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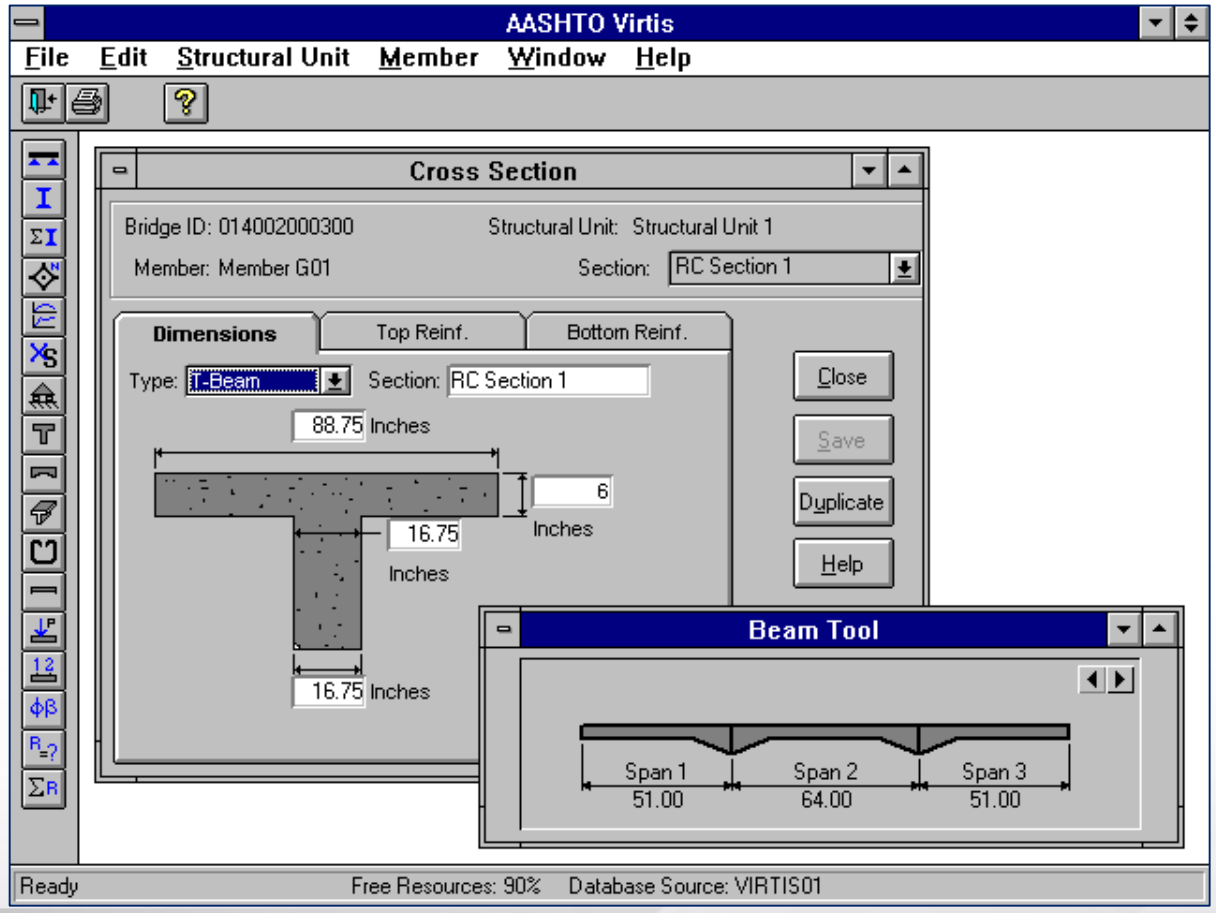
1997 Newsletter - Chairman's Message

The AASHTOWare Task Force is pleased with the progress to date on the Virtis project including the first release of Version 1.0 of Virtis on March 6, 1997.



RADBUG Meeting, 2019

AASHTOWare Bridge Design & Rating
AASHTO

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Agenda

- Overview of BrDR 6.8.4 and 7.0
  - User Interface Changes, Discontinued Features and Postponed Features
  - Modernized User Interface Demo
- BrDR 7.1
  - Steel Plate Girder Design Tool
  - Bridge Integration through Web Services
- BrDR CMP Culverts Conceptual Design
- Using BrDR For Research (NCHRP 15-54)

Bridge Design/Rating 3-Year Release Roadmap

	Legacy System	Modernized System	Notes
2018	**6.8.3** Legacy User Interface Legacy & Modernized AASHTO Engine	*Modernization Phase 1 release* ✓ *Modernized AASHTO Engine* *Modernization Phase 2 release:* ✓ *Modernized User Interface and AASHTO Engine*	Software Requirements ✓ Windows 7, 8 and 10 ✓ SQL Server 2014 ✓ Oracle 10.2, 11.2 and 12.1 Upgrade Path ✓ 6.8.3 ⇒ 6.8.4 ✓ 6.8.3 ⇒ 7.0
2019	**6.8.4** Legacy User Interface Legacy & Modernized AASHTO Engine	**7.0** Modernized User Interface Modernized AASHTO Engine	Software Requirements ✓ Windows 7, 8 and 10 ✓ SQL Server ~~2017~~ 2014 ✓ Oracle 11.2 and 12.2 Upgrade Path ✓ 6.8.4 ⇒ 7.0 ✓ 6.8.4 ⇒ 7.1 ✓ 7.0 ⇒ 7.1
2020	*Support for 6.8.4 and all earlier versions will cease effective June 30, 2021*	**7.1** Modernized User Interface Modernized AASHTO Engine	Software Requirements ✓ Windows 8 and 10 ✓ SQL Server 2017 ✓ Oracle 11.2 and 12.2 Upgrade Path ✓ 7.1 ⇒ 7.2

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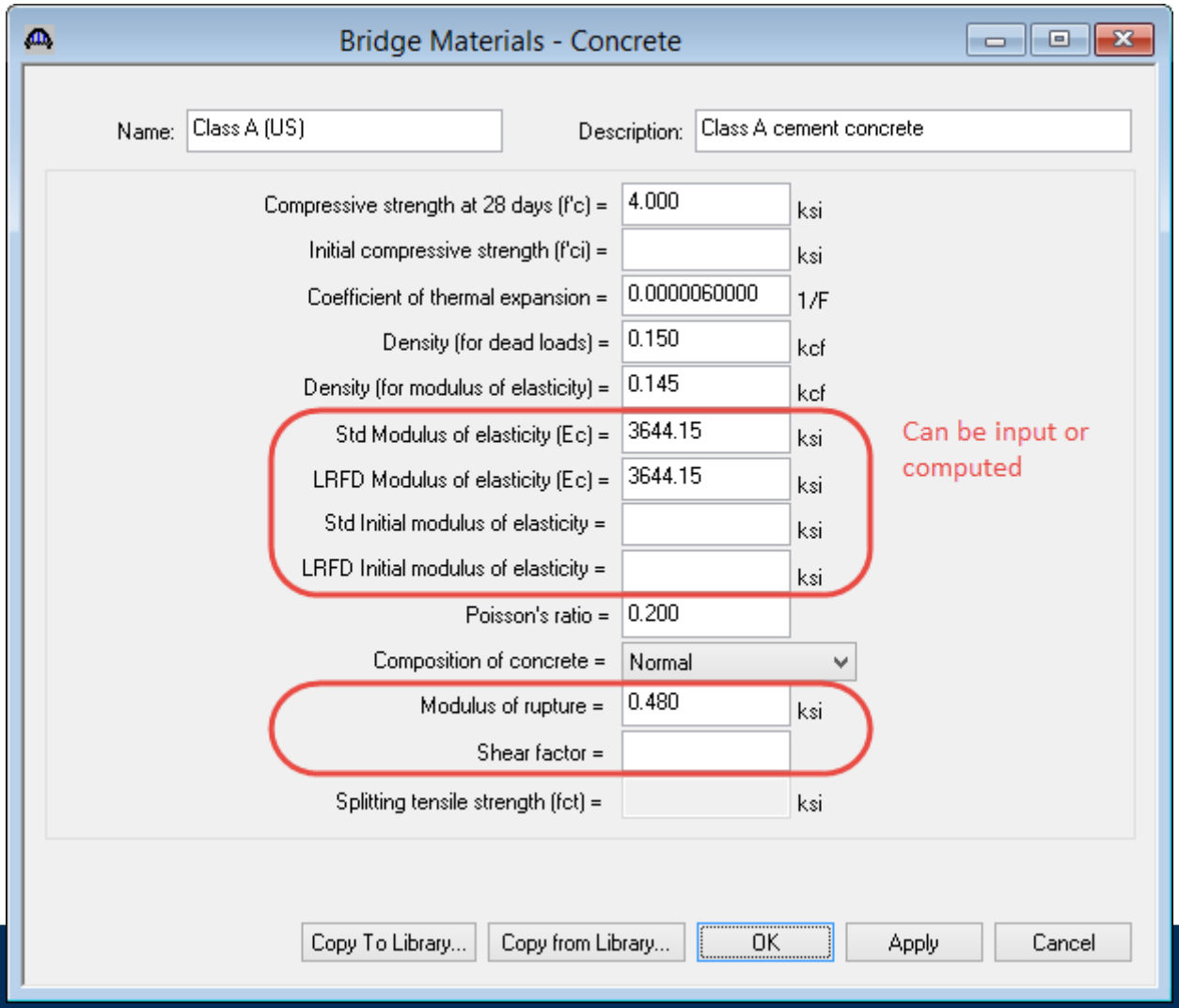
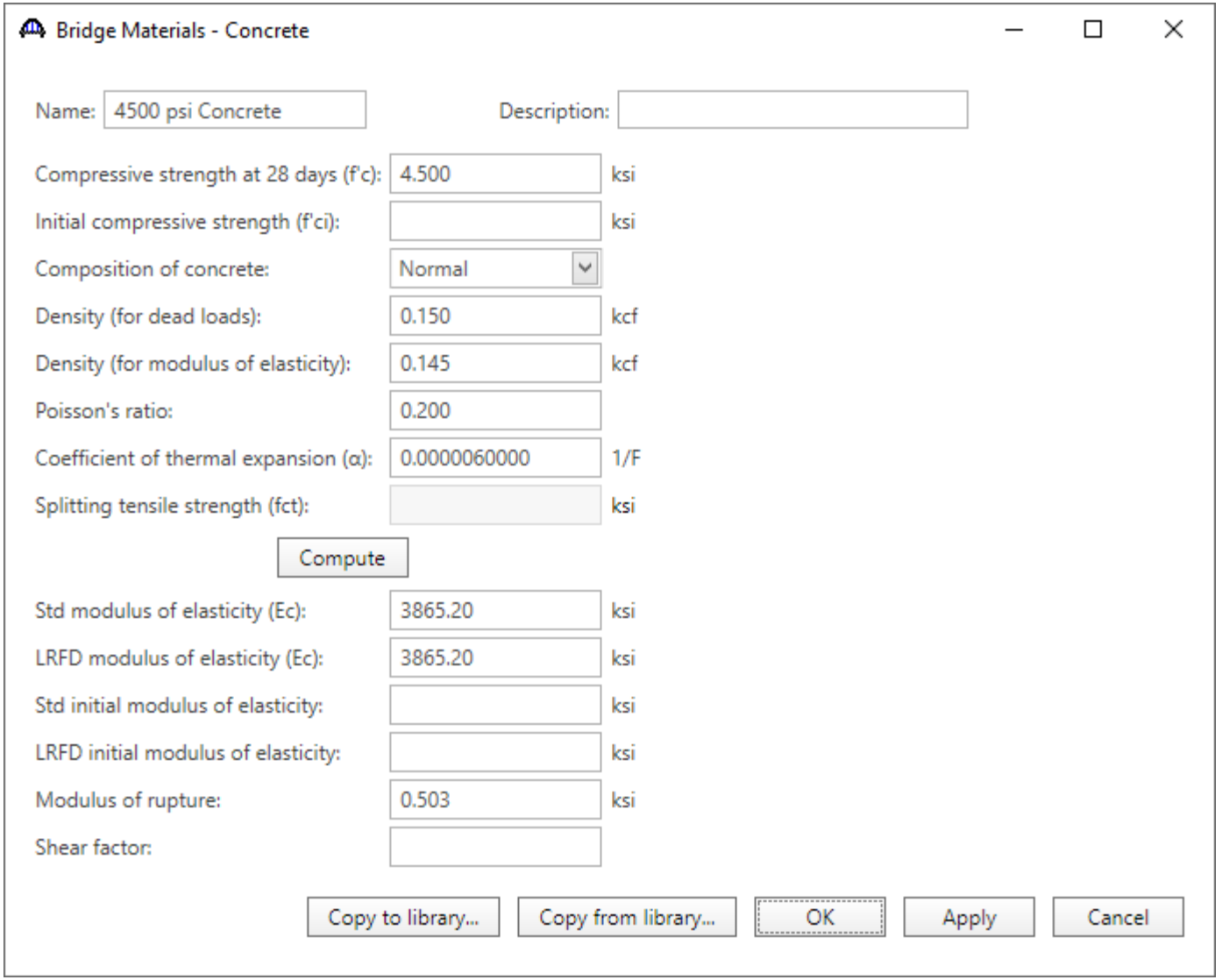
User Interface Changes

