

ETABS Version 9.5.0 Release Notes

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Release Date: 2008-09-30

This file lists all changes made to the ETABS since the last release. **Most changes do not affect most users.** Significant issues are indicated with an exclamation mark (!) in the first column of the tables below.

Changes from V9.2.0 (2008-02-20) to V9.5.0 (2008-09-30)

Import/Export — Revit Structure Enhancements Implemented

!	Incident	Description
!	15692	ETABS is now compatible with Revit Structure 2009, Build 20080915_2100. If you wish to import Revit Structure 2008 files into ETABS, you must first convert them to Revit Structure 2009.
!	16070	Full round-trip data transfer between ETABS and Revit Structure 2009 is now supported. A model may be created in either program, transferred to the other program, modified in either program, and transferred back and forth in a continuous iterative loop.
!	12842	Revit Structure member families are now comprehensively supported, subject to user control, when transferring data to and from ETABS
!	13411	Comprehensive, two-way mapping of materials, section properties, and members is now supported for data transfer between ETABS and Revit Structure, all subject to user control.
!	15896	Two-way transfer of deck section properties between ETABS and Revit Structure is now supported
!	15888	Comprehensive, two-way transfer of point, line, and area loads between ETABS and Revit Structure is now supported.
!	15595	Incremental changes made in ETABS or Revit Structure may be transferred both ways without the need to transfer the entire model. This significantly increases speed and ease of use.
!	14765	ETABS now automatically breaks columns, braces, and walls defined in Revit Structure than span multiple floors. The link to the Revit Structure entity may be maintained or broken under user control.
!	15897	Walls, floors, beams, columns and/or braces that are defined in Revit Structure, transferred to ETABS, and meshed in ETABS may be sent back to Revit Structure as meshed objects or as the original object, subject to user control.

!	Incident	Description
	14670	User control is now provided for the level of discretization to be used in ETABS for curved objects defined in Revit Structure.
	12840	End offsets and end releases set or changed in ETABS are now transferred to Revit Structure.
	15591	Cardinal point data for beams is now transferred between ETABS and Revit Structure.
	16058	The log file created when transferring data between ETABS and Revit Structure has been expanded and is now written in XML format. This format makes it easier to organize the messages. Use of an XML reader or editor is recommended.
!	16087	CSIxRevit2009 now uses ETABS technology and requires an ETABS license to run.
	16114	CSIxRevit2009, which installs with Revit Structure 2009 for communication with ETABS V9.5, is now available as part of the ETABS installation.

Import/Export — SAFE ***Enhancements Implemented***

!	Incident	Description
!	14984	Floors can be exported to SAFE Version 12, soon to be released, including mode shapes and response-spectrum data.

Design ***Enhancements Implemented***

!	Incident	Description
	14352 14518	The plain-text report format for steel and concrete frame design has been reinstated. This was removed when the RTF report format (for Microsoft Word) was introduced in Version 9.2.0. Both formats are now available using the File > Print Tables command. The plain-text report is the same as it was previously, and does not contain the expanded information that was added to the RTF report.

Graphical User Interface ***Incidents Resolved***

!	Incident	Description
	14358	Cardinal point information was not correctly displayed when right-clicking on a line object. This has been resolved.
	15804	Formulae and unit conversions entered into forms could be calculated incorrectly in rare cases. This has been resolved.

Import/Export with Revit Structure *Incidents Resolved*

!	Incident	Description
!	12864 14738	Uniform load transferred from Revit Structure to ETABS was sometimes converted to non-uniform load. This has been resolved.
	13407	A runtime was sometimes generated when a user-selected .EDB file was used as the Default.EDB to import a Revit Structure file. This has been resolved.
	14550	Some items exported from Revit Structure were not imported into ETABS. This has been comprehensively resolved with the new enhancements of this release, subject to a few documented limitations.
	15152	Column orientations set in Revit Structure were not always correctly transferred to ETABS. This has been resolved.
	15547	Changes made in ETABS to a model imported from Revit Structure were not always properly transferred back to Revit Structure. This has been comprehensively resolved with the new enhancements of this release.
	15592	Various material and section properties were not always properly transferred between Revit Structure and ETABS. This has been comprehensively resolved with the new enhancements of this release, with user control permitted.
	15593	Various incompatibilities were present in the transfer of geometry, loads, and properties between Revit Structure and ETABS. This has been comprehensively resolved with the new enhancements of this release, with user control permitted.

Modeling *Incidents Resolved*

!	Incident	Description
	14761	The k2 factor used for calculating the Indian Auto Wind-Load case (code IS 875-1987) was not correct when building height was greater than 150 m. this was resolved.

