

# CSiPlant v7.1.0 Release Notes

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**Notice Date: 04-March-2022**

This document lists changes made to CSiPlant since v7.0.0, released 01-January-2022. Items marked with an asterisk (\*) in the first column are more significant.

## Database Tables

### ***Enhancements Implemented***

*	Ticket	Description
	7901	An enhancement was made to the tabular display to show detailed data for a single row after clicking on the row heading on the left. Detailed data for each row include the parameter (column) names, values, and descriptions for each cell of the row and are presented in a separate table. This information can be exported to Excel.

## Installation and Licensing

### ***Enhancements Implemented***

*	Ticket	Description
*	7892	The version number has been changed to v7.1.0 for a new intermediate release.

## Drafting and Editing *Incidents Resolved*

*	Ticket	Description
	7974	An incident was resolved where the software would exit unexpectedly when the model was saved after deleting a joint that connected two non-parallel pipes. This could only occur if the pipes were drawn without auto-elbow generation.

## External Import and Export *Incidents Resolved*

*	Ticket	Description
*	8165	An incident was resolved that addressed the following two issues for the export of support reactions to SAP2000: (1.) Exporting support reactions for multiple selected load cases exported reactions only for some of the selected load cases. (2.) Exporting support reactions for supports connected to pipes with a specified pipe section would not export any reactions unless all pipe sections were selected. It is suggested to rerun models any models that were using the "Export Support Reactions" feature and re-export the support reactions in the updated version.

## Graphics *Incidents Resolved*

*	Ticket	Description
	8055	An incident was resolved where elbows that were located far from the origin were graphically shown as disconnected from adjacent pipes. This was strictly a graphical issue that had no effect on results.

## User Interface *Incidents Resolved*

*	Ticket	Description
	7939	An issue was resolved where the input fields for joint coordinates and rotation angle on the Rotate form would allow only integer values to be entered. Now the text fields accept both integer and decimal values.
	7973	An incident was resolved where any changes made to the snap options via the "Draw > Snap Option..." menu command would automatically revert back to the default snap options.

# CSiPlant v7.0.0 Release Notes

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**Notice Date: 17-December-2021**

This document lists changes made to CSiPlant since v6.2.0, released 22-March-2021. Items marked with an asterisk (\*) in the first column are more significant.

## Analysis

### Enhancements Implemented

*	Ticket	Description
*	6588	An enhancement has been made to speed up stiffness-formation, event-determination, and state-update operations during analysis for Pipe elements in presence of many load patterns. Nonlinear static, staged-construction, and nonlinear direct-integration time-history load cases for models with many Pipe elements (and many load patterns) should benefit the most, especially if the analysis time is governed by state update and/or event determination.
	7371	The default nonlinear-iteration parameters for nonlinear-static load cases have been changed by setting the number of constant-stiffness iterations allowed to zero. This will cause all iterations to use the Newton-Raphson (tangent-stiffness) method. This may be less efficient for problems with limited nonlinearity, but may be more accurate and even more efficient for load cases involving friction supports, temperature-dependent behavior, and/or large-deflections geometric nonlinearity. This change will only affect the default settings for newly created load cases. Existing models will not be affected. Constant-stiffness iteration can still be used by changing the iteration parameters of newly created load cases.
*	7393	Advanced equation solver options "Run Load Cases in Parallel", "Number of (Internal) Threads Used for Analysis" and "Maximum Size for Response Files (MB)" were made available on the "Equation Solver Options" form. Running load cases in parallel can significantly reduce the time it takes to analyze models with multiple load cases.