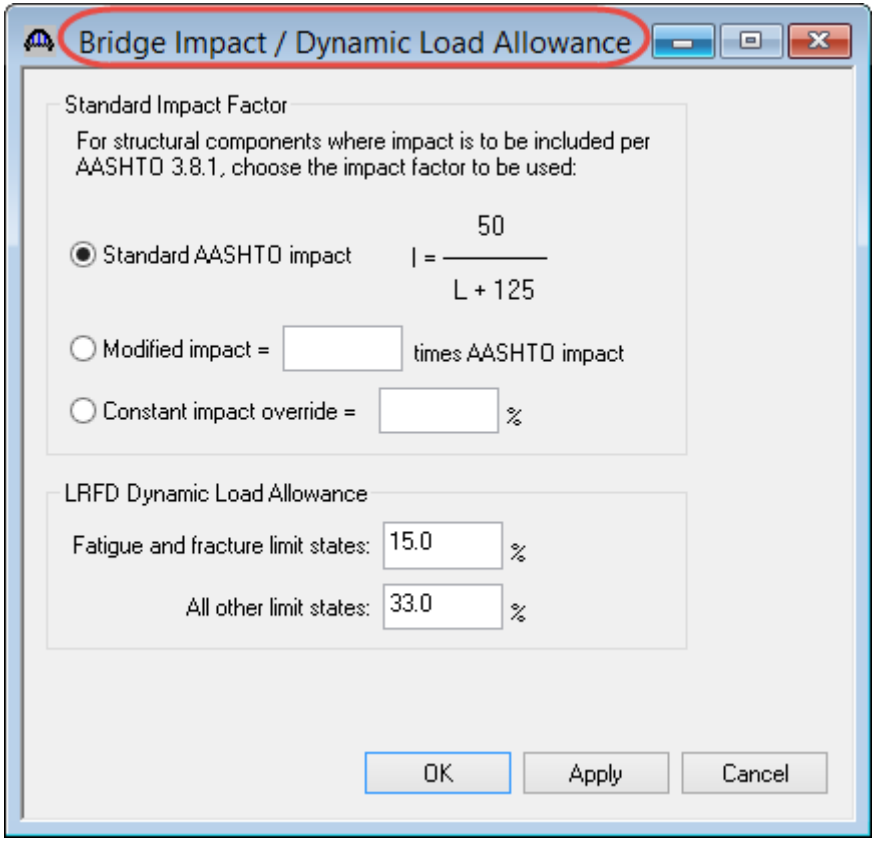
- Bridge and Library's Materials – Concrete windows
  - Rearrange the inputs and add a Compute button