Results Display and Output *Incidents Resolved*

!	Incident	Description
	15565	Shell forces and stresses displayed in tabular format did not properly change with length units. This has been resolved.
	15696	An error sometimes occurred preventing the display of the table for "Support Reactions". This has been resolved.
!	16073	An indexing error sometimes occurred that caused link results to be reported for the wrong object. This primarily affected panel-zone results. This has been resolved. Panel zone forces from previous versions should be reviewed.

Design Incidents Resolved

!	Incident	Description
	13489	For steel frame design using code “AISC 360-05/IBC2006”, an error message was printed whenever L/r was greater than 60, even though this strictly only applies to the case where there is an unbraced beam-column connection with no lateral bracing transverse to the seismic frame at the connection, per AISC Seismic 9.7b(2). This has been resolved by printing a warning message instead when $L/r > 60$, and completing the design and reporting. It is the user’s responsibility to determine if this condition controls.
	14370	For concrete beam design, the controlling shear was sometimes incorrectly reported as zero. This has been resolved. The calculated rebar and the controlling load combination were and still are reported correctly.
	14511	A runtime error was generated (rarely) when trying to change the composite beam design code for some models. This has been resolved.
	14590	The steel frame design check was using the major unbraced length ratio to check the minor direction for the Section 9.8 of AISC 341-05 seismic requirement for SMF’s. This check was usually over-conservative. The issue affects codes “AISC 360-05/IBC2006, AISC-LRFD99, and CAN/CSA-S16-01. This has been resolved.
	14648	The printing of the steel and concrete frame design reports in RTF format failed on some machines due to a missing component. This has been resolved.
	15080	Steel or concrete design tables results did not print for members that had their design type (steel or concrete) overwritten. This has been resolved.
	15725	The design iteration for optimizing steel sections sometimes accepted a PMM interaction ratio slightly greater than unity, thus terminating prematurely. This has been resolved.
	15739	The steel frame design check sometimes reported a stress ratio of -100 for both bending and shear when the load on the member is zero or if some error occurs that prevents complete calculation of the ratios. This has been resolved by reporting a stress ratio of zero in such cases.
	15806	The shear wall design table “Uni Reinf Pier Check Data” could not always be displayed for the ACI 318-02 code. This has been resolved.
	15922	The tensile ratio reported steel frame design of unequal-legged single angles per code “AISC 360-05/IBC2006” was being incorrectly computed by dividing by the compressive capacity. The effect was over-conservative. This has been resolved.
	15950	The steel frame design check for code “AISC 360-05/IBC2006” would not complete when the bracing for a member was specified to be continuous along the full length at the top and there was negative moment in a beam. This has been resolved.
	16013	The PMM interaction surface was being incorrectly calculated for Chinese concrete frame design of sections with concrete strength $f_{cuk} > 50\text{MPa}$. This has been resolved.

!	Incident	Description
	16065	For seismic steel frame design using codes “AISC 360-05/IBC 2006” or “CAN/CSA-S16-01”, the column axial force demand from EBF beam shear capacities may in rare cases be incorrect for structures with mixed steel and concrete frame members. This has been resolved.
	16078	The shear wall design table “General Pier Design Data” could not always be displayed or printed. This has been resolved.

Data Files (.EDB, .E2K, .SET)

Incidents Resolved

!	Incident	Description
	15629	The function damping value was not being saved in the exported text file for user-defined response-spectrum functions, and hence was always being imported as zero. This has been resolved.

General

!	Incident	Description
	15748	The version number has been changed to 9.5.0 and a new license is required.
	16113	The network license now requires License Manager version 8.0.5 (or higher.) This version now ships with the ETABS installation. If you are running the License Manager (not ETABS) on a Vista machine, please contact CSI for a later version. Version 8.0.5 is recommended for running on Windows XP and 2000.

ETABS Version 9.2.0 Release Notes

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Release Date: 2008-02-20

This file lists all changes made to the ETABS since the last release. **Most changes do not affect most users.** Significant issues are indicated with an exclamation mark (!) in the first column of the tables below.

Changes from V9.1.7 (2007-12-15) to V9.2.0 (2008-02-20)

Graphical User Interface Enhancements Implemented

!	Incident	Description
!	13131	The documentation available using the <i>Help > Documentation</i> command can now be modified by the user. There is a new Microsoft Access database file called EtabsDocs.mdb, located in the Manuals subfolder where ETABS is installed, which controls this menu command. You can copy this file and rename it to EtabsDocs <i>n</i> .mdb, where <i>n</i> can be any single digit from 0 to 9. If there are multiple files, the one with the highest digit <i>n</i> is used. Editing EtabsDocs <i>n</i> .mdb allows you to add your own documents, such as company standards or language translations, to the documents provided with ETABS. The menu structure displayed using the <i>Help > Documentation</i> command is defined by the table "Control" in the EtabsDocs <i>n</i> .MDB file. This table refers to other tables you can create which list the documents available from the menu. It is best not to modify the original EtabsDocs.mdb itself, since this may be overwritten in future updates of the program.

