

ETABS Version 9.7.0

Release Date: 2010-01-19

ETABS Version 9.7.0 is an update to Version 9.5.0 and later. It is available as a full installation on CD, or from the ftp as a full installation or a patch.

PLEASE READ THIS FILE!

It contains important information that is more current than what is in the Manuals.

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1. Installation Instructions for ETABS Version 9.7.0

ETABS Version 9.7.0 is available as a full installation, or as a patch to v9.5.0 or v9.6.0. Installing ETABS v9.7.0 will uninstall older versions of ETABS (Versions 9.0.0 to 9.6.0). Versions prior to v9.0.0 will not be affected.

The installation instructions are available in three places:

- The “ETABS Installation Card” link on the ETABS CD browser.
- A printed document included with the program package.
- In the file *ETABS_Install_Instructions.pdf* in the root folder of the CD.

The instructions include information about the software protection system used and installation options and instructions. You can choose between a Standalone or Network installation.

2. Installation Instructions for CSIxRevit Version 9.7.0

The information in this section does not apply if you do not use Revit Structure 2009 or Revit Structure 2010.

CSIxRevit is available only as a standalone installation and only from the ftp. CSIxRevit integrates into Revit Structure 2009/2010 to enable exchange of information with ETABS. You must first install Revit Structure 2009 and/or Revit Structure 2010 before installing CSIxRevit.

CSIxRevit can be installed on the same machine as ETABS, but this is not required. Data transfer files (*.EXR) exported by CSIxRevit on one machine can be moved to another machine for importing into ETABS, and vice-versa.

Licensing

CSIxRevit uses the ETABS Version 9.5 license. This can be a standalone license installed in the CSIxRevit installation folder, or a network license shared with ETABS.

Compatibility

CSIxRevit is compatible with ETABS Version 9.7.0, and with the API's of "Revit Structure 2009 Build 20080915_2100" and "Revit Structure 2010 Build 2010 20090317_2115". You must check the results carefully if you use other builds of Revit Structure. The recommended versions of ETABS and Revit Structure can be seen in CSIxRevit by using the menu command About.

Installation

CSIxRevit can be installed in any directory. During installation, you will be asked to specify the path where REVIT.EXE is installed in order that the REVIT.INI file can be modified.

For Revit Structure 2009, the following lines will be added in the ExternalCommands block in REVIT.INI:

```
[ExternalCommands]
ECCCount=N0
ECCClassNameN1=CSIxRevit2009.Class1
ECNameN1=Export to Create New ETABS Model...
ECDescriptionN1=Export to ETABS...
ECAssemblyN1=C:\Program Files\Computers And Structures\CSIxRevit2009\CSIxRevit2009.dll
ECCClassNameN2=CSIxRevit2009.Class5
ECNameN2=Export to Update Existing ETABS Model...
ECDescriptionN2=Export to ETABS existing model...
ECAssemblyN2=C:\Program Files\Computers And Structures\CSIxRevit2009\CSIxRevit2009.dll
ECCClassNameN3=CSIxRevit2009.clsCSINewModel
ECNameN3=Import to Create New Revit Structure Model from ETABS...
ECDescriptionN3=Import from ETABS as new Revit Structure Model...
ECAssemblyN3=C:\Program Files\Computers And Structures\CSIxRevit2009\CSIxRevit2009.dll
ECCClassNameN4=CSIxRevit2009.Class2
```

ECName $N4$ =Import to Update Existing Revit Structure Model from ETABS...
ECDescription $N4$ =Import from ETABS existing model...
ECAssembly $N4$ =C:\Program Files\Computers And Structures\CSiXRevit2009\CSiXRevit2009.dll

In the above, $N0$, $N1$, $N2$, $N3$, and $N4$ represent numbers. If this block was not defined in the previous REVIT.INI file then the above lines will be created with $N0=4$, $N1=1$, $N2=2$, $N3=3$ and $N4=4$.

For Revit Structure 2010, the above block will be slightly different and the “CSiXRevit2009” keyword will be replaced with “CSiXRevit2010”.

The previous REVIT.INI file will be saved as file REVITOLD.INI. Keep this file in case you want to uninstall CSiXRevit. Please note that if you are installing a new version of CSiXRevit then you don’t need to uninstall the old version. The new installation will update the previously modified REVIT.INI file for the new changes.