## Design – Piping

### Enhancements Implemented

*	Ticket	Description
*	4855	An enhancement was made adding B31.4-2019 as an available design code. Key features include: Onshore and offshore design checks Local buckling checks API RP 1111 for offshore piping
*	6226	An enhancement was made adding B31.1-2020 as an available design code. Key differences from B31.1-2018 include: Offering of both B31.1 and B31J SIFs in the Design Request Settings, with B31J set as default. This was done in response to the removal of the "MANDATORY APPENDIX D FLEXIBILITY AND STRESS INTENSIFICATION FACTORS" in favor of B31J in the B31.1-2020 design code. Modification of default behavior for axial SIFs: For non-displacement checks $i_a = 1.0$ . For displacement checks, $i_a = i_o$ for tees. Ability to specify custom SIFs for both displacement and non-displacement checks. Longitudinal stress-check equations were updated to include axial-force stresses and to separate torsional stresses from the moment resultant.
	6717	An enhancement was made to the options for Flange Leakage checks performed in accordance with BPVC.VIII.1-UG.44 (formerly Code Case 2901) allowing the user to see design results in terms of equivalent pressure. The BPVC.VIII.1-UG.44 flange leakage equation is presented in terms of equivalent pressure $P_D * A_f + 4 * F / (\pi * G^2) + 16 * M / (\pi * G^3) \leq (1 + F_M) * P_R$ This should facilitate a more direct comparison to flange-catalog rating pressures.
*	6950	An enhancement was made adding B31.3-2020 as an available design code. Key differences from B31.3-2018 include: Ability to specify axial SIFs. Default B31J as the method for calculating Flex/SIF factors.

* Ticket	Description
7203	An enhancement was made to the B31.3-2016 and B31.3-2018 design codes to include a manual calculation for longitudinal stress due to pressure loads. When pressure elongation is enabled, the contribution to longitudinal stress due to pressure is captured during analysis and included in the reported axial force. When pressure elongation is disabled, the contribution to longitudinal stress due to pressure is manually calculated and included in the total longitudinal stress calculation. Two options exist for manually calculating the longitudinal stress due to pressure: Approximate the longitudinal stress as 0.5 times the hoop stress, where the hoop stress is calculated as the Lamé Hoop stress at the inside surface of the pipe. This method is chosen by specifying Outside diameter in the Design Preferences. Exactly calculate the longitudinal stress as $[(\pi * D_i^2) - (P_e * D_o^2)] / (D_o^2 - D_i^2)$ . This method is chosen by specifying Inside diameter in the Design Preferences. For previous models that already DO have Pressure elongation enabled, there is no change in design results. Previous models that DO NOT have pressure elongation enabled will display an increase in longitudinal stress.
7382	An enhancement has been made to the design process whereupon encountering a design warning, the warning message is added to the Design log and the design continues. Previously, upon encountering a warning, the design would exit and no design results would be available for piping that had not yet been designed.
7673	Flange leakage method "Code Case 2901" has been renamed to "ASME BPVC.VIII.1 UG-44" to reflect the adoption of the code case into ASME BPVC Section VIII. Previous numeric results are unaffected, but reports and tables will now reflect ASME BPVC Section VIII.

### Drafting and Editing Enhancements Implemented

* Ticket	Description
211	An enhancement was added to include the option to insert frame objects using the Insert command.
219	An enhancement was added to provide feedback to the user when an object cannot be deleted so that the user is aware of the reason that the delete command was not executed on selected objects.
2694	An enhancement was added to graphically distinguish valves that have been assigned eccentric weights. The eccentric weight information is specified using the Define Valve Properties form. The details of a given valve property can be accessed via the right click menu on the object.
6034	An enhancement was added to perform a better comparison of nominal pipe diameters with adjacent component diameters when inserting a new component. Component diameters are always defined by nominal pipe size (NPS). When the adjacent pipe section is also defined by NPS, the diameter values are directly compared. When the adjacent pipe section is defined as a custom value, the closest related NPS value is found, and that value is compared to the component NPS value. If the values differ, a warning will appear with the option to continue with the insert or to cancel.
6270	An enhancement was added to the Replicate and Mirror forms to include the option to select points in the model for determining the offset distance or the mirror plane rather than typing the numbers directly into the form.
6412	An enhancement was added to include a Rotate command in the Edit menu. The Rotate command allows the user to define an axis of rotation in the model by specifying two points or one point and a global-axis direction, and all selected objects are rotated about the axis. If the rotated objects overlap with existing objects, necessary repair will occur.
6413	An enhancement was added to include the option to graphically display the weight of components in the model. In the Set Display Options form, a new checkbox for Component Weights has been added under Flanges/Valves.
6430	An enhancement was added to include multiple object types in the Assign Flanges to Object Ends form (previously Assign Flanges to Valve Ends). The form now includes the option to apply flanges to tees, reducers, elbows, and valves.
6553	An enhancement was added to include the option to insert 2-Joint Links using the Insert command.