Modeling Enhancements Implemented

!	Incident	Description
!	12916	The "Automated Lateral Loads Manual" has been added which describes the code-based seismic and wind loads available in ETABS and SAP2000. It can be accessed using the command <i>Help > Documentation</i> .
!	14224	For auto seismic loads and response-spectrum cases, a new overwrite is provided to account for accidental torsion for joints that are not connected to rigid diaphragms. This was previously only available for joints connected to rigid diaphragms.

Results Display and Output Enhancements Implemented

!	Incident	Description
	13572	Story drift and displacement results in the summary output file for response-spectrum cases have been changed so that now only the results in a single direction (X or Y) are printed if the loading is applied in a single direction.

Design Enhancements Implemented

!	Incident	Description
!	12583	A printed report is now available for steel and concrete frame design using the File > Print Tables command. This report is produced in RTF format for Microsoft Word, and contains a cover page, tables of design input values, tables of design results, and an individual design summary sheet for each selected member. See also Incident 13920.
	13006	For a given steel member, when lateral bracing has been assigned using the <i>Design > Lateral Bracing</i> command, and Design Overwrites are also specified for the Unbraced Length Ratio in either the minor bending direction or for lateral torsional buckling, the Design Overwrites values take precedence. Previously the assigned lateral bracing controlled.
!	13920	Concrete frame design output for enveloping results has been improved to include, in a single sheet, the controlling forces/moment, stations, and load combinations, as well as the resulting rebar and/or demand/capacity ratios. This is available by right-clicking on the member for design results, or as part of the printed design report of Incident 12583.
	14045	For load combinations containing a time-history case, design will now always be carried out in a step-by-step fashion, preserving the correspondence of forces and moments at each time step. Previously an option was available to design for the envelope of time-history results, but this was over-conservative and not much more efficient. Load combinations containing multiple time-histories, or containing combinations that contain time-histories, are still designed as envelopes.
	14046	For composite beam design, the default preference value for the deflection limit for "Super DL + LL Limit, L/" has been changed to 240.
	14048	For deck sections, the default tensile strength, F_u , of the studs has been changed from 60 ksi to 65 ksi. This only affects composite beam design for American and Indian design codes.
	14243	For "AISC360-05/IBC2006" steel-frame design of doubly symmetric sections with no minor moment present, two sets of interaction equations were checked, but the moment capacity was only reported for one of these. Now both capacities are reported. The design results themselves were previously correct and have not changed.

Data Files (.EDB, .E2K, .SET) *Incidents Resolved*

!	Incident	Description
	14100	When importing ASCE 7-05 wind loading from an .E2K or .SET file, the exposure specification was being changed to a different value. This has been resolved.

Modeling *Incidents Resolved*

!	Incident	Description
	12995	The K2 factor used for computing wind loading for the Indian code IS:875 (part 3)-1987 was incorrect. This has been resolved.
	13272	A runtime error was sometimes generated while creating template models that were too big for the available memory. This has been resolved.
	13748	An error that occasionally caused wall meshing to create objects at openings has been resolved.
	14101	The generation of a warning message regarding load distribution sometimes prevented analysis from running even though only a warning was needed. This has been resolved.
	14189	Under certain geometrical conditions, legal spandrel definitions were occasionally not recognized, resulting in no output for these spandrels. This has been resolved.

Results Display and Output *Incidents Resolved*

!	Incident	Description
	12925	The time period used for seismic loading for the UBC 97 code was sometimes reported incorrectly in the output file, even though the correct period was being used for the analysis. This has been resolved.
	13130	A runtime error sometimes occurred when plotting time-history traces for multiple single-joint link elements at the same location. This has been resolved.
	13610	Eccentricity ratio values for wind loading under ASCE 7-02 or 7-05 printed in the output file were being converted for length units even though these values should be unitless. This has been resolved. This is a reporting issue only. The values used for calculating the loading were and still are correct.