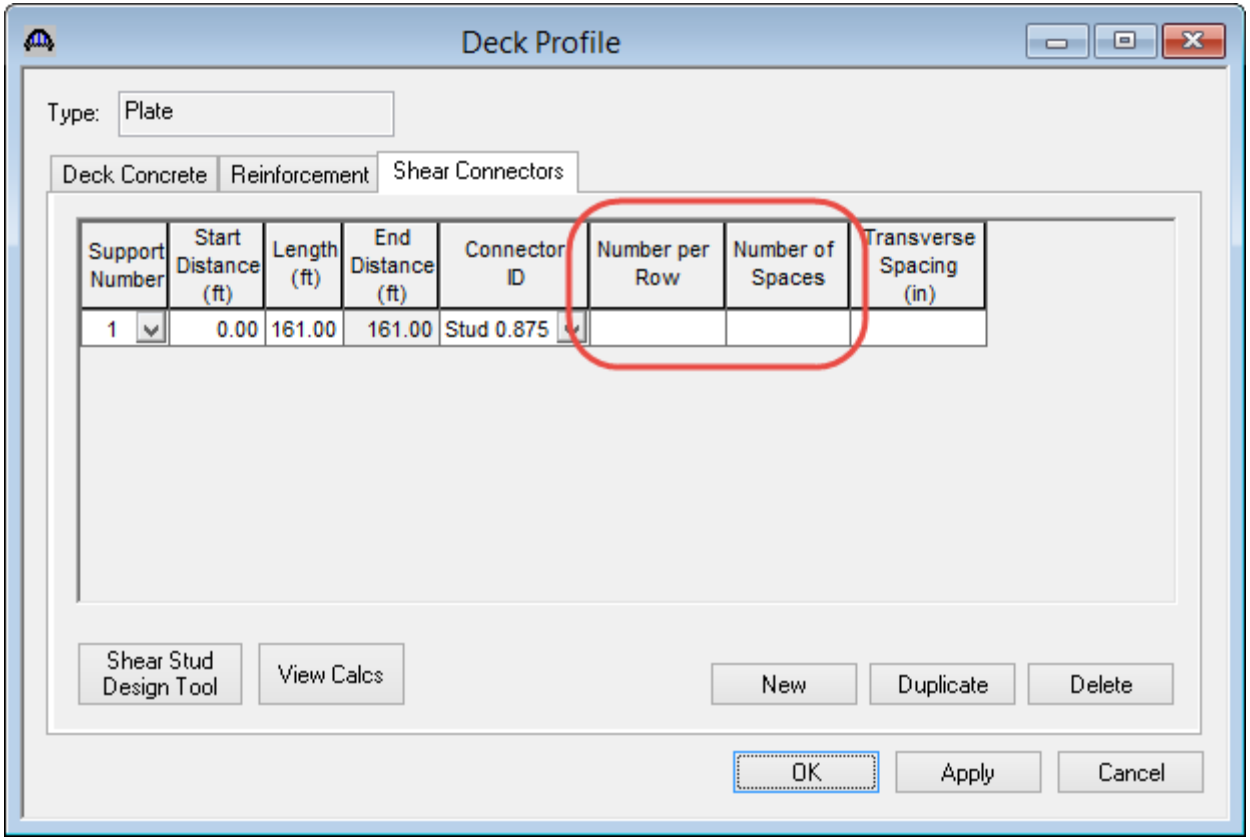
User Interface Changes



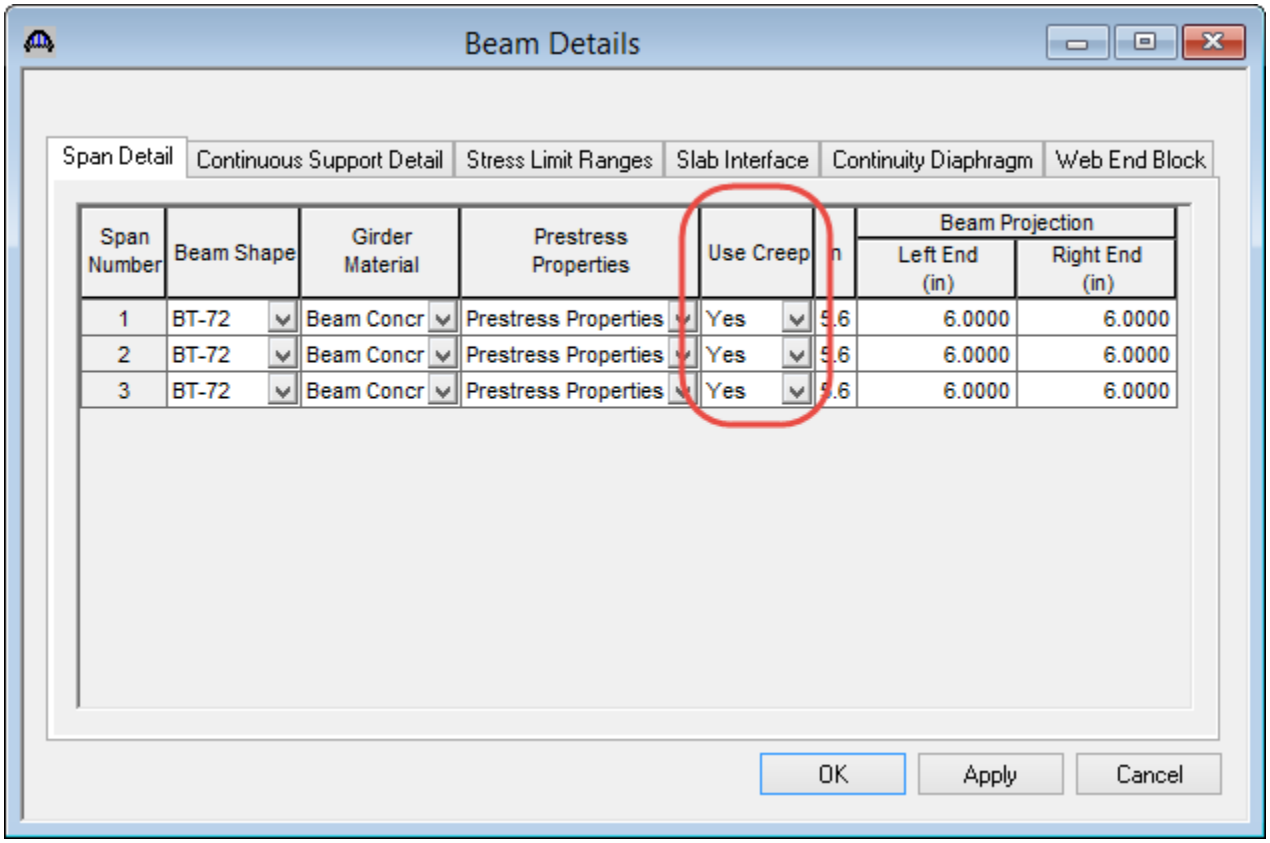
- Bridge Impact / Dynamic Load Allowance window
  - Remove the bridge level's Impact / Dynamic Load Allowance window

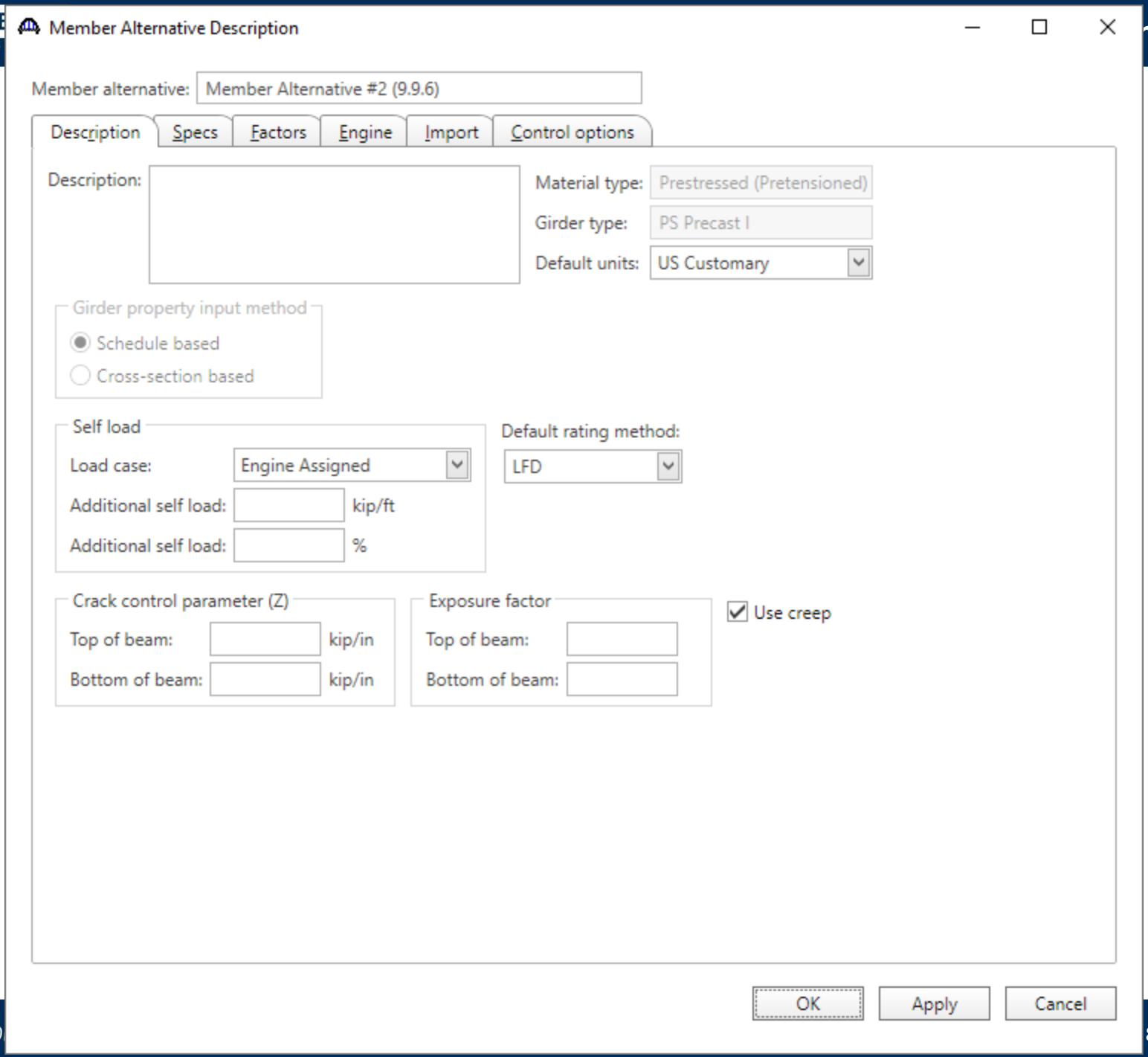


- Deck Profile window's Shear Connectors tab
  - Switch the order of the Number per Row and Number of Spaces columns

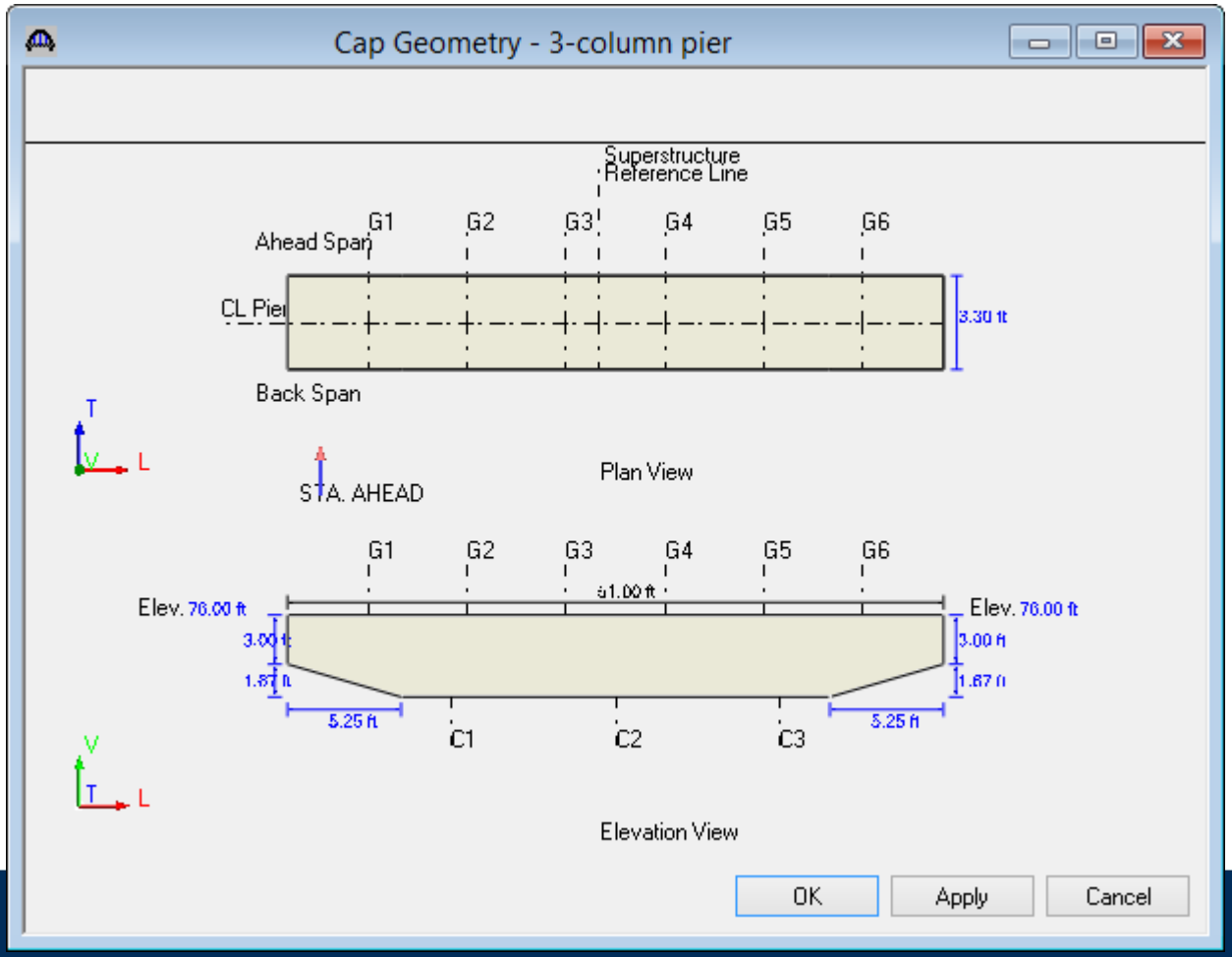


- Beam Details window's Span Detail tab
  - Move the Use Creep data to the Member Alternative window