* Ticket	Description
7621	An enhancement was added to allow the user to calculate elbow bend radii based on the nominal diameter (NPS) of the pipe rather than the actual diameter. This is controlled by the "Bend Radius from Nominal Size" setting that can be accessed via command Options > Default Auto Drafting Options. For older models, the setting will automatically be set to calculate the elbow bend radius from the actual diameter to remain consistent. For new models, the default setting will be to calculate the bend radius from the nominal diameter value. If the setting is changed and there are existing elbows in the model, the change will automatically be applied to all existing elbows and repair of pipelines will occur as necessary.

## External Import and Export *Enhancements Implemented*

* Ticket	Description
6403	An enhancement was implemented allowing for the import of pulsation loads due to reciprocating pumps and compressors from BOSpulse as a time history load case. The BOSpulse pulsation loads act on straight pipes between two joints on a pipeline where the pipeline changes direction and are expressed as harmonic loads for each node pair. Each harmonic load is defined by a set of frequencies, amplitudes, and phase angles. The import creates separate sine-series time history functions for each node pair, separate load patterns for each node pair with unit loads equally distributed to each node of the pair, and a time-history load case in which the time variable loads for each node pair are simultaneously applied. Detailed information on the import procedure is available in the "BOSpulse Loads Import Manual" located in the "Manuals\Import" subdirectory in the main CSiPlant installation directory.

## Graphics *Enhancements Implemented*

* Ticket	Description
5115	An enhancement was added to optimize the creation of time history animations. The time needed to display the animations has been significantly decreased.

## Installation and Licensing *Enhancements Implemented*

* Ticket	Description
326	An enhancement was implemented to update the cloud licensing. This update includes the ability to checkout a license for offline use, as well as improvements to the general behavior and making it more fault tolerant. To try out CSiPlant for up to 30 days before purchasing a license, it is now required to request a trial activation key via the CSI website. Existing CSiPlant users will be asked to input their licensed CSiPlant activation key again the first time they run v7 after upgrading through the CSI Customer Center or with their local CSI office.
6501	The version number has been changed to v7.0.0 for a new major release.

## Loading *Enhancements Implemented*

* Ticket	Description
5513	An enhancement was added to preserve the loads on main portion of the tee when the tee is converted to a straight pipe during element deletion. When a tee is deleted, the tee main is converted to a straight pipe, and the loads that were previously assigned to the tee are assigned to the new pipe which is now in its place.

**Results Display and Output**  
**Enhancements Implemented**

* Ticket	Description
6118	An enhancement was added to allow custom filtering of non-numeric columns in any table display. Columns with non-numeric values can be filtered by "Contains" and "Does Not Contain" by selecting the Custom Filters menu item after right-clicking on a column header.

**Structural Model**  
**Enhancements Implemented**

* Ticket	Description
6404	An enhancement was added to allow the user to add expansion joints to the model. Three types of expansion joints are available: Single expansion joints, where all six degrees of freedom can be assigned a stiffness. Hinge expansion joints, where the user can specify the axis of rotation as either R2 or R3 and define the stiffness in that degree of freedom, while all other DOFs are rigid. Gimbal expansion joints, where the user can assign a stiffness in the R2 and R3 direction, and the rest of the DOFs are rigid. Hinge and Gimbal Joints can also be defined as Slotted, which allows the user to define the stiffness in the U1 direction. This enhancement also allows the user to add tie rods to the Simple type expansion joint. Tie rods can be either Simple, meaning they are designed as a tie or ties from the expansion joint end to end at the centerline, or Complex, meaning the user can define the offset distance of the ties from the centerline of the joint.
6822	An enhancement was implemented to model distributed soil supports for pipe elements following the recommendations described in the "American Lifelines Alliance: Guidelines for the Design of Buried Steel Pipe, July 2001". The modeling consists of defining soil properties, defining distributed support properties of type "American Lifelines Alliance Soil", and assigning the distributed support properties to pipe elements. The continuous support provided by soil is internally approximated by link elements created at each discretization point along the pipe. Multi-linear link properties are used to represent the soil force-deformation response with the points on the force-deformation curve determined based on soil properties and other parameters per the Guidelines. For time-history analyses, gapping and non-gapping soil behavior can be specified using the following hysteresis types: (1) Gapping with Takeda Hysteresis; (2) Non-Gapping with Takeda Hysteresis; (3) Non-Gapping with Kinematic Hysteresis. The total number of generated link elements created at each internal discretization point depends on the gapping behavior specified for the axial, lateral, and vertical directions. For each direction, two links will be generated to represent gapping behavior, or else a single link will be generated to represent non-gapping behavior. Complete details are provided in the "Soil Modeling per American Lifelines Alliance" manual accessible via "Help > Documentation > Documents > Manuals > Soil Modeling per American Lifelines Alliance".