Design Incidents Resolved

!	Incident	Description
	12400	For concrete frame design, the program tried to design Section Designer sections even when they had been defined as No Check/Design. This has been resolved.
	13496	For concrete frame design code "CSA A23.3-04", certain load combinations were not being generated for design when the program determined that they would likely be redundant with other generated combinations. This has been resolved by generating all combinations. This will not usually affect results.
	13518	For steel frame design code "AISC-LRFD93", an error sometimes occurred when calculating the C_m factor for members that were not loaded and not stressed. This has been resolved.
	13559	For shear wall design code "Chinese 2002", the top edge member lengths reported for the left and right were reversed. This has been resolved.
	13560	For shear wall design code "Chinese 2002", the edge member lengths were sometimes incorrect for Seismic Grade II. This has been resolved.
	13561	For shear wall design code "Chinese 2002", the program failed to produce a warning when a pier design overwrite of the MMF factor produced overstress and a correspondingly large rebar area. This has been resolved.
	13562	For shear wall design code "Chinese 2002", the reported and displayed values for area of steel, A_s , do not match. This has been resolved.
	13563	For shear wall design code "Chinese 2002", the reported value of the ratio $N/Agfc$ was not consistently reported. This has been resolved.
	13565	For concrete frame design code "Chinese 2002", beams designed as columns sometimes reported shear failure when there was none. This has been resolved.
	13567	For concrete frame design code "Chinese 2002", rebar results plotted in plan view were sometimes switched between the I and J ends of the beam. This has been resolved.
	13568	For concrete frame design code "Chinese 2002", rebar area values plotted in plan view were sometimes switched between the top and bottom faces of the beam. This has been resolved.
	13569	For concrete frame design code "Chinese 2002", rebar area values in kN-m units used insufficient number of decimal places for accuracy. This has been resolved.
	13570	For steel frame design code "Chinese 2002", members were sometimes displayed in red even though no failure is reported in detailed design display or database output. The members had not failed. This has been resolved.
	13571	For steel frame design code "Chinese 2002", double-angle sections were considered to be class C but they should be class B. This has been resolved.
	13574	Same as Incident 12400.
	13577	For Chinese steel and concrete frame design codes, undecipherable characters were displayed on the screen while displaying "All Failures." This has been resolved by displaying English characters.

!	Incident	Description
	13617	For steel frame design code “Chinese 2002”, a runtime error occurred when clicking on the Deflection button of the stress-check information form. This has been resolved.
	13618	For steel frame design code “Chinese 2002”, changing the design overwrite parameter for the axial stability coefficient, Phi Minor, changed the moment stability coefficient, Phi b Minor. This has been resolved.
	13715	Design checks that permit a 4/3 increase in the allowable stress for load combinations that contain lateral loads were not taking advantage of this increase if the lateral load was contained in a static nonlinear case. This has been resolved.
!	13808	For composite beam design, the moment capacity for certain non-AISC I-shaped members was too high because the k dimensions are specified as zeroes in the shape database. This could be slightly unconservative. This has been resolved approximately but adequately by correcting for the total area of the section.
	13833	A runtime error could occur during shear wall design for piers that contain a triangular element made by collapsing a quadrilateral. This has been resolved.
	13856	For steel frame design code “CAN/CSA-S16-01,” the moment capacity of Class 1 rectangular and box sections was being underestimated. This has been resolved.
	13884	Duplicate names could occur when more than 999 automatic design load combinations were generated. This has been resolved.
!	13982	For steel frame design code “AISC 360-05/IBC2006,” the design overwrite for axial capacity was input as a force but treated as a stress. This means that the capacity was incorrect by a factor equal to the area of the section, which could be over-conservative or under-conservative. This has been resolved.
	14110	For composite beam design, excessive error messages have been removed that would appear when designing a member before the analysis has been run.
	14223	For steel frame design code, two-story X braces were being treated as one-story chevron braces, leading to over-conservative axial forces in the braces. This has been resolved.
	14246	The boundary zone calculated for shear wall design sometimes produced very small lengths when no boundary zone was required. This has been resolved by enforcing that both the stress-based check and the compression-zone-length check require a boundary zone, rather than just one of these checks.
!	14258	The boundary-zone calculation for shear-wall design code “ACI 318-05/IBC 2003” has been significantly improved by considering the seismic inter-story drift. This is computed by using the elastic drift multiplied by the factor Cd/I, where Cd and I can be specified by the user as design preferences.
	14282	For shear-wall design using code “ACI 318-05/IBC 2003”, the boundary-zone calculation sometimes failed with an error message for any piers having the design overwrite for Pier Section Type set to “Simplified T and C”. This has been resolved.
	14305	Same as Incident 14282

**External Import/Export
Incidents Resolved**

!	Incident	Description
!	13890	Shear-wall forces exported to SAFE were not correct when edge constraints were present at the vertical edges of the wall. This has been resolved.

