved where models created from the new-model templates in SI or MKS units were incorrectly setting the internal database units to US Customary units (lb-in). This issue was limited to v20.1.0 only. This could cause a slight rounding of lengths when drawing a frame or wall with a fixed length as the drawn length was converted from the metric display units to the internal database units. Note that the internal database units are shown in the analysis .LOG file.
	8549	An incident was resolved where the default grid spacing and story height for new models were based on inches, even for models created using metric units. This was due to an inadvertent change affecting ETABS v20.1.0 only. The values could be changed before or after the model was created.

External Import and Export
Incidents Resolved

*	Ticket	Description
	8392	An incident was resolved where the export to DXF files was creating unexpected walls instead of deck and slab edges.
	8427	An incident was resolved where importing a DXF file for the Architectural layer was not reading the correct numerical values if there is mismatch between the decimal symbol used in the DXF file and decimal symbol specified for the system's regional settings, e.g., if one was a period (.) and the other a comma (,).
	8600	An incident was resolved for the operation Export to Perform3D where identical component names were being imported into Perform3D when the property names in SAP2000 were long enough to generate component names that were longer than the 40 characters allowed by Perform3D. Now shorter names will be generated when necessary to adhere to the Perform3D requirements.
	8678	An incident was resolved where exporting the model to SAFE with the option to export column and wall displacements was only doing so at joints with columns and walls below the exported story. Now the export also includes joints with columns and walls above the exported story.

Graphics
Incidents Resolved

*	Ticket	Description
	3758	An incident was resolved where drawing snaps to the Architectural layer were not visible when working in DirectX graphics mode.
	8435	An incident was resolved where an abnormal termination could occur on certain machines when displaying 3D views using DirectX graphics mode. Affected machines could include those with Intel UHD Graphics or Intel Iris Xe Graphics cards, which are not adequate to support full DirectX Graphics in ETABS. Now the user interface will switch to Standard Graphics when this situation is detected.

*	Ticket	Description
	8484	An incident was resolved where certain objects that are not available in a specific license level would still be visible in the graphical user interface. This usually happened when a model created using a higher license level and containing objects available only for that level was opened or imported in a lower level. As an example, if a model was created in ETABS Ultimate with design strips, and then was opened or imported in the Nonlinear or Plus level, the design strips would still be visible in the user interface even though design strips are not available in the Nonlinear or Plus levels. The issue is now addressed so that all pertinent objects are deactivated and removed from the view when a model created in higher level is opened in a lower level of the product. Note the the objects are not actually removed from the model, and they will still be available with the higher license level, provided that any associated objects have not been deleted or modified in a way that invalidates the hidden object.

Loading
Incidents Resolved

*	Ticket	Description
	8495	An incident was resolved where any changes made to AS/NZS 1170.2:2021 auto-wind load patterns through interactive database editing were not getting applied to the model. Additionally, the database tables for these load patterns were not getting imported correctly through any of the available formats except the .E2K text format.

Results Display and Output
Incidents Resolved

*	Ticket	Description
	7823	An incident was resolved where force/stress results could be displayed for the wrong active structure when plotting the Max, Min, or Max/Min results for a staged-construction load case. Affected results included joint reactions, frame/pier/spandrel/link forces, shell results, strip forces, and diaphragm forces. When this occurred, the active structure was being determined by considering the objects present in a single step in the load case rather than the set of objects present over all the output steps of the load case. This did not occur if the most recent plot of the deformed shape in the same window was also for Max or Min results. Note that the plotted envelope results were correct, only some of the expected objects could be omitted from the graphical display. Results presented in the output tables were not affected.
	8415	An incident was resolved where the Hinge Response display (Display menu > Hinge Results) did not correctly show acceptance-criteria points for force-controlled hinges. The behavior has been changed to show the acceptance criteria points for all single-degree-of-freedom, force-controlled hinges. For interacting force-controlled hinges, the acceptance criteria points will be shown for the M2 and M3 directions using the largest capacities in the respective directions independent of the behavior in other directions. This issue only affected the Hinge Response display for force-controlled hinges. Analysis results, including those reported in the output tables (Display menu > Show Tables) were not affected. Also, the more common displacement-controlled hinges were not affected.
	8447	An incident was resolved where the "Boundary Element Check" table in shear wall design reports was incorrectly reporting the governing load-combination names for the "Top-Right" and "Bottom-Right" locations. "Top-Right" was reporting the load combination for "Top-Left", while "Bottom-Right" was reporting the load combination for "Bottom-Left". This affected all shear wall design codes where this table was reported. This was only a reporting issue and no design results were affected.
*	8497	An incident was resolved where load combinations containing linear static load cases that apply multi-step auto-lateral load patterns would only consider the first step in the combination. This issue only affected ETABS v20.1.0 and only affected the load combination results.

*	Ticket	Description
	8510	The "Chinese 2010" concrete frame design code has been enhanced to add the term "Slenderness L0/b" to the paragraph "Design Params (GB50010 6.2.15)" in the frame design details. This change was made for clarity. There is no change to the design calculations or results.
*	8663	An incident was resolved where pier forces for piers that included curved walls could have been incorrect if the curved wall had internal meshing.
	8671	An incident was resolved where multiple quad gauges could not overlap and share the same joints. Now overlapping quad gauge objects can be assigned different quad-gauge properties to measure multiple response quantities over the same set of joints.

Section Designer
Incidents Resolved

*	Ticket	Description
	1622	An incident was resolved to properly display of Section Designer sections in the concrete frame design detail report. Previously, the reinforcement was shown incorrectly, and unsymmetrical concrete shapes were incorrectly located with respect to the neutral axis. These were just display issues and design results were not affected.

Structural Model
Incidents Resolved

*	Ticket	Description
	7815	An incident was resolved where the area section properties were not being copied when replicating area objects through Copy/Paste menu commands. Instead, the first available area section property in the list of defined area section properties was being assigned to the copied area objects.
	8226	An incident was resolved where link elements with a triple-pendulum property that had the U2 and/or U3 degrees of freedom set to linear did not use the specified linear effective stiffness in nonlinear load cases. The triple-pendulum link property has been changed so that now the U2 and U3 degrees of freedom are always nonlinear, similar to the U1 degree of freedom. Older models that had triple-pendulum link properties with the U2 and/or U3 degrees of freedom set to linear will have these degrees of freedom changed to nonlinear upon opening the model in ETABS v20.2.0. For such older models, the nonlinear properties will default to zero unless they had been previously defined, and this may make the model unstable or change the behavior from the previous version. Note that such models are uncommon, but they should be updated with realistic nonlinear values for affected triple-pendulum property definitions.
	8253	Am incident was resolved where general floor meshing was not working correctly for slabs if curved walls were present. Rectangular meshing was not affected.
	8459	An incident was resolved when designating any slab area property as of type "Stiff" and running an analysis would make the property modifiers and the no-design flag for the property permanent. Changing such slab section to Slab, Drop, Mat or Footing was not resetting the stiffness modifiers back to unity. These retained the values for stiff areas, where m11, m22 and m12 were amplified by 100 times while the mass and weight modifiers were set as zeros. Furthermore, no design results were available for strips and such slab sections were not designed. Now these parameters are reset to default when Stiff area properties are changed to Slab, Drop, Mat or Footing.
	8470	An incident was resolved where openings with slab areas within them or openings covering multiple slab areas would not work correctly in DirectX display mode and in General Meshing. When this occurred, the error was visually obvious.
	8679	An incident was resolved where the default slab thickness was being used when generating the profile for drawn tendons instead of using the actual thickness of the slab containing the drawn tendon.