**User Interface**  
**Enhancements Implemented**

* Ticket	Description
292	An enhancement was added to include the option to display elements in the model by color based on the following categories: object type, section, material, pipe property set, pipeline, or group. These new options are added as checkboxes on the Set Display Settings form.
6554	An enhancement was added to include Apply and OK buttons on the Insert form. The Apply button has the same functionality as the previous Insert button which completes the insert, and the OK button will automatically close the form after the insert occurs.
7667	The Display Information form for elbows has been revised to display Bend Angle (the angle measuring change of direction of the outgoing pipe relative to the incoming pipe) in degrees. Previously, the Deflection Angle (half of the difference between a straight angle and the angle between incoming and outgoing pipe) was displayed in radians.

**Analysis  
Incidents Resolved**

*	Ticket	Description
	5974	An Incident was resolved when running analysis and design would not run any design requests when no load cases were selected to be run on the "Set Load Cases to Run" form. Now selected design requests will be run after first running their prerequisite load cases, even if no load cases had been explicitly selected.
	6878	An incident was resolved when running analysis for a model with distributed supports assigned to a tee whose branch was shorter than half of the tee main diameter would generate an error message "An error has occurred while generating the analysis model." when creating the analysis model. When this occurred, the analysis was terminated and no analysis results were available.
*	6879	An incident was resolved where the Poisson contraction/elongation due to internal/external pressure loading on pipe objects with axial stiffness modifiers was not correct. The calculated Poisson axial strain was being incorrectly scaled by the inverse of the assigned axial stiffness modifier.
	6949	An incident was resolved where, when changing a load-case type from one that supports reference temperature and pressure loads (e.g., linear static, nonlinear static, or nonlinear direct-integration time history) to one that does not support reference loads (e.g., linear direct-integration time history or linear/nonlinear modal time history), the reference loads were converted to applied loads but these loads could not be edited or deleted. Now the converted reference loads can be modified or deleted after changing the load-case type. Existing analysis and design results are not affected by this change.
*	7270	An incident was resolved where nonlinear static and staged-construction load cases could converge with equilibrium errors that were larger than expected when large external loads were applied. When this occurred, the errors were typically in a direction or region of the model not significantly affected by the external load. For example, horizontal reactions in one portion of the model may be out of balance due to large vertical loading in a different region of the model. The effect of this error was negligible for most models. Now equilibrium convergence is measured using the relative convergence tolerance times the magnitude of the internal forces, rather than the previous approach of considering the larger of the internal and external forces. This change will have no impact on most models, and will tend to increase iteration and improve equilibrium for other models. A few models that previously converged may now fail to converge under the tightened equilibrium requirements; this can usually be resolved by improving the stability or conditioning of the model. Note that the behavior of the pure event-to-event solution strategy is not affected by this change, except that the reported equilibrium error could be larger; no other results will be affected.

**Database Tables  
Incidents Resolved**

*	Ticket	Description
	7071	Various updates were made to the Flange and Valve Assignments Tables: (1) Fixed the spelling errors in column names in Component Assignments -> Component Flange Assignments table.(2) Property Definitions -> Components -> Component Properties -> Valve Table is now shown in the Select Tables form.(3) Eliminated the error shown when the Component Flange/Valve Assignments Table was opened.
	7072	An incident was resolved where specific-gravity values were displayed incorrectly in the Pipe Contents Property Table when the global units were changed. This did not affect results and was only shown incorrectly in the table. Specific gravity is dimensionless and now the displayed value does not change with changes to the global units.
	7548	An Incident was resolved where the tables "Joint Loads - Ground Displacements", "Joint Loads - Force", and "Component Properties - Flange" tables did not have the correct table name in Excel after exporting.