ETABS Version 9.1.7 Release Notes

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Release Date: 2007-12-15

This file lists all changes made to the ETABS since the last release. **Most changes do not affect most users.** Significant issues are indicated with an exclamation mark (!) in the first column of the tables below.

Changes from V9.1.6 (2007-09-13) to V9.1.7 (2007-12-15)

Graphical User Interface Incidents Resolved

!	Incident	Description
	13171	Enhanced Windows metafiles (.EMF) screen captures did not always scale correctly for certain machines. This has been resolved.
	13581	The glue-to-gridline option did not work correctly when the grid data was accessed using the right-button mouse click. This has been resolved.

Data Files (.EDB, .E2K, .SET) Incidents Resolved

!	Incident	Description
	13573	Z-direction earthquake loads based on the Chinese code were imported as being in the X direction. This has been resolved.

Modeling Incidents Resolved

!	Incident	Description
!	12929	The values for Fa and Fv were not always computed correctly for the NBCC 2005 seismic lateral load and the automatic response-spectrum function. This has been resolved. Models using these loads should be checked and re-analyzed.
	12999	“Loss of Load” warnings printed in the .WRN file did not correctly account for units, so they could be either over-conservative or under conservative. This has been resolved.

!	Incident	Description
	13667	The reported value of Ct for IBC 2008 loading was incorrect in displayed and printed table output. This is a reporting error only, and has been resolved. The calculated forces were and still are correct.

Design Enhancements Implemented

!	Incident	Description
	12918	Minor updates have been made to the manual for the “AISC 360-05/IBC 2006” steel-frame design check. This manual is no longer considered a draft.
	12956	The concrete-frame design check for the “CAN/CSA A23.3-04” code has been enhanced to take the Rd and Ro values from the NBCC 2005 auto-seismic load definition, if any. If no NBCC 2005 auto-seismic load is defined, default values are used. The values of Rd and Ro can be overwritten using the concrete-frame design overwrites. Previously, the design was always using default values.
	12985	A practical how-to guide for using the Direct Analysis Method (DAM) of the “AISC 360-05/IBC 2006” design code has been added to the documentation in draft form.
	13310	Boundary-element check data for the “ACI 318-05” shear-wall design check is now provided in displayed tables and printed output.
!	13388	Concrete frame design has been added for the Eurocode 2-2004 design code, including the CEN generic version and the United Kingdom National Annex. Seismic provisions to EC8 are currently not included. Users should review the included Eurocode 2-2004 manual for a description of assumptions and limitations.

Design Incidents Resolved

!	Incident	Description
	11666	The shear-wall design check for the “ACI 318-05” code calculates the diagonal rebar area for spandrel correctly. However, the area is sometimes required (mandatory) and sometimes optional (alternative). The program did not report the requirement correctly. This has been resolved.
!	11758	For the shear-wall design check for code “ACI 318-02,” the interpolation of alpha_c, a factor for calculating in-plane shear strength of shear-walls, was not correct. ACI 21.7.4.1 has alpha values ranging between 2.0 to 3.0, depending on the hw to lw ratio. The program sometimes produced an alpha that was out of range. This has been resolved.
	11968	When a pier failed in P-M-M interaction for a C/T wall, the program reported that it failed in shear. Affected codes were "ACI 318-02" and "ACI 318-05". This has been resolved.