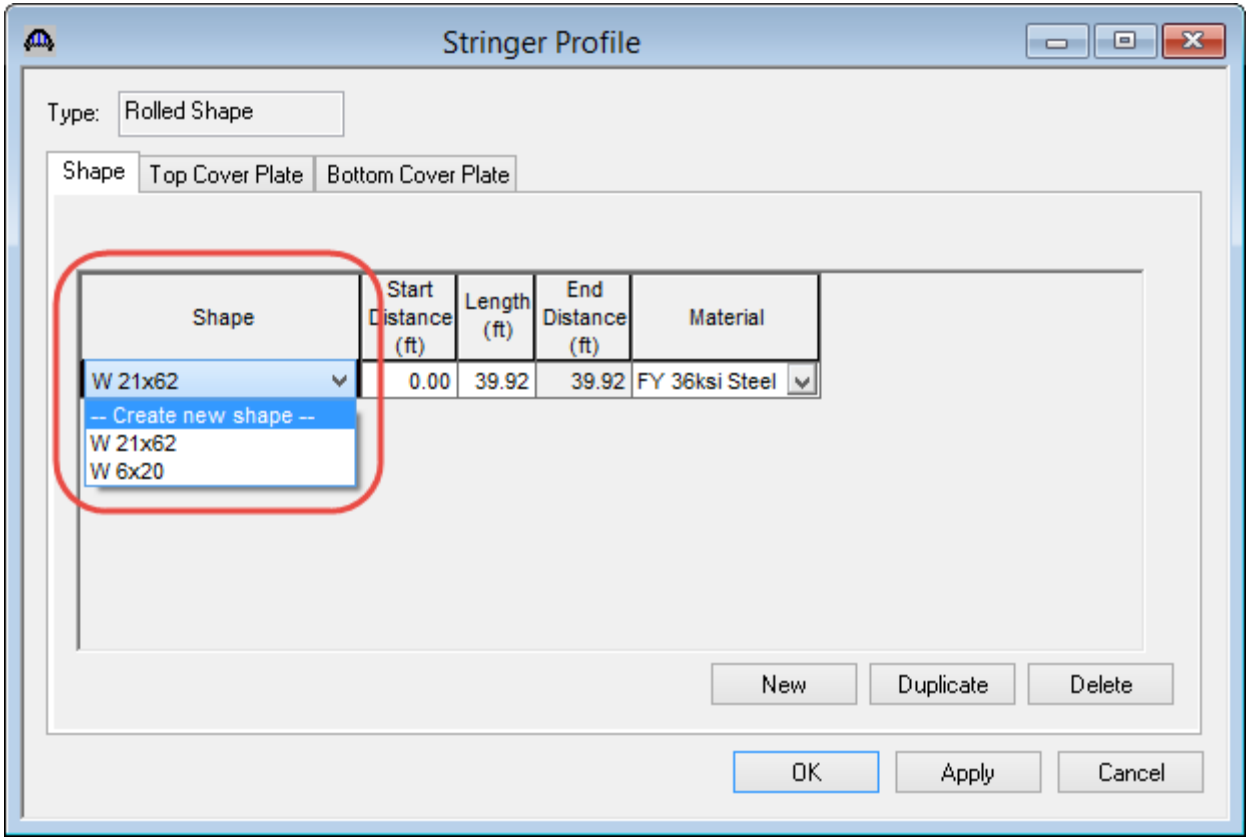



Member Alternative Description
Member alternative: Member Alternative #2 (9.9.6)
Description
Specs
Factors
Engine
Import
Control options
Description:
Material type: Prestressed (Pretensioned)
Girder type: PS Precast I
Default units: US Customary
Girder property input method
Schedule based
Cross-section based
Self load
Load case: Engine Assigned
Additional self load: kip/ft
Additional self load: %
Default rating method:
LFD
Crack control parameter (Z)
Top of beam: kip/in
Bottom of beam: kip/in
Exposure factor
Top of beam:
Bottom of beam:
Use creep
OK
Apply
Cancel

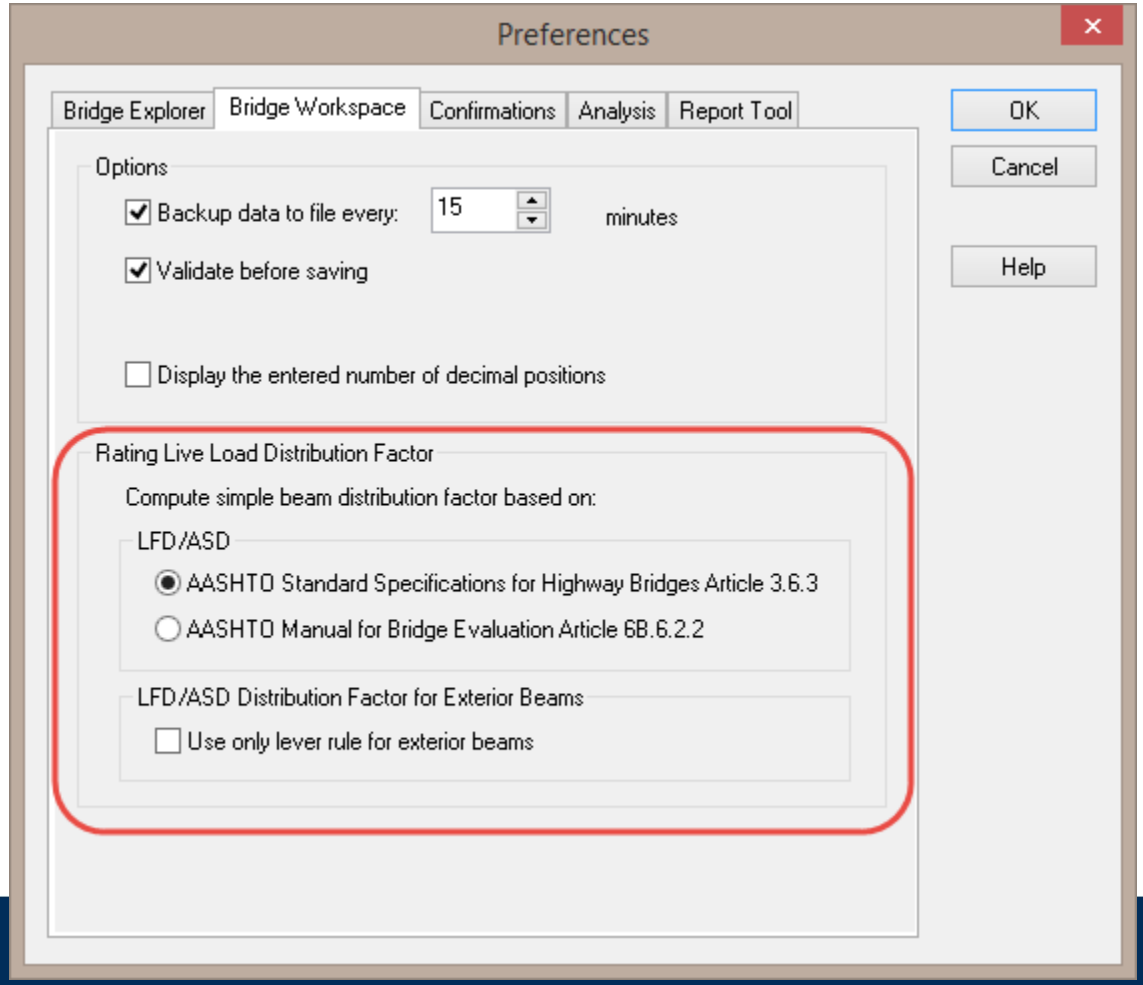
- Pier Alternative's Geometry windows
  - Replace the custom OpenGL view with static bitmap and labeled text boxes



- Add Create New in the Dropdown List
  - Select Create New will open the window for the item and a new item can be input or select from the library



- Preferences window's Bridge Workspace tab
  - Move the Rating Live Load Distribution Factor data to the System Defaults window's Superstructure Analysis tab



System Defaults

General | Bridge workspace | Superstructure analysis | Specifications | Substructure analysis | Tolerance | Custom agency fields