3. Installation Instructions for License Manager 8.0.5

The information in this section does not apply if you are using standalone licenses.

For new Network installations, see the *System Administrator's Help* for more detailed information about the License Manager and the License Manager Administration program “WlmAdmin.exe”.

This installation contains Sentinel RMS License Manager 8.0.5.

- If you are currently running Version 8.0.5 or higher of SentinelLM you do not need to re-install License Manager.
- If you are currently running a version that is older than 8.0.5 then you **must** install version 8.0.5. Uninstall the older version prior to installing this version. **IMPORTANT!** All commuter licenses should be checked in before uninstalling the old version. Note that Sentinel RMS License Manager 8.0.5 will recognize older licenses for Computer and Structures products. Please refer to the ETABS Installation Card or the *ETABS_Install_Instructions* file for information on how to do this.
- If you are serving licenses on a Windows Vista system, you will need to use Sentinel RMS License Manager 8.1.1, which is available from Computers and Structures, Licensing Department, upon request. This version cannot be locked to a disk ID, but instead requires a computer ID key. Note that version 8.1.1 is only required when the license server is running on Vista. It does not matter what operating system is used to run ETABS or CSiXRevit.

To speed up finding a network license when ETABS or CSiXRevit2009 is launched, you can do either or both of the following:

- Create a text file, LEVEL.TXT, and enter the *ProgramLevel* in a single line. The *ProgramLevel* should be one of the following:
ANY/PLUS/NONLINEAR/PLUSC/NONLINEARC/NONLINEARI

Save this file to the folder where ETABS or CSIxRevit is installed. This file will cause the program to find the license faster. Note that this file will be included when a new license is sent.

- Create a text file, LMHOST.INI, and enter the network name or IP address of the machine that is running the License Manager. If you are serving licenses on more than one machine, enter each name or IP address on a separate line of text. Save this file to the folder where ETABS or CSIxRevit is installed.

If you experience problems with the license please refer to the appropriate “*License Trouble Shooting Guide...*” located in the ETABS program folder.

4. Trial License on Vista for ETABS and CSIxRevit

ETABS Version 9.7.0 and CSIxRevit are both installed with a 30-day trial license.

If you are running on Vista and the trial license does not work for ETABS v9.7.0, please run application file LSINIT.EXE located in the folder where you have installed ETABS v9.7.0. This file runs quickly and silently with no feedback. The trial license should now work.

Similarly, if you are running on Vista and the trial license does not work for CSIxRevit, please run application file LSINIT.EXE located in the folder where you have installed CSIxRevit. This file runs quickly and silently with no feedback. The trial license should now work.

5. File Compatibility

ETABS Version 9.7.0 can open model files (*.EDB) from older versions of ETABS, as well as import older ETABS text files (*.E2K and *.\$ET). Note that once you save or run these models in Version 9.7.0, they will not be usable by older versions of the program, so you may want to save them under a new name after opening or importing them in Version 9.7.0.

CSIxRevit transfer files (*.EXR) are not compatible with older versions of ETABS or CSIxRevit. You can update your older ETABS model to Version 9.7.0, or update your older Revit Structure model to Revit Structure 2009/2010, and then transfer data between the two programs using the current version of the transfer files.

6. Significant Changes from Previous Versions

We have listed only significant changes here. For a complete list of changes, please see the separate file *ReleaseNotes.PDF* located in the ETABS installation folder.

Changes from Version 9.6.0 to Version 9.7.0 (issued 01/19/2010)

