

# **PGSuper Tutorials**

from **PGSuper.com**

## **Highlights of PGSuper Version 2.3**

**BridgeSight**

**Software<sup>TM</sup>**

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<b>Title</b> PGSuper Tutorial – Highlights of PGSuper Version 2.3	<b>Publication No.</b> BS050022010-1	
<p><b>Abstract</b>  This document provides an overview of the new features in PGSuper Version 2.3.</p>		
<b>Notes</b>		
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<b>Specification</b> AASHTO LRFD Bridge Design Specifications PGSuper Version 2.3		
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## Introduction

The Washington and Texas Departments of Transportation released PGSuper Version 2.3 in May 2010. This software has several new features and enhancements to existing features. Many of these new features were developed by BridgeSight Software under contract with TxDOT.

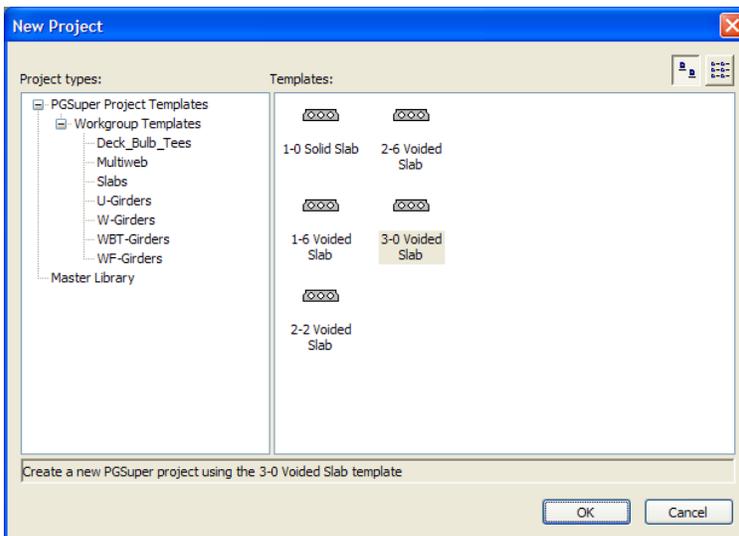
The significant new capabilities are:

- New Look
- LRFR Load Rating
- TxDOT Decked Slab Beam
- ½” Special and 0.62” diameter strands
- Construction Loads
- Loads View Enhancements
- Support for Plug-ins and Extensions

## New Look

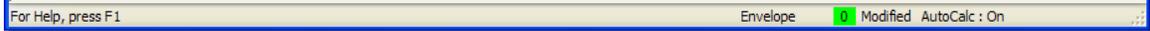
Some cosmetic changes have been made to PGSuper to give it a more contemporary look. The first change you’ll notice is the New Project dialog.

Project types are listed in an expandable list. Project templates have been assigned icons to make it easier to know you are creating the project you want.

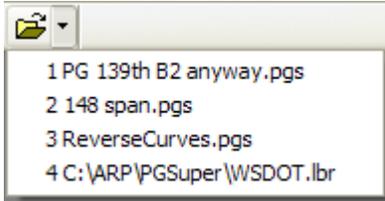


Toolbars and the status bar now have a flat look.





A “Most Recently Used” list has been added to the Open toolbar button making it even faster to open a PGSuper project.



## LRFR Load Rating

Load rating is an analysis used to determine the load carrying capacity of an existing bridge. Beginning October 1, 2010, all new and total replacement bridges designed by the LRFD Specifications must be rated by LRFR methods. PGSuper can perform Design Legal Load, and Permit load ratings for your precast-prestressed girder superstructure.

Load rating criteria can be established by a bridge owner and published in the PGSuper library. Default load rating settings can be defined in project templates and published on the Internet for in-house and consulting engineers to share.