Line girder analysis engine

Rating method: LFD

LRFD analysis module: AASHTO LRFD

LFD analysis module: AASHTO LFD

ASD analysis module: AASHTO ASD

LRFR analysis module: AASHTO LRFR

3D FEM analysis engine

LRFD analysis module: AASHTO LRFD

LFD analysis module: AASHTO LFD

ASD analysis module: AASHTO ASD

LRFR analysis module: AASHTO LRFR

Culvert analysis engine

Rating method: LRFR

LRFD analysis module: AASHTO Culvert LRFD

LFD analysis module: AASHTO Culvert LFD

LRFR analysis module: AASHTO Culvert LRFR

LRFD DF applicability ranges

2017 AASHTO LRFD Ranges

Rating live load distribution factor

Compute simple beam distribution factor based on:

LFD/ASD

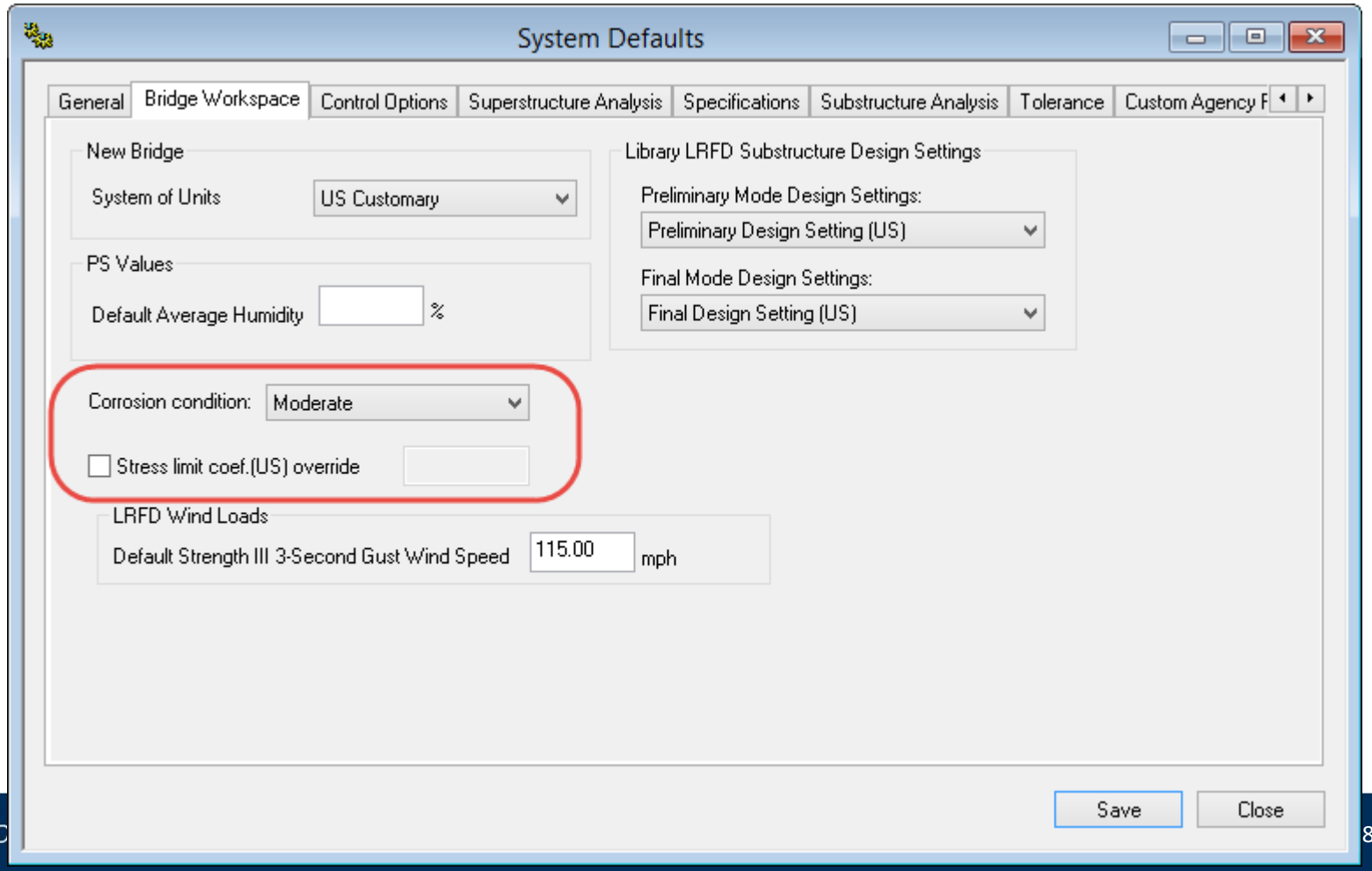
- (●) AASHTO Standard Specifications for highway bridges article 3.6.3
- ( ) AASHTO Manual for bridge evaluation article 6B.6.2.2

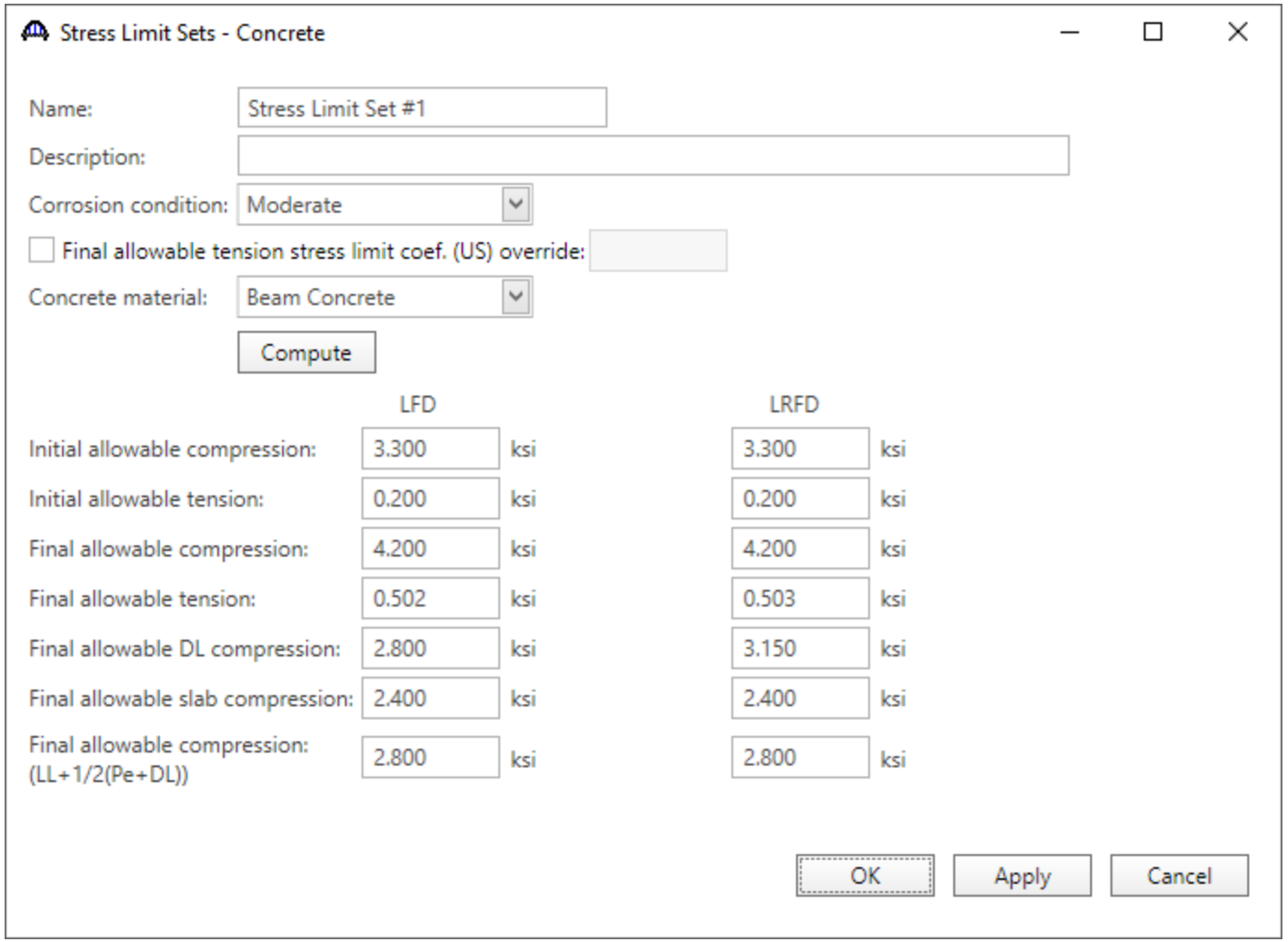
LFD/ASD Distribution factor for exterior beams