Incidents Resolved

- *Incident 18399 (Loading)*: An Incident was resolved that corrected two problems with the AS/NZS 1170.2 auto wind load case: (1) The leeward wind load distribution over the height was previously assumed to be the same as the windward load distribution. This has been corrected so that the distribution is now constant over the height based on the full height of the building. (2) The air density was previously assumed to be 1.25 kg/m³. This has been changed to use the code-specified value of 1.2 kg/m³.
- *Incident 18333 (Design)*: An Incident was resolved in which the D/C ratio calculated for design could be incorrect for unsymmetrical Section Designer sections due to an error in interpolating the capacity from P-M-M surface. Sections which are symmetrical for major (M3) bending were not affected.
- *Incident 18873 (Design)*: An Incident was resolved for steel frame design using code AISC 360-05/IBC2006 in which the stress-based interaction equation H2-1 was not being used as required for sections which are not doubly symmetric and for which I_{yc}/I_y is outside of the range 0.1 to 0.9. This only affects the singly symmetric I-sections with I_{yc}/I_y outside of the range 0.1 to 0.9, all T-sections, all double-angle sections with I_{yc}/I_y outside of the range, and all equal-legged angle sections. For singly symmetric I-sections, the old implementation was slightly unconservative with a maximum factor of 8/9. For T-sections, double-angle sections, and equal-legged angle sections, old implementation was sometimes unconservative with a maximum factor of 8/9, sometimes conservative, and sometimes matching.
- *Incident 19305 (Design)*: An Incident was resolved for concrete frame design using the “Eurocode 2-2004” code in which the calculated imperfection inclinations (theta) were not correct if the base length unit for the model is anything other than meter. Since the α_h parameter is always taken in between 2/3 and 1, the effect of this error was limited. If the base length unit was mm, cm, or inch, the resulting theta was unconservative.
- *Incident 18396 (Import/Export – SAFE V12)*: The export of the model from ETABS to SAFE has been modified from the behavior in v9.6.0 so as to NOT export restraints if they are at the BASE level. Also if restraints at other levels are present they will be exported with loads applied directly to the restraints. The users can then remove the restraints and substitute a footing, if need be, and still have the loads from ETABS. This affects both exports to SAFE v8 and to SAFE v12
- Other minor Incidents as detailed in *ReleaseNotes.PDF*.

Changes from Version 9.5.0 to Version 9.6.0 (issued 07/02/2009)

Enhancements Implemented

- *Incident 18123 (Modeling)*: Automated lateral loading for Eurocode has been implemented: Wind according to Eurocode 1 (EN 1991-1-4:2005), Seismic according to Eurocode 8 (EN 1998-1:2004), and Response Spectrum according to Eurocode 8 (EN 1998-1:2004).
- *Incident 18124 (Modeling)*: Automated lateral loading for the Australian code has been implemented: Seismic according to AS 1170.4:2007, and Response Spectrum according to AS 1170.4:2007, and wind according to 2002 AS/NZS 1170.2.
- *Incident 18125 (Modeling)*: Automated lateral loading for the New Zealand code has been implemented: Seismic according to NZS 1170.5:2004, and Response Spectrum according to NZS 1170.5:2004, and wind according to 2002 AS/NZS 1170.2.
- *Incident 12692 (Design)*: A new manual has been added to document the steel frame design procedure for Canadian code “CAN/CSA S16-01”.
- *Incidents 13043, 13428, 18094 (Design)*: Concrete frame design has been enhanced to now include all Beams, Columns, and Braces in the design output tables according to their section type, independent of their orientation. For example, every Brace will be included in either the Beam or the Column results table, depending upon whether it is assigned a Beam or Column section type, respectively. Similarly, if a Column section type is assigned to a member with Beam (horizontal) orientation in order to consider the effect of axial force, it will now be reported in the Column results table. This enhancement applies to all concrete codes.
- *Incident 14050 (Design)*: Vibration limit-state checking for floors according to *AISC/CISC Design Guide 11* has been added to composite beam design for code “AISC 360-05/IBC2006.”
- *Incident 14474 (Design)*: Concrete frame design has been added for Australian code AS 3600-2001, including seismic provisions.
- *Incident 16342 (Design)*: Composite beam design has been added for code “AISC360-05/IBC2006”.
- *Incident 15880, etc. (Design)*: Multiple enhancements have been made to concrete frame design for Indian code “IS 456-2000”. See the *ReleaseNotes.PDF* for more information.
- *Incident 15882, etc. (Design)*: Multiple enhancements have been made to concrete shear-wall design for Indian code “IS 456-2000”. See the *ReleaseNotes.PDF* for more information.
- *Incident 18134, etc. (Design)*: Multiple enhancements have been made to steel frame design for “Chinese 2002” code. See the *ReleaseNotes.PDF* for more information.

