

CSiBridge v25.3.0 Release Notes

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This document lists changes made to CSiBridge since v25.2.0, released 29-March-2024. Items marked with an asterisk (*) in the first column are more significant.

Bridge Design and Rating

Enhancements Implemented

| * | Ticket | Description |
|---|--------|--|
| * | 10363 | An enhancement has been implemented to provide a comprehensive calculation report in Microsoft Excel format for the IRC-112 Column Service Check. The report features tables, graphics of the resistance column cross section with the reinforcement bar layout, and graphs showing the controlling ratio of calculated over limiting crack width and stresses for every reinforcement bar. |
| | 10513 | An enhancement has been implemented to consider a new scenario when the neutral axis is located in the bottom flange of a Steel U tub girder when evaluating the positive plastic moment. In previous versions these sections were flagged as invalid. The design manual has been updated to indicate that the compression reinforcement in the slab is ignored when evaluating the positive plastic moment. This change affects steel U-girder with composite slab strength design requests for Eurocode. |

Bridge Modeler

Enhancements Implemented

| * | Ticket | Description |
|---|--------|---|
| | 10443 | A minor enhancement has been implemented in the bridge modeler for modeling the slab above the beam in concrete solid-girder bridge sections. Previously, a single slab object was modeled above the beam and connected by two rigid links to the beam, which itself is modeled as a frame object. This prevented the slab object from carrying transverse stresses S22. Now the slab above the beam is modeled as two shell objects, split at the centerline of the beam, and connected by a single vertical rigid link to the beam. Stiffness modifiers are applied to the f22, f12, m22 and m12 properties of these slab objects so that they behave very nearly composite with the beam. The new behavior is somewhat more flexible than the previous fully rigid connection. Results can be expected to change for the torsion and transverse moment, M22, of the girder. There is no significant effect on the longitudinal stress S11, axial force P, vertical shear V2, and moment M33. |

Installation and Licensing

Enhancements Implemented

| * | Ticket | Description |
|---|--------|--|
| * | 10473 | The version number has been changed to v25.3.0 for a new intermediate release. |

Loading

Enhancements Implemented

| * | Ticket | Description |
|---|--------|---|
| * | 10486 | An enhancement has been implemented to add automated bridge wind loading according to the AASHTO 2020 9th Edition code. |

**Bridge Design and Rating
Incidents Resolved**

| * | Ticket | Description |
|---|--------|---|
| | 10526 | An incident has been resolved for steel I-girder bridge rating in which the rating request would fail if (1) the number of girders in the current span was less than the number of girders in the next span in a multiple-span steel I-girder bridge and (2) the "Mesh Slab at Critical Steel I-Girder Locations" button in Update Bridge Structural Model form was not checked. |
| * | 10529 | An incident was resolved for concrete slab bridge sections where superstructure stress design requests and superstructure service rating checks would fail to run, terminating with an error message. This error affected v25.2.0 only. |
| * | 10578 | An incident has been resolved for bridge stress design checks, service and minimum rebar rating (for all codes, if available) when the bridge object was updated as a spine model. A workaround was to use an area-object model or solid-object model. Updating the bridge model will be required to fix the problem in the new version. |
| | 10603 | An incident has been resolved for steel I-girder bridge design/rating in which the steel I-girder bridge design/rating could fail if (1) some of the spans were assigned with non-steel-girders (2) the span with steel I-girder bridge section contained local girder section cuts due to staggered diaphragm and/or girder section transitions and (3) the check box "Mesh Slab at Critical Steel I-Girder locations" in Update Bridge Structural Model form was checked. |
| * | 10613 | An incident has been resolved for steel I- and U-girder bridge design/rating in which the assigned cross-diaphragm at the beginning of internal spans without support would be ignored such that the girder unbraced length would be calculated incorrectly and thus affect the design/rating results. Note that the user will need to update (clear and create) the bridge model in order to fix the problem in the new version. |