!	Incident	Description
	12047	The program sometimes reported an incorrect error message for the “AISC-LRFD 99” steel-frame design check. The message “Link rotation is too high” for an OCBF brace should have been “ $kl/r > 4.23 * \sqrt{E/f_y}$ ” This has been resolved.
	12448	For concrete column design using codes “ACI 318-99”, “ACI 318-02” and “ACI 318-05, the program was showing an over-strength factor of 1.25 for all types of framing: Special-sway, Sway-intermediate, Sway-ordinary, and Non-sway. This was only a reporting issue. The program was correctly using this factor only for Special-sway frames. This reporting issue has been resolved.
	12844	For steel-frame design using code “Eurocode 3-1993”, the k factor for minor bending was negative for sections classified as “seismic”. This has been resolved.
	12852	A runtime error occurred while calculating B1 factor for steel-frame design using codes “AISC360-05/IBC2006” and “CAN/CSA-S16-01.” This only happened when the exact uniform bracing for any member was set equal to the whole length causing the effective length to be zero. This has been resolved.
	12854	The shear-wall design overwrites form for code “CSA A23.3-94” sometimes displayed wrong types in the drop-down list. This has been resolved.
	12858	For spandrel shear design using code “ACI 318-02”, the program was giving the correct vertical shear reinforcing but the wrong horizontal shear reinforcing. The horizontal shear reinforcing should be the minimum as per code (11.8.5 of ACI 318-02), however the horizontal shear reinforcing was reported to be the same as the vertical shear reinforcing, A_{vh} . This has been resolved.
	12912	For steel-frame design using the direct-analysis method of code “AISC 360-05/IBC 2006,” the property modifiers were not always consistently changed for the effect of tau-b, and the user was not warned when analysis must be re-run to account for changed modifiers. This has been resolved.
	12922	For steel-frame design using codes “UBC97-LRFD” and “UBC97-ASD,” when the column $P_u/\Phi P_n$ is greater than 0.5, the special load combinations should only amplify the axial load while ignoring all the other components of the load. However, the moments were also being amplified by the omega factor. This was overconservative. This has been resolved.
	12974	For steel-frame design using code “CAN/CSA-S16-01,” the reported superimposed DL + LL deflection was zero whenever the Super DL deflection was zero, even if the LL deflection was not zero. This has been resolved.
	12998	Joint shear design was not being performed for concrete frame design using code “ACI 318-05.” This has been resolved. No other code was affected.
	13099	The documents for shear-wall design using codes “ACI 318-02” and “ACI 318-05” said that if the calculated V_s force is more than $10 * \sqrt{f_c} * t_s * d$ per ACI 11.5.6.9, failure is reported. This should actually say $8 * \sqrt{f_c} * t_s * d$. The documents have been corrected. The program was and still is using the correct value, so design results are not affected.
	13123	The documents for concrete-frame design using codes “ACI 318-02” and “ACI 318-05” incorrectly include the term (A_{cp}^2/P_{cp}) under the square root in Eqn. (11.6.1c) for torsion design. The documents have been corrected. The program was and still is using the correct formula, so design results are not affected.

!	Incident	Description
	13126	For concrete-frame design using codes “ACI 318-02” and “ACI 318-05,” the computation of Acp and Aoh for the torsion check of T-beams was imposing the flange limit for L-beams. This was overconservative. This has been resolved.
	13144	See Incident 11968.
	13197	For shear-wall design using codes “ACI 318-05/IBC 2003,” “ACI 318-02,” and “ACI 318-99,” the boundary zone was being checked for load combinations that were not of seismic type. This was overconservative. This has been resolved so that only seismic load combinations are used for this check.
	13222	For composite-beam design using codes “AISC-LRFD99,” “AISC-LRFD93,” “Chinese 2002,” “CISC 95,” and “BS5950 90,” the moment capacities were not being updated when the shear studs were user-defined and when the computed PCC became 1.0. If the user specified fewer shear studs than that required for full composite action, the moment capacities were properly updated. This has been resolved.
	13274	For steel-frame design using codes “AISC-ASD01,” “AISC-ASD89,” and “UBC97-ASD,” the expression used for Rt for double-channel sections was slightly over-conservative, affecting flexural capacity. This has been resolved. The effect is very minor.
	13275	For steel-frame design using codes “AISC-ASD89” and “UBC97-ASD,” the expression used for Lc for box sections was slightly over-conservative, affecting flexural capacity. This has been resolved. The effect is very minor.
	13276	For steel-frame design using codes “AISC-LRFD93” and “UBC97-LRFD,” the flexural capacity of rectangular and box section did not account for the possibility that some sections may be rotated by 90 degrees so that I22 > I33. This has been resolved.
	13277	For steel-frame design using codes “AISC-LRFD93,” the expression for the Cm factor has been modified to consider the Laterally Loaded and Constrained conditions with their modified definition.
!	13278	For steel-frame design using code “UBC97-LRFD,” the Importance factor specified in the design preferences was not being used. This has been resolved. Design results may need to be re-checked.
	13279	The Italian steel design check sometimes underestimated the equivalent moment used for ETB and PMM calculations with side-sway. This error was most significant when the frame member had only a few output stations assigned. This has been resolved.
!	13280	For concrete-frame design using code “ACI 318-02,” the SDC (Seismic Design Category) specified in the design preferences was not being used. This has been resolved. Design results may need to be re-checked.
	13281	For concrete-frame design using codes “ACI 318-02” and “ACI 318-05,” the upper yield limits of fy =80ksi for longitudinal rebar and fys = 60ksi for shear steel was not being enforced. This has been resolved.