**Design – Piping  
Incidents Resolved**

*	Ticket	Description
*	6776	An incident was resolved where the Flange leakage setting to "Ignore flanges in axial compression" was incorrectly reset to its default value (No) when a saved model was reopened.
*	6801	An incident was resolved where changes made to the design stresses for ASTM materials in the Define Materials form would not be saved after closing the form. Only design stresses without temperature dependence were affected. Note, all results were consistent with the design stresses shown when the Define Materials form was first opened and as presented in the design reports.
*	6965	An incident was resolved where the error message "ERROR: An exception occurred during design: The given key was not present in the dictionary" could, on rare occasions, be displayed during the design. When this occurred, the design was terminated and no design results were available. This error was related to the calculation of SIF/Flex pressure correction on elbows, so only models with elbows and pressure correction enabled were impacted. This error was not common and was difficult to reproduce.
*	7079	An incident was resolved relating to Flange Leakage checks where the pressure loading used in the calculation was double-counted if pressure elongation was enabled when the analysis calculated internal forces in the piping based on the pressures assigned to the pipeline. These calculations are included in the flange leakage checks inside the Force term, Fe. The previous behavior also included the assigned pressure via the PD term. The updated behavior modifies the pressure used in the PD term when pressure elongation is enabled in the following manner: If the gasket diameter exactly matches the nominal inside diameter, the PD term is set to zero. If the gasket diameter differs from the nominal inside diameter, the PD term is multiplied by the scale factor $[1-(d/G)^2]$ , where d is the nominal inside diameter and G is the user specified gasket diameter. The scale factor accounts for the pressure thrust acting on the portion of the flange between the gasket diameter and the nominal inside diameter. Previous design results were conservative. It is recommended that affected models be reanalyzed with the new version.
	7220	An incident was resolved where a nonlinear static load case (say, case "B") applying absolute temperature loads could produce incorrect results if, during the same run, a previous modal load case was run that used the stiffness from a different nonlinear static load case (say, case "A"). The effect of this error was reduced when a smaller convergence tolerance was used for the affected load case "B". The error was caused by the absolute temperature loads being calculated with respect to the initial state of the case "A" instead of case "B" itself. This error did not occur if load case "B" was run without the modal load case dependent on load case "A". This was not common.
*	7262	An incident was resolved with spring hanger sizing where models containing objects with flex factors would produce incorrect operating displacements. This was caused by a mis-ordering of the internal staged construction cases responsible for the determination of these results. Previously, the internal load case chain responsible for the calculation of the operating displacements would create load cases in the following order: 1) Change the spring hanger properties to a free support, apply the calculated hot load to the support joint. 2) Apply flex factors as property modifiers to all tee and elbow objects. However, since the property modifiers were applied after the hot load, the stiffness of the pipeline did not incorporate the appropriate flex factors resulting in a structure that was stiffer than expected. All analysis and design results were consistent with the spring hanger properties as sized using the operating displacements that did not consider the flex factors. Now, the internal load case chain is constructed as follows: 1) Apply flex factors as property modifiers to all tee and elbow objects. 2) Change the spring hanger properties to a free support, apply the calculated hot load to the support joint. Additionally, an incident was resolved where anchor stiffness overrides specified for hot load calculation were not being applied in the correct degree of freedom.



* Ticket	Description
7292	An incident was resolved where the error message "Message: Unable to set SIF/Flex factor limits..." was sometimes displayed during the B31J SIF calculations. This could occur when the SIF/Flex factors calculated during design based on object geometry resulted in a minimum SIF/Flex factor that was greater than the maximum SIF/Flex factor. The updated behavior now uses the following rules for the limits: If the calculated SIF/Flex factor is less than the minimum, the minimum value controls, regardless of the maximum value. If the calculated SIF/Flex factor is greater than the maximum and minimum but the minimum is greater than the maximum, the minimum value controls, regardless of the maximum value. The maximum SIF/Flex factor only controls when the calculated value exceeds the maximum and the maximum value exceeds the minimum. Note that this situation occurs for a very specific set of geometry and assignments and is not common.
* 7490	An incident was resolved that affected displacement stress checks subjected to temperature scaling. The previous behavior did not apply the temperature scaling to the axial stress component. Now the temperature scaling factor is applied to all stress components (axial, flexural and torsion). The effect on results should be small as axial stress is a small contribution in flexible systems. However, older affected models should be re-designed to verify whether or not the effect is significant.
7497	An incident was resolved where the Pressure checks of B31.3-2016/2018 only reported the Centerline and Intrados required thicknesses. Now Centerline, Intrados and Extrados thicknesses are reported. The DCR calculation only requires the Centerline thickness, so overall results are unaffected.
* 7737	An incident was resolved affecting the design of piping using B31.1-2018 where non-default design properties of pipes or components drawn after opening a previously saved model would have their design properties overridden and replaced with default values during analysis and design. After running the analysis and design, inspection of the design properties for these objects would show the default values. Similarly, review of the design tables/reports would show the default values. The results of the analysis and design, although consistent with the values displayed, are in disagreement with the user assigned non-default values. Previous models may be affected, and the design property assignments should be reviewed for correctness and reassigned where incorrect properties exist.