- [ ] Use only lever rule for exterior beams

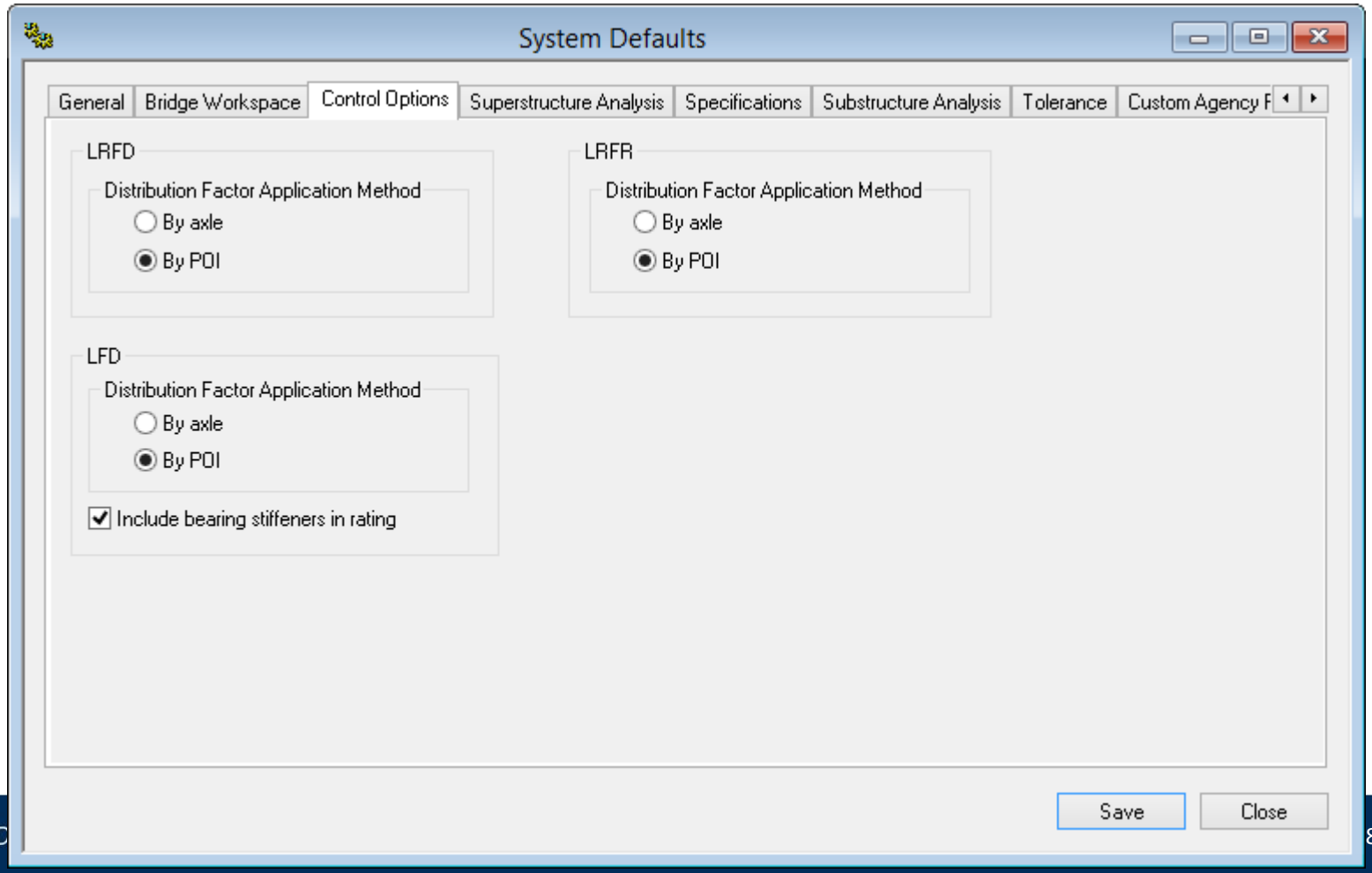
Save | Close

- System Defaults window's Bridge Workspace tab
  - Move the Corrosion condition and Stress limit coef. (US) override data to the Stress Limit Sets - Concrete window

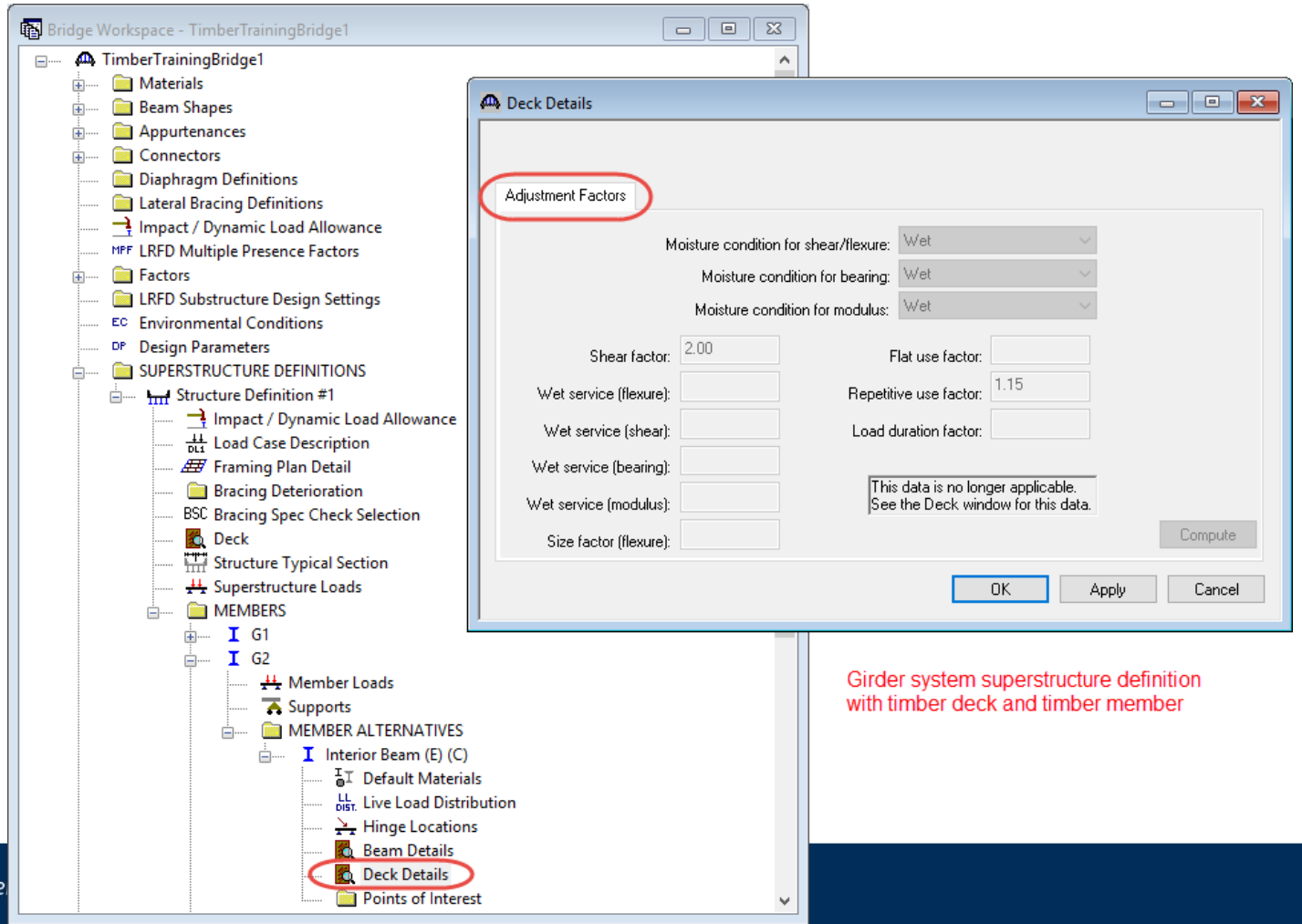



Stress Limit Sets - Concrete
Name:
Stress Limit Set #1
Description:
Corrosion condition:
Moderate
Final allowable tension stress limit coef. (US) override:
Concrete material:
Beam Concrete
Compute
LFD
LRFD
Initial allowable compression:
3.300
ksi
3.300
ksi
Initial allowable tension:
0.200
ksi
0.200
ksi
Final allowable compression:
4.200
ksi
4.200
ksi
Final allowable tension:
0.502
ksi
0.503
ksi
Final allowable DL compression:
2.800
ksi
3.150
ksi
Final allowable slab compression:
2.400
ksi
2.400
ksi
Final allowable compression: (LL+1/2(Pe+DL))
2.800
ksi
2.800
ksi
OK
Apply
Cancel

- System Defaults window's Control Options tab
  - Remove the Control Options tab from the System Defaults window



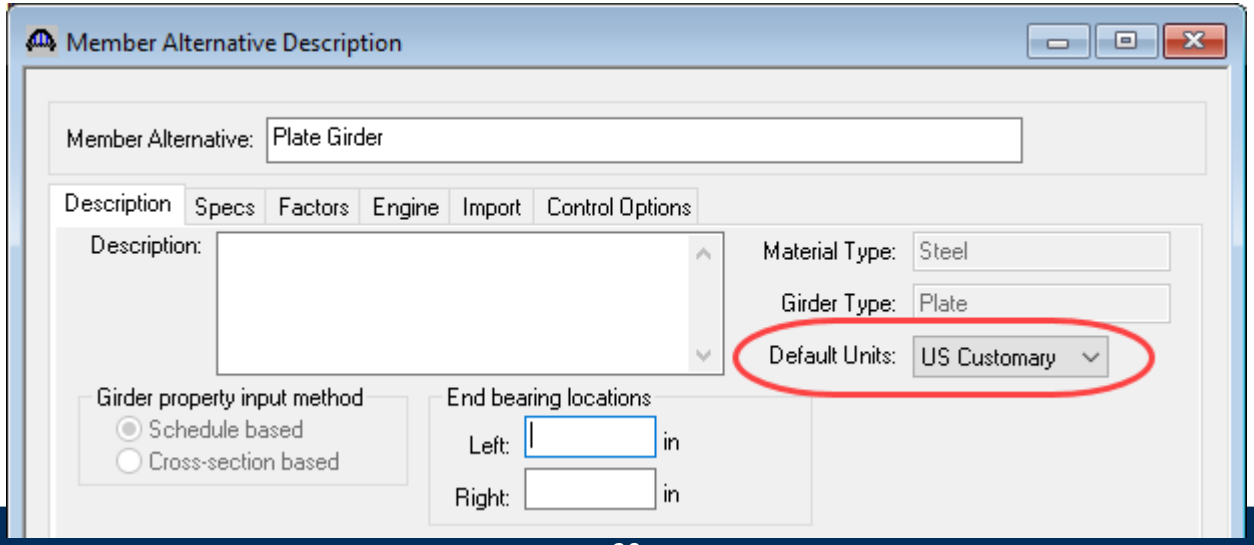
- Deck Details window's Adjustment Factors tab
  - Remove the Adjustment Factors tab from the Deck Details window



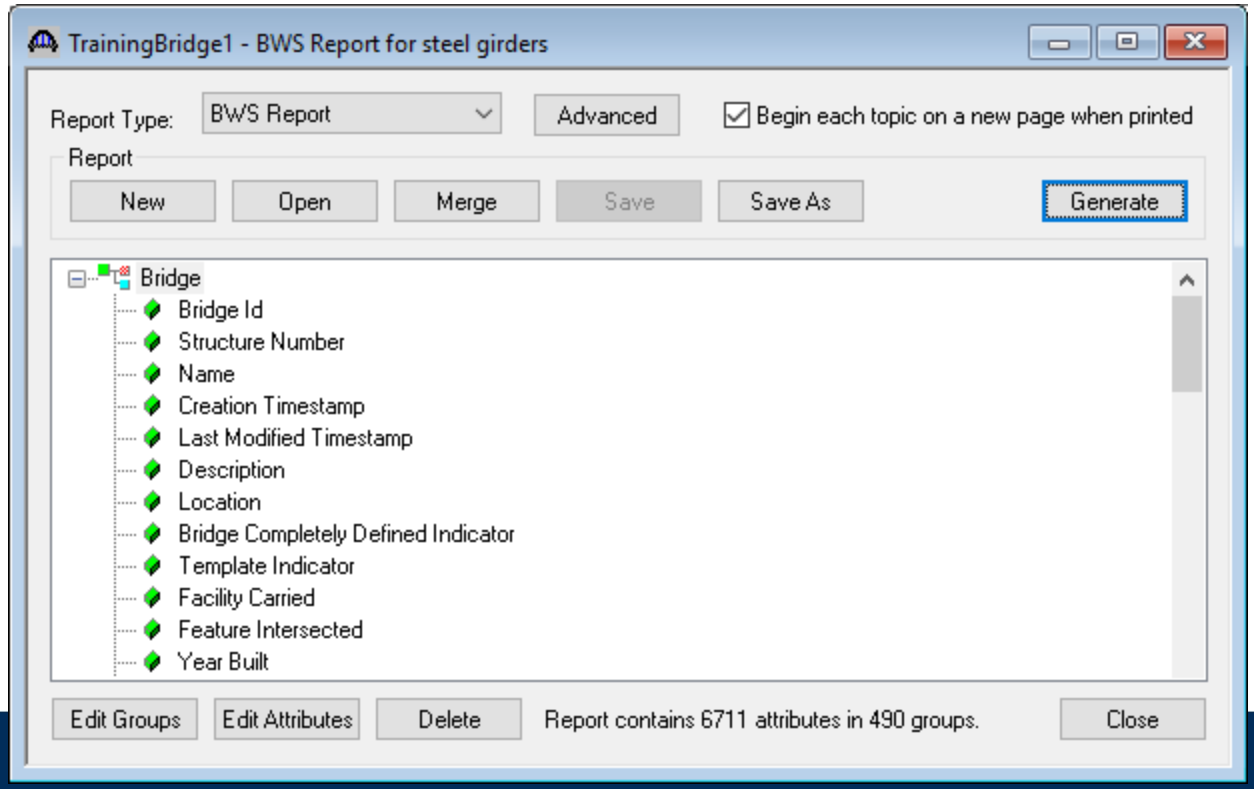
Girder system superstructure definition with timber deck and timber member

- Relocate the beam description items in the Bridge Workspace tree before the Live Load Distribution item or after the Impact item if the Live Load Distribution item is not there
  - Girder Profile
  - Floorbeam Profile
  - Stringer Profile
  - Cross Sections and Cross Section Ranges
  - Beam Details

- Bridge Explorer Toolbar's System Units
  - Remove association with Bridge Workspace windows
  - Associate Bridge Workspace windows' display units with the Default Units specified in the Bridge Description window, Superstructure Definition window and Member Alternative/Definition window



- Report Tool's BWS Report
  - New BWS Report format and Report Definition format
  - New BWS Report format is not compatible with reporting using Crystal Reports' RPT files
  - New Report Definition format is not backward compatible



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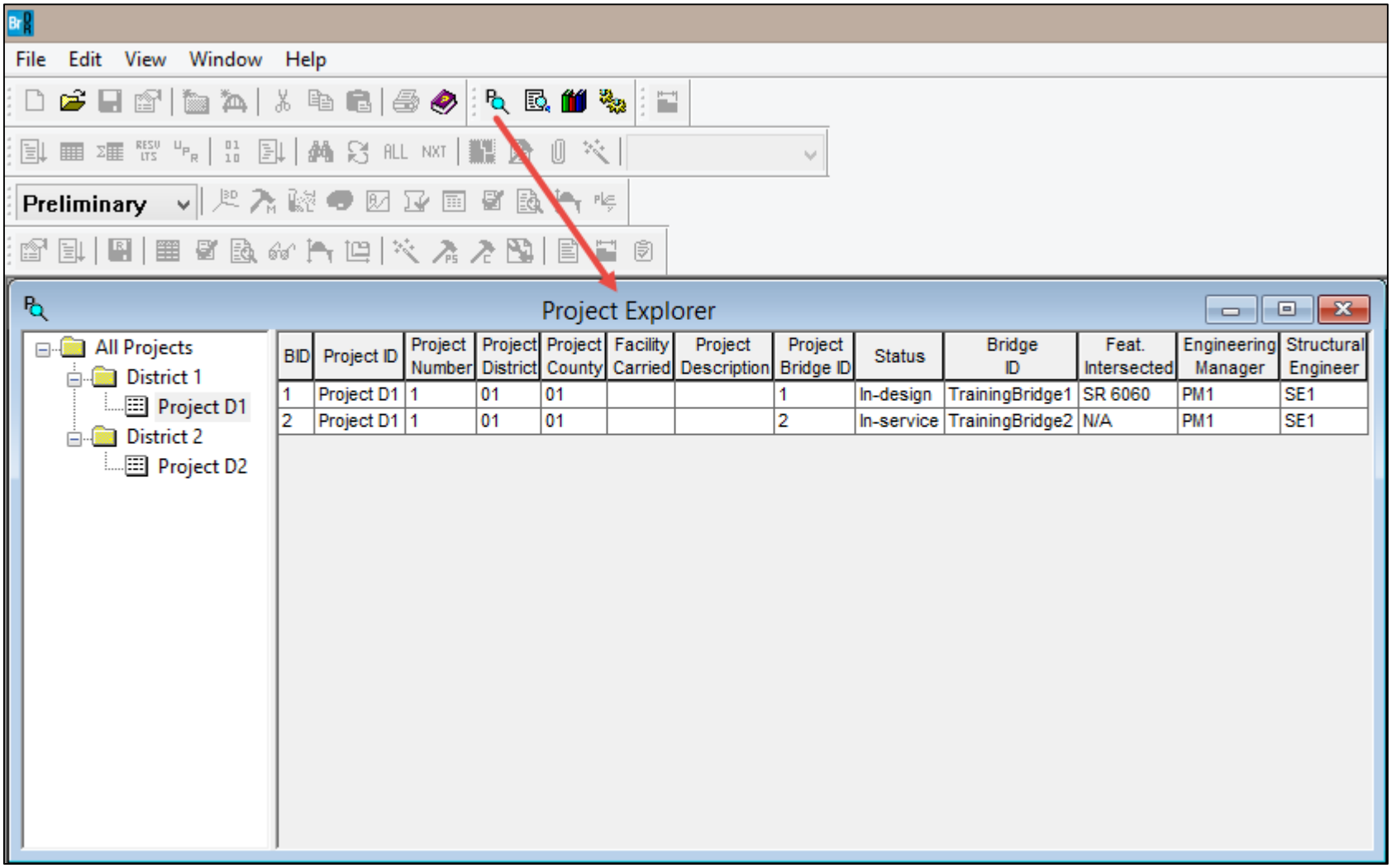
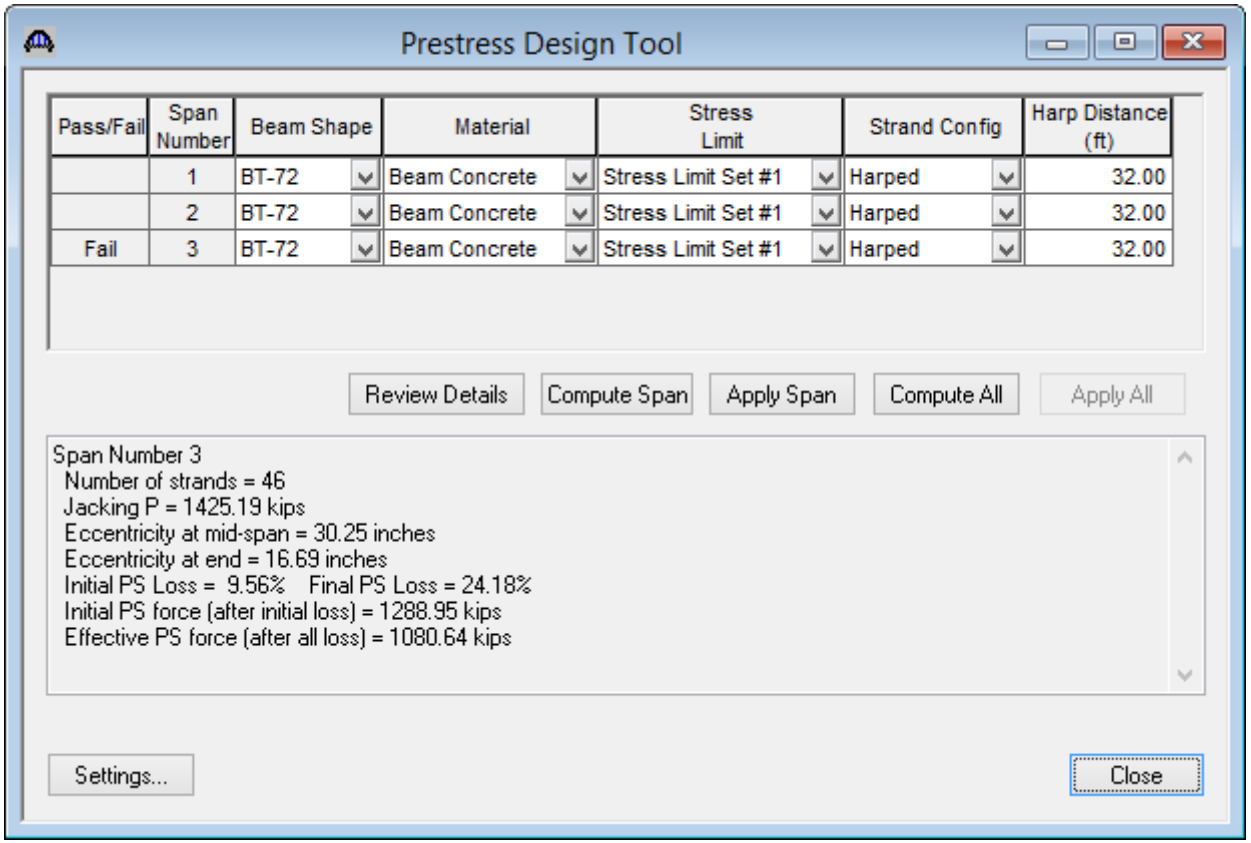
Discontinued Features

- Project Explorer

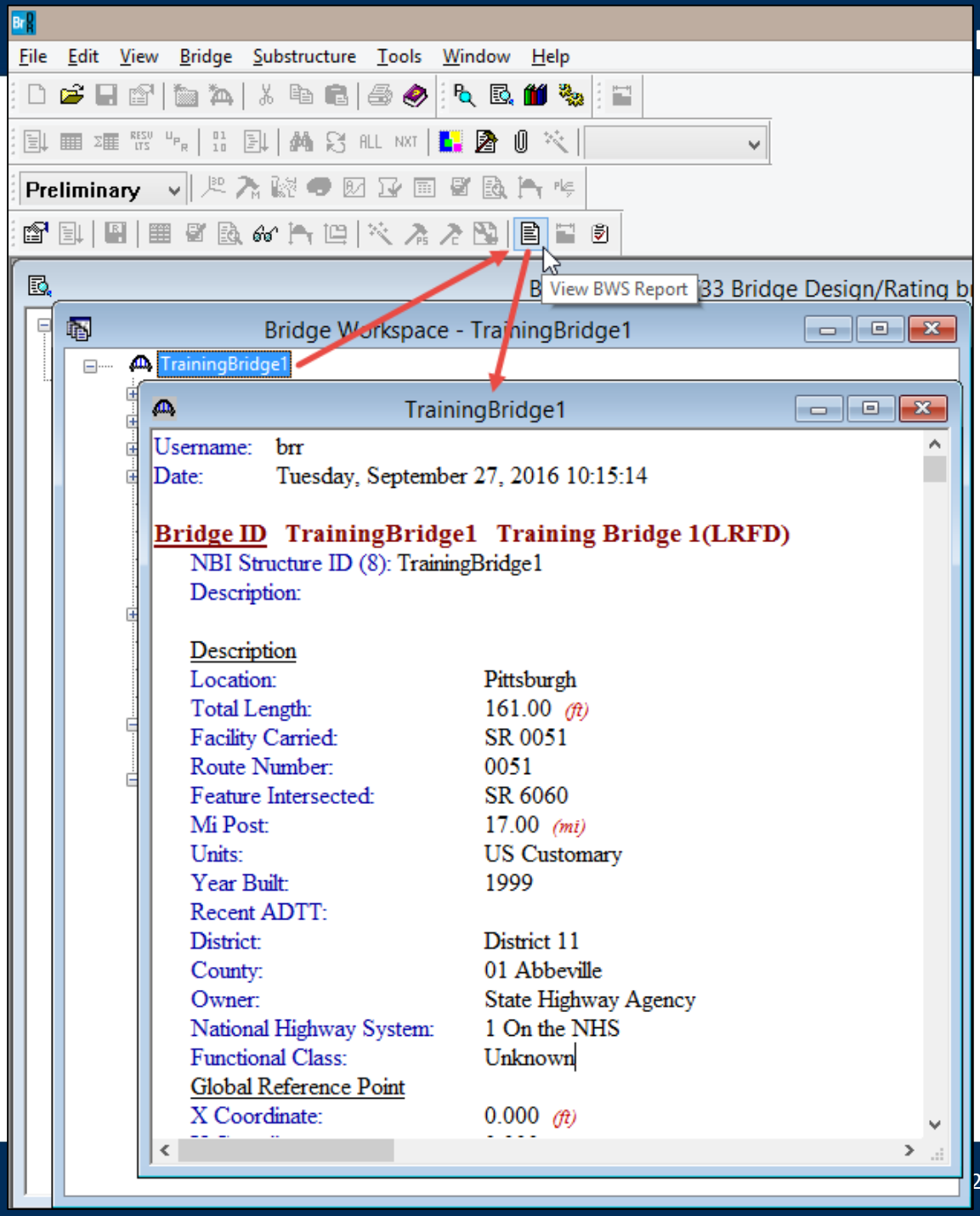


BID	Project ID	Project Number	Project District	Project County	Facility Carried	Project Description	Project Bridge ID	Status	Bridge ID	Feat. Intersected	Engineering Manager	Structural Engineer
1	Project D1	1	01	01			1	In-design	TrainingBridge1	SR 6060	PM1	SE1
2	Project D1	1	01	01			2	In-service	TrainingBridge2	N/A	PM1	SE1

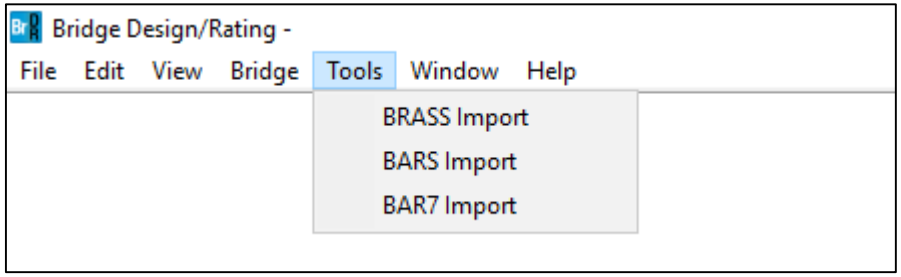
- Prestress Design Tool



- BWS Report


File Edit View Bridge Substructure Tools Window Help
Preliminary
View BWS Report
Bridge Workspace - TrainingBridge1
TrainingBridge1
TrainingBridge1
Username: brr
Date: Tuesday, September 27, 2016 10:15:14
Bridge ID TrainingBridge1 Training Bridge 1(LRFD)
NBI Structure ID (8): TrainingBridge1
Description:
Description
Location: Pittsburgh
Total Length: 161.00 (ft)
Facility Carried: SR 0051
Route Number: 0051
Feature Intersected: SR 6060
Mi Post: 17.00 (mi)
Units: US Customary
Year Built: 1999
Recent ADTT:
District: District 11
County: 01 Abbeville
Owner: State Highway Agency
National Highway System: 1 On the NHS
Functional Class: Unknown
Global Reference Point
X Coordinate: 0.000 (ft)

- BRASS, BARS and BAR7 Import Utilities



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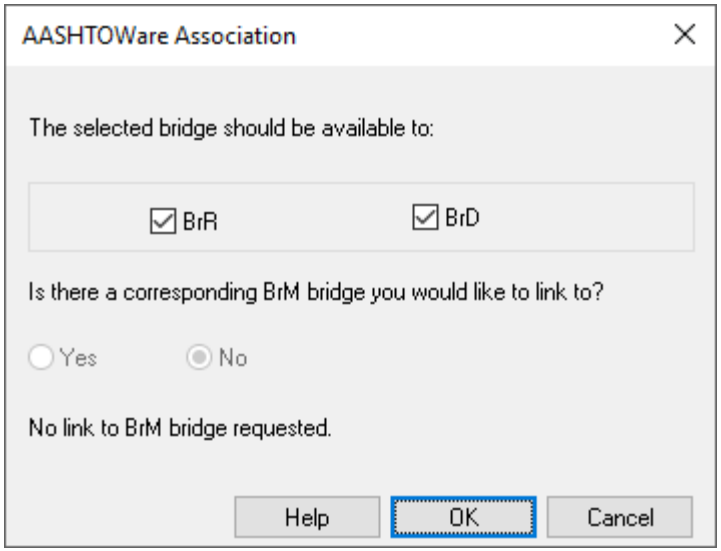
Postponed Features

- Bridge Association is to be implemented in the 7.1 release through the BrM Web Service Integration



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Virtis 1.0 Delivered !

The first Virtis interim release was made in early March 1997 to the 30 states participating in the AASHTO project. This release allows users to load rate reinforced concrete superstructures. Although this was the first interim release of four originally planned, it is now also the last interim product to be delivered.

The original plan, developed nearly a year and a half ago, called for four interim product releases for reinforced concrete, steel, prestressed concrete, and truss bridge superstructures. It was aimed at a quick replacement of the AASHTO BARS program. The interim products were to stress design methods. One or more members can be load rated with one or more vehicles at a time. Virtis will compute the rating factor for a given bridge, structural unit, or member and store the results in the database. Virtis also allows the rating results to be viewed graphically, be sorted and queried.

Virtis 1.0 has undergone considerable testing (see related article) for the Microsoft Windows 3.1 platform. This software also runs under the Microsoft Windows for Workgroups, Windows95 and WindowsNT platforms. Virtis comes with two Watcom desktop databases, a sample database

Questions?

RADBUG Meeting, 2019

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