!	Incident	Description
	13282	For concrete-frame design using code “CSA-A23.3-94,” when designing a column for Nominal ductility for shear, there are two options for capacity force calculation. The program was reporting failure if either option failed, but it should have reported failure only if both options failed. This was overconservative, and has been resolved.
	13283	For concrete-frame design of nonprismatic sections, the P-M interaction surface for the last station was sometimes obtained at the incorrect location in the member. The effect may have been conservative or unconservative, and is most significant when the section properties vary significantly along the length and few output stations are requested. This has been resolved.
	13305	See Incident 11968.
	13306	For shear-wall design using code “CSA A23.3-94,” when the epsilon_v parameter of section CSA 21.7.3.2(b) exceeds 0.005, the maximum shear that can be carried should be reduced according to the Table 21-1, but it was being reduced by significantly more than that. This was overconservative, and has been resolved.
	13309	For shear-wall design using code “ACI 318-02,” the pier shear design is inaccurate. Regardless of the value of Phi (Shear Seismic) specified in the shear-wall design preferences, the value reported for PhiVc is 75% of the value for a Phi of 0.6. This has been resolved.
!	13311	For shear-wall design using code “ACI 318-05,” the program sometimes reported that a boundary element was not required when in fact it should have been. This has been resolved. Design results may need to be re-checked.
	13495	The load combinations 1.25 D + 1.5 L +/- 0.4 W were not included in the “CSA A23.3-04” documentation, even though the program was correctly using them. This has been resolved.
	13636	For steel-frame design, the program was reporting “Error during steel check of frame ...” when all loads on the member were identically zero. This has been resolved.
!	13659	For steel-frame design using code “AISC-LRFD99,” the special seismic load combination required when $P_u/f_i P_n > 0.5$ was not being considered. This has been resolved. Design results may need to be re-checked.
	13660	For steel-frame design using code “AISC 360-05/IBC2006,” for the case where when $P_u/f_i P_n > 0.5$, the detailed output reported that the special seismic load combination was being carried considered, but sometimes reported zero moments and zero axial force, while the D/C ratio calculation showed contribution from the axial load. This has been resolved. Design results may need to be re-checked.
	13671	For steel-frame design using the UBC97 codes, the check for seismic slenderness was sometime being carried out when not required by the seismic zone factor and importance factor chosen by the user. This was overconservative, and has been resolved.
	13697	In the documentation for steel-frame design code “AISC-LRFD99,” reference to torsion checks have been removed since these checks are not being performed by the program.

!	Incident	Description
	13730	For steel-frame design using code “AISC 360-05/IBC 2006,” the program reported failure using the wrong error message: “ $l/r > 0.08 * r_y * E / F_y$.” The correct message should be: “ $l/r > 0.086 * E / F_y$.” This was an error in the message only, and it has been resolved.

External Import/Export Enhancements Implemented

!	Incident	Description
!	12841	The speed has been substantially improved for updating large models from ETABS to Revit Structure 2008.
	13412	For models imported from Revit Structure 2008, ETABS no longer assigns an auto-select frame section list to members that have only a single frame section property assigned to them in Revit.
	13448	A new CSIXRevit has been released that is compatible with ETABS v9.1.7.
	13612	Same as 12841

External Import/Export Incidents Resolved

!	Incident	Description
!	12963	The units-conversions for Young’s modulus and shear modulus of floor and wall materials, as well as for the thermal expansion coefficient for all materials, were not always handled correctly for models imported from Revit Structure 2008. This has been resolved.
	12977	The units-conversion for the thermal-expansion coefficient was not handled correctly for models imported from STAAD files. This has been resolved.
	13515	Camber data for composite beams was not correctly being exported to Revit Structure 2008. This has been resolved.
	13609	A runtime error sometimes occurred when importing elevator shafts from Revit Structure 2008. This has been resolved.
	13655	Wall openings with less than two points were not being imported from Revit Structure 2008. This has been resolved.

ETABS Version 9.1.6 Release Notes

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Release Date: 2007-09-13

This file lists all changes made to the ETABS since the last release. **Most changes do not affect most users.** Significant issues are indicated with an exclamation mark (!) in the first column of the tables below.

Changes from V9.1.5 (2007-08-10) to V9.1.6 (2007-09-13)

Enhancements Implemented

!	Incident	Description
!	12295	New automated lateral loads have been added: <ul style="list-style-type: none">• NBCC 2005 wind loads, seismic loads, and response-spectrum functions• IBC 2006 seismic loads and response-spectrum functions• ASCE 7-05 wind loads
!	12451	Steel frame design check has been added for the CAN/CSA-S16-01 design code. Seismic provisions have been included at an initial level, similar to how they are implemented for AISC 2005
!	12455	Concrete frame design check has been added for the CAN/CSA A23.3-04 design code.
!	12456	Steel frame design check has been added for the AISC 360-05 and IBC 2006 design code, including the seismic provisions of AISC 314-05. The direct analysis method has been implemented, including second-order P-delta effects and tau-b fixed or variable. Automatic iteration for optimal member selection includes the effect of tau-b variable.