- *Incident 18167 (Design)*: Steel frame design has been added for “Eurocode 3-2005”, incorporating the National Annexes for Bulgaria, Slovenia, Norway, and the United Kingdom. Seismic provisions of Eurocode 8 are not included at this time.
- *Incident 17645 (Import/Export – Revit Structure)*: CSIxRevit for ETABS has been updated to support both Revit Structure 2009 and 2010, and is available in either 32- or 64-bit versions.
- Other minor enhancements as detailed in *ReleaseNotes.PDF*.

Incidents Resolved

- *Incident 14729 (User Interface and Display)*: An Incident was resolved for the ASCE 7-02 Wind Load Definition form (dialog box) in which the labels for parameters e1 and e2 were transposed.
- *Incident 13627 (Design)*: An Incident was resolved for concrete frame design using code “ACI 318-05/IBC 2003” in which column shear forces were not being properly amplified when Sway Ordinary frame design procedure was chosen and the Seismic Design Category was greater than or equal to B. Now the shear design of columns will be performed in this case according to the Sway Intermediate Frame procedure. In addition, for such cases (Ductility=OMF, SDC \geq B), the shear design of beams was previously being performed as beams in Sway Intermediate Frame. Now such beams are designed as Sway Ordinary beams irrespective of SDC.
- *Incident 16421 (Design)*: An Incident was resolved for steel frame design in which the panel-zone design shear force used to determine the doubler plate thickness was sometimes calculated incorrectly. This design shear force is the difference $|V_b| - |V_c|$, where V_b is the shear force from the beam flanges connecting to the joint, and V_c is the shear force from the column above the joint. V_b is calculated as the larger of the capacity moment or the factored moment from the beams, divided by their mean flange distance. Normally the capacity moment governs, and this was being calculated correctly. However, when the factored moment governed, the design could be unconservative, since the moments from the two beams were added algebraically, but should have been added using their absolute values. The affected codes are “AISC-ASD 01”, “AISC-LRFD99”, “UBC97-ASD”, “UBC97-LRFD”, “CAN/CSA-S16-01”.
- *Incident 16620 (Design)*: An Incident was resolved in which the positive-moment reinforcement for a beam at the joint face was not correct for ductile design per Indian code “IS 13920” and “IS 456-2000”. The positive-moment steel at a joint face should be at least equal to half the negative-moment steel at that face. Other related provisions are now also enforced along the length of the beam.
- *Incident 18293 (Design)*: An Incident was resolved for steel frame design in which the panel-zone design shear force used to determine the doubler plate thickness was sometimes calculated incorrectly. This design shear force is the difference $|V_b| - |V_c|$, where V_b is the shear force from the beam flanges connecting to the joint, and V_c is the shear force from the

column above the joint. Previously V_c was taken as the shear force from the column below rather than above the joint. This error could be slightly unconservative, since V_c is usually much smaller than V_b . The affected codes are “AISC360-05/IBC2006”, “AISC-ASD 01”, “AISC-LRFD99”, “UBC97-ASD”, “UBC97-LRFD”, “CAN/CSA-S16-01”.

- Other minor Incidents as detailed in *ReleaseNotes.PDF*.

Changes from Version 9.2.0 to Version 9.5.0 (issued 09/30/2008)

Enhancements Implemented

- *Incident 14984*: Floors can be exported from ETABS to SAFE Version 12, soon to be released, including mode shapes and response-spectrum data.
- *Incident 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.
- *Incident 16070*: Full round-trip data transfer between ETABS and Revit Structure 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.
- *Incident 12842*: Revit Structure member families are now comprehensively supported, subject to user control, when transferring data to and from ETABS.
- *Incident 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.
- *Incident 15896*: Two-way transfer of deck section properties between ETABS and Revit Structure is now supported.
- *Incident 15888*: Comprehensive, two-way transfer of point, line, and area loads between ETABS and Revit Structure is now supported.
- *Incident 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.
- *Incident 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.
- *Incident 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 16087*: CSiXRevit2009 now uses ETABS technology and requires an ETABS license to run.
- Other enhancements for Revit Structure 2009 as detailed in ReleaseNotes.pdf.
- Other minor enhancements as detailed in ReleaseNotes.pdf.