### Drafting and Editing Incidents Resolved

* Ticket	Description
6468	An incident was resolved addressing the following issues with assigning advanced local axes to points, frames, and links: (1) When advanced local axes were specified using the Two Points option, but either or both points were set to None, the software would suddenly terminate upon assignment. (2) When advanced local axes were specified using the User Vector option but the user vector was aligned with the axial vector of the object, invalid local axes were assigned. This resulted in the affected local-axes assignments not being graphically shown, and could possibly cause invalid analysis results to be produced. (3) When advanced local axes were specified using the Coordinate Direction option, and both the primary and secondary directions were aligned with the axial vector of the object, the software would suddenly terminate upon assignment. For the above rare scenarios, the advanced local axes are not uniquely defined and cannot be determined due to axial and plane vectors being aligned. Now valid default local axes will be created in such situations.
6981	An incident was resolved where the Assign Flanges to Object Ends command was inserting flanges in a direction that was opposite from conventional piping models. The flanges are now inserted in a direction that assumes the selected object already has one-sided flanges at both ends. Additionally, a new property was added to valve definitions which allows the user to specify if the valve is flanged on both ends. This property is purely graphical and does not affect results.
7451	An incident was resolved that addressed two issues with drafting: (1.) Snapping to elbow TIP was not available in user-defined coordinate systems. (2.) The graphical representation of the measure tool was incorrect in user-defined coordinate systems. The measured values were previously correct, and only the graphical display was incorrect.

* Ticket	Description
7699	An incident was resolved where reducers and components that were drawn at an angle from the previous pipe were not replicated properly, but were instead drawn parallel to the previous pipe. Now the proper angle is retained during replication.

## External Import and Export Incidents Resolved

* Ticket	Description
6941	The following incidents were resolved when using a Windows regional setting that utilized a number format with a comma decimal separator: Importing CAESAR CII Neutral files failed without creating any entities in CSiPlant and without displaying any warning messages in the import log. Importing PCF files failed without creating any entities in CSiPlant and without displaying any warning messages in the import log. Creating new CSiPlant model via "File > New Model..." failed to create new model and no warning message were displayed. Opening existing CSiPlant model via "File > Open Model..." failed to open the model and no warning messages were displayed.
7014	An incident was resolved that corrected the following issues for the PCF import: (1.) Blank lines may have previously prevented the model from being imported from a PCF file. Unexpected blank lines in the PCF file are now ignored. (2.) The ITEM-DESCRIPTION material attribute can now be imported, which resolves an issue with the PCF file not being successfully imported when material-mapping XML files were used.

## Graphics Incidents Resolved

* Ticket	Description
280	An incident was resolved where the command File > Capture Picture > Current Window w/ Title Bar always took a picture of the first model view instead of the current model view.

## Loading Incidents Resolved

* Ticket	Description
* 6946	An incident was resolved where the pressure load contour was not correctly displayed on the branch portion of a tee element. Additionally, during the analysis of tees which had been assigned any loads, the portion of the tee branch that was within the tee main (i.e., from the tee main centerline to the outer edge of the tee main) was loaded with the assigned loads causing a redundancy. This portion of the tee branch no longer contributes loads to analysis results. This could effect the results of previously run models which contained tee elements.
7655	An Incident was resolved where the program-calculated exposure height minimum and maximum Z coordinates for the ASCE/SEI 7-10 and ASCE/SEI 7-16 auto lateral wind load patterns would be unrealistically large values when there were no objects in the model. Also, a warning message "The ground global Z value must be less than or equal to the min global Z value." was displayed when attempting to save the Wind Load Parameters form with default parameters that include Ground Global Z coordinate of 0. Now, the exposure height minimum and maximum Z coordinates are set to 0 when there are no objects in the model, and the form can be saved without any warning messages when default parameters are used.