!	Incident	Description
!	12599	<p>Several improvements have been made for the export to and import from Revit Structure 2008 using CSiXRevit 2008:</p> <ul style="list-style-type: none"> • Member offsets and cardinal points are now imported from Revit to ETABS, however updating changed offsets and cardinal points from ETABS to Revit is not yet functional • Floors deleted in ETABS are now updated to Revit • Ramps created in ETABS can be exported/updated to Revit as inclined slabs. Inclined slabs in Revit can be imported into ETABS as ramps, however ramps in Revit are non-structural and are not imported into ETABS. • CSiXRevit2008 has been modified to reduce the occurrence of a memory corruption error in Revit Structure 2008 • Documentation has been updated <p>A new version of CSiXRevit2008 is available for use with ETABS version 9.1.6.</p>
	12637	Phi factors can now be set by the user as design preferences for the AISC-LRFD93, UBC-LRFD97, and CISC 95 design codes. This feature was already available for newer codes.
	12638	Design preference output tables now include all data for all codes. Previously, only certain data was included for each code.
	12640	Design overwrite output tables are now available for all codes. Previously this was available only for the Chinese codes.
!	12641	Automated notional loads have been added for the AISC 2005 design code.
!	12691 12694	<p>Design manuals have been added or modified:</p> <ul style="list-style-type: none"> • Added steel frame design manual for AISC 2005 as DRAFT • Combined older steel frame design codes into a single manual • Added concrete frame design manuals for ACI 318-02 and ACI 318-05 • Added concrete frame design manual for CAN/CSA A23.3-04 • Combined older concrete frame design codes into a single manual • Added shear wall design manuals for ACI 318-02 and ACI 318-05
	12711	Implemented automated design load combinations that include companion wind load for CAN/CSA-S16-01 and CAN/CSA A23.3-04 codes.
	12746	<p>Added new display options for design data:</p> <ul style="list-style-type: none"> • Identify all steel P-M failure • Identify all steel shear failure • Identify all steel failures

Incidents Resolved: Data Files (.EDB, .E2K, .SET)

!	Incident	Description
	12781	Automated response-spectrum functions for the Indian design codes were not being exported to nor imported from the .SET file, nor were they being written to output tables. This issue has been resolved.

Incidents Resolved: Modeling

!	Incident	Description
	10731	Automated wind load for ASCE 7-02 did not account for the different pressure coefficient needed for parapet walls. This has been resolved.
	12588	The automated V3 shear hinge did not properly take into account any rebar that is present in the section. This only affects shear in the minor direction. This has been resolved.
	12699	Meshing walls that contained openings sometimes lost elements, creating additional openings. This has been resolved.
	12757	Warning messages written to the .WRN file for the Check Model command did not properly take into account regional settings. This has been resolved.

Incidents Resolved: Analysis

!	Incident	Description
	12819	Automated lateral loads failed to be generated for analysis in rare cases when constraint conditions were changed from one model to the next. This issue has been resolved.

Incidents Resolved: Results Display and Output

!	Incident	Description
	12319	Graphical display of in-plane shear showed numerical values that were incorrectly dependent upon length units. This has been resolved.
	12553	Output tables for shear-wall design failed to be created when a design error message was too long. This did not affect results, only the ability to print them. This has been resolved.

Incidents Resolved: Design

!	Incident	Description
	12643	The composite beam deflection limit set for SDL+LL may be unintentionally overwritten by the deflection limit set for LL. This may result in an over-conservative design. This issue has been resolved.
	12654	The calculation of deflection for beams under superimposed loads was incorrect for steel frame design. This has been resolved.
	12684	The value of Asmin (minimum steel area) was reported as zero for all but Chinese concrete design codes. This is a reporting error only, and it has been resolved.

!	Incident	Description
	12775	Changing any design preferences would reset all design overwrites even if the design code itself was not changed. This has been resolved so that design overwrites are reset to default values only when the design code is changed.

Incidents Resolved: External Import/Export

!	Incident	Description
!	12572	Reactions exported to SAFE were omitted at internal joints created by automatic wall meshing. This could result in a reduction of the load that is applied in SAFE. This has been resolved.
	12606	A runtime error occurred when updating certain models from ETABS to Revit Structure 2008. This has been resolved.

Incidents Resolved: Miscellaneous

!	Incident	Description
	12642	An internal change was made for increasing the capacity of language-translation data.