Incidents Resolved

- *Incidents 12864 and 14738*: Uniform load transferred from Revit Structure to ETABS was sometimes converted to non-uniform load. This has been resolved.
- *Incident 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.
- Other minor Incidents as detailed in ReleaseNotes.pdf.

Changes from Version 9.1.7 to Version 9.2.0 (issued 02/20/2008)

Enhancements Implemented

- *Incident 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.
- *Incident 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.
- *Incident 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 *Help > Documentation*.
- *Incident 13131*: The documentation available using the *Help > Documentation* 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*n*.mdb, where *n* can be any single digit from 0 to 9. If there are multiple files, the one with the highest digit *n* is used. Editing EtabsDocs*n*.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 *Help > Documentation* command is defined by the table “Control” in the EtabsDocs*n*.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.

- *Incident 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.
- Other minor enhancements as detailed in ReleaseNotes.pdf.

Incidents Resolved

- *Incident 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.
- *Incident 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.
- *Incident 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 C_d/I , where C_d and I can be specified by the user as design preferences.
- *Incident 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.
- Other minor Incidents, including many for Chinese design, as detailed in ReleaseNotes.pdf.

Changes from Version 9.1.6 to Version 9.1.7 (issued 12/15/2007)

Enhancements Implemented

- *Incident 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.
- Other minor enhancements as detailed in ReleaseNotes.pdf.

Incidents Resolved

- *Incident 11758:* For the shear-wall design check for code “ACI 318-02,” the interpolation of α_c , a factor for calculating in-plane shear strength of shear-walls, was not correct. ACI 21.7.4.1 has α values ranging between 2.0 to 3.0, depending on the h_w to l_w ratio. The program sometimes produced an α that was out of range. This has been resolved.
- *Incident 12929:* The values for F_a and F_v 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.

- *Incident 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.
- *Incident 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.
- *Incident 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.
- *Incident 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.
- *Incident 12841*: The speed has been substantially improved for updating large models from ETABS to Revit Structure 2008.
- *Incident 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.
- Other minor Incidents, including many for design, as detailed in ReleaseNotes.pdf.

Changes from Version 9.1.5 to Version 9.1.6 (issued 09/13/2007)

Enhancements Implemented

- *Incident 12295*: New automated lateral loads have been added:
 - NBCC 2005 wind loads, seismic loads, and response-spectrum functions
 - IBC 2006 seismic loads and response-spectrum functions
 - ASCE 7-05 wind loads
- *Incident 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
- *Incident 12455*: Concrete frame design check has been added for the CAN/CSA A23.3-04 design code.
- *Incident 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 12599:* Several enhancements have been made to the link between ETABS and Autodesk Revit Structural 2008. Details are given in file ReleaseNotes.pdf. A new installation for CSIxRevit2008 can be downloaded.
- *Incident 12641:* Automated notional loads have been added for the AISC 2005 design code.
- *Incident 12691:* Design manuals have been added or modified:
 - o Added steel frame design manual for AISC 2005 as **DRAFT**
 - o Combined older steel frame design codes into a single manual
 - o Added concrete frame design manuals for ACI 318-02 and ACI 318-05
 - o Added concrete frame design manual for CAN/CSA A23.3-04
 - o Combined older concrete frame design codes into a single manual
 - o Added shear wall design manuals for ACI 318-02 and ACI 318-05
- Other minor enhancements, as detailed in ReleaseNotes.pdf.

Incidents Resolved

- *Incident 12572:* An incident was resolved in which 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.
- Other minor Incidents, as detailed in ReleaseNotes.pdf.

Changes from Version 9.1.4 to Version 9.1.5 (issued 08/10/2007)

- Support for Autodesk Revit updated to Revit Structural 2008. A new installation for CSIxRevit2008 can be downloaded.
- Other minor bug fixes and enhancements.

Changes from Version 9.1.3 to Version 9.1.4 (issued 05/08/2007)

- A bug introduced in Version 9.1.3 that caused some imports/exports not to work at all has been corrected.
- Other minor bug fixes and enhancements.