**Bridge Modeler
Incidents Resolved**

| * | Ticket | Description |
|---|--------|---|
| | 10468 | An incident was resolved for the Bridge Modeler, affecting steel I-girder bridge sections, where the polygon representing a skewed local section cut at a stepped change in the section properties of a steel I-girder could be incorrect. This could be seen in the Bridge Object Display form (Bridge Object Span Assignment form > Bridge Section Variation Definition form > "Show Section Variation" button). This uncommon error, when present, did not affect analysis results but could have a minor effect upon design/rating stresses at that location. |
| | 10554 | An incident has been resolved for bridge bent closure pour modeling where a bridge object assigned with closure pour diaphragm for live load continuous modeling, would not have the link objects for the closure pour model created correctly if the option "Update Linked Model" was selected to update the bridge model instead of the "Clear and Create Linked Model" option. The error happened when the Update Linked Model was executed every other time. When the error occurred, the links between the girder end and the bottom of the closure pour diaphragm would be incorrectly replaced by grounded links at the end of the girders at the closure-pour bent. |
| | 10586 | An incident has been resolved for bridge section load generation where for a short span, the assigned bridge section wearing surface load, which was supposed to be modeled as bridge area load, was not generated if there were no internal bridge section cuts within a span. A workaround was to create a user discretization point within the span. |

Database Tables

Incidents Resolved

| * | Ticket | Description |
|---|--------|--|
| | 10499 | An incident was resolved for the superstructure shear rating of concrete multi-cell box sections per the AASHTO code where the rating results table CBox2Shear-Prop was not being displayed when the rating resistance code was set to AASHTO LRFD 2020. This table does not contain the actual rating results but rather supporting data. No results were affected. |

Drafting and Editing

Incidents Resolved

| * | Ticket | Description |
|---|--------|---|
| | 10568 | An incident has been resolved for the bridge object span steel beam editor where an error message was displayed after modifying steel plate sizes and clicking OK in the Steel Beam Editor form, causing the program to fail to create/update the steel beam variations along the span. This problem was due to a name conflict between the newly generated span bridge section and an existing unused bridge section. The workaround is to remove the unused bridge sections to avoid the naming conflict. |

Loading

Incidents Resolved

| * | Ticket | Description |
|---|--------|---|
| * | 10607 | An incident was resolved in the bridge modeler where the program-generated concrete haunch load for precast concrete I-girder bridges was not calculated correctly when concrete haunch height was set to zero in Bridge Section Data form. When this happened, the top-flange thickness of the precast concrete I-girder was incorrectly used for calculating the haunch load. |

Results Display and Output

Incidents Resolved

| * | Ticket | Description |
|---|--------|--|
| | 10492 | An incident was resolved where the some of the stresses shown in Bridge Response Display form for the bottom of the slab of a steel U-girder bridge section were incorrect. In particular, the diagrams for the slab stresses at bottom center and bottom beam-right were incorrectly plotted as zero, and the stresses at the bottom right were non-zero but incorrect. Only these three stress points for the slab were affected, and only for the steel U-girder section. |
| * | 10523 | An incident was resolved where unexpected spikes could be present in the stress plot for the steel flanges of a steel I-girder bridge section at transition locations where the steel I-girder has sudden changes in section dimensions (flanges or web). While sudden changes in stress values can be expected at such locations, spikes are not expected unless loading or other external effect is present. When this occurred, the effect was obvious in the stress plots. This error could affect the design/rating results accordingly. Note that to correct the problem, the bridge model needs to be updated (clear and create). |

User Interface

Incidents Resolved

| * | Ticket | Description |
|---|--------|---|
| * | 10550 | An incident was resolved for the Bridge Modeler where the Bridge Section Data form for a steel U-girder bridge section having only a single U-girder specified would exhibit an error message when trying to change any data on the form. This error only affected v25.2.0. |
| * | 10573 | An incident was resolved in the Soil Layer Properties form of the foundation property definition where the software would terminate unexpectedly if a column header of the table on the form was clicked. |

| * | Ticket | Description |
|---|--------|--|
| | 10583 | An incident was resolved where the menu interface included three commands on the Components menu that did not do anything when clicked. These have been removed from the user interface. |