**Structural Model  
Incidents Resolved**

*	Ticket	Description
	6262	An incident was resolved where the function data points of directional properties for R1, R2, and R3 of multilinear links and supports were displayed with the incorrect units. This led to an incorrect conversion of the data points when the program global units were updated. This can affect multilinear links in models made in older versions where the global units were set to anything other than inches and pounds, and these links should be checked before proceeding with these older models.
	6984	An incident was resolved where the NPS value of pipe sections, flanges and valves was incorrectly converted when metric units were selected as the global display units. If a metric units are selected, this property is now displayed as a DN (Diametre Nominel, mm) value. This was a display issue only. Results were not affected.

**User Interface  
Incidents Resolved**

*	Ticket	Description
	375	An Incident was resolved where the nonlinear damping coefficient of the exponential damper was treated as unitless instead of having the actual units of "Force * (Sec/Length) <sup>Cexp</sup> " units, where Cexp is the nonlinear damping exponent. Hence the value of this coefficient was not being converted for changes in units. Now, the correct units conversion is performed on display forms, when reviewing the nonlinear exponential damper properties in tables, and when adding another CSiPlant model with different units to an existing CSiPlant model. The correct label for the units is also now displayed on display forms. When opening or adding older models (i.e., models saved in a version prior to v7.0.0), the value of nonlinear damping coefficient stored as a unitless value in the old model file is read in and assigned the "Force * (Sec/Length) <sup>Cexp</sup> " units, where the Force and Length units are the actual database units of the model being opened or added. Note that database units are "lb, in, F" for models initialized with U.S. Customary units, "mm, N, C" for models initialized with Metric SI units, and "mm, kgf, C" for models initialized with Metric MKS units. These database units might be different from display units shown in the lower right corner of the main window. When display units are different from database units, the damping coefficient values shown on the forms will be different from the values shown in the old model file, because the units conversion described below is now performed to convert from database units to display units. Since the analysis model is created in database units, analysis and design results for the model analyzed in current version will match the analysis results obtained from versions prior to 7.0.0. After the old model has been opened in the new version, any subsequent units conversions for the nonlinear damping coefficient will be performed using the "Force * (Sec/Length) <sup>Cexp</sup> " units. It is strongly recommended to review values of the nonlinear damping coefficients after opening or adding older models.
	6731	An incident was resolved where no load assignments would be displayed for time history load cases when displaying using the "Display > Load Assignments" menu command. No results were affected.
	6982	An incident was resolved where the units of rotational stiffness were labeled as J/rad when they should have been labeled as N*m/rad. The affected properties can be found in the Define Links form, Define Supports form and the Modal Participation Factors table. This change is purely cosmetic and does not affect results.
	7090	An incident was resolved where the measure tool could not be used on a locked model that was closed and then re-opened.
	7264	An Incident has been resolved where the Stiffness Type combination box on the "Assign Anchor Stiffness Overrides" form contained entries "a", "b" and "c" in the drop-down list. This has been corrected to show the correct entries "Fixed", "Free" and "Linear" entries. Note that selecting "a", "b" or "c" in the previous version had the same effect as choosing "Fixed", "Free", or "Linear" in the current version, respectively.

*	Ticket	Description
	7411	An incident was resolved where an error message stating "Insufficient room to accommodate valve" was occasionally shown when valves were edited, even if the valve length was not changed. This occurred when a valve property definition was changed in the Define Valves form, which caused the existing valves in the model to be updated for valve length changes. Due to a slight difference in tolerances when drafting the valve and updating the valve, the error message was displayed despite the length of the valve remaining constant. The tolerances have been updated which has resolved the problem that caused this incident.
	7412	An incident was resolved that addressed two errors that occurred while editing the flange pressure rating data points: (1.) When the user edited a value and then used the Enter key to finish editing, duplicate values were allowed in the data table, which then caused an error and forced the form to close. Now the Enter key no longer ends editing of the cell and does not create an additional row of data points. (2.) When the data values contained multiple decimal points, this created a rounding error that led to the Add and Delete keys not working properly.