Changes from Version 9.1.2 to Version 9.1.3 (issued 03/16/2007)

- Unnecessary updating of live load reduction factors at file opening has been corrected.
- Other minor bug fixes.

Changes from Version 9.1.1 to Version 9.1.2 (issued 12/23/2006)

- Improved speed when large numbers of Wind Loads were being generated.
- Other minor bug fixes.

Changes from Version 9.1.0 to Version 9.1.1 (issued 10/04/2006)

- A bug that would sometimes corrupt the text files (\$et or e2k) when saved and not allow them to be reimported has been fixed.
- Minor enhancements to translation from other programs.
- Other minor bug fixes related to program working not related to results.

Changes from Version 9.0.9/1 to Version 9.1.0 (issued 08/31/2006)

- A bug that did not allow non-zero Panel zone angles to be assigned when link properties were used has been fixed.
- Minor enhancements to translation from other programs.
- Minor enhancements to IFC import/export.
- Minor modifications to design display.

Changes from Version 9.0.9 to Version 9.0.9/1 (issued 07/26/2006)

- Minor modifications to Revit imports.
- Corner/Edge rebar in rectangular concrete columns can now be of different sizes.

Changes from Version 9.0.8 to Version 9.0.9 (issued 07/19/2006)

- An export capability has been added to export element connectivity to program Perform3D.
- Import of models from other programs has been enhanced.
- Minor other bug fixes and enhancements.

Changes from Version 9.0.7 to Version 9.0.8 (issued 06/16/2006)

- The Line Constraint stiffness has been changed back to what was being used in V8. The stiffer constraints in earlier versions of V9, even though giving better stress results, were causing unnecessary numerical sensitivity problems in some models, especially larger ones.
- Minor modifications to Revit and IFC imports.
- Other minor design bug fixes.

Changes from Version 9.0.6 to Version 9.0.7 (issued 05/29/2006)

- Redundancy factor Rho for seismic loads was missing from load combinations for ACI-02 and ACI-05. Corrected. These designs should be verified.
- Part of the code related to creation of analysis model has been optimized for time. Should allow larger jobs to be run faster.
- Several new tables added to the database display.
- Interface with Autodesk Revit Structural updated.
- Interface with IFC updated.
- Import from STAAD updated.
- Changes to Steel Design based on the Chinese code.
- Other minor bug fixes to design.
- Other minor bug fixes.

Changes from Version 9.0.5 to Version 9.0.6 (multiple limited releases)

- 2GB limit on some intermediate analysis files removed. Should allow larger jobs to be run.

Changes from Version 9.0.4/1 to Version 9.0.5 (issued 04/02/2006)

- Export/Update capability added for Autodesk Revit Structural Version 3. This data exchange is still under development. Imported/Exported models should be checked.
- Design database tables for Shearwall and Composite beam designs added.
- Other minor bug fixes and enhancements.

Changes from Version 9.0.4 to Version 9.0.4/1 (issued 03/24/2006)

- Support for Autodesk Revit Structural Version 3 (Beta) has been added. This is still under development. Imported models should be checked. Export is currently not supported.
- Sections database for AISC 13th Edition have been added and are the new program default.
- Other minor bug fixes and enhancements.

Changes from Version 9.0.2 to Version 9.0.4 (issued 03/22/2006)

- Database display times have been significantly improved.
- Other minor bug fixes and enhancements.

Changes from Version 9.0.1 to Version 9.0.2 (issued 01/23/2006)

- A bug that in some cases caused User specified Wind Loads to diaphragms to be reset to zero has been corrected.
- A bug that caused export to SAFE not to export slabs has been corrected.
- A bug that caused Static Nonlinear analysis results not to be available in Database view has been corrected.
- Minor enhancements to Composite beam design.
- Minor enhancements to Line (Edge) Constraint formulation.
- Other minor bug fixes and enhancements.

Changes from Version 9.0.0 to Version 9.0.1 (issued 01/07/2006)

- A bug that caused DXF import not to work has been corrected.
- Minor enhancements to import from Autodesk Revit Structural.
- Minor enhancements to import from IFC files.
- Minor enhancements to Chinese steel design.
- Minor enhancements to database and graphic display of numerical quantities.
- Other minor bug fixes and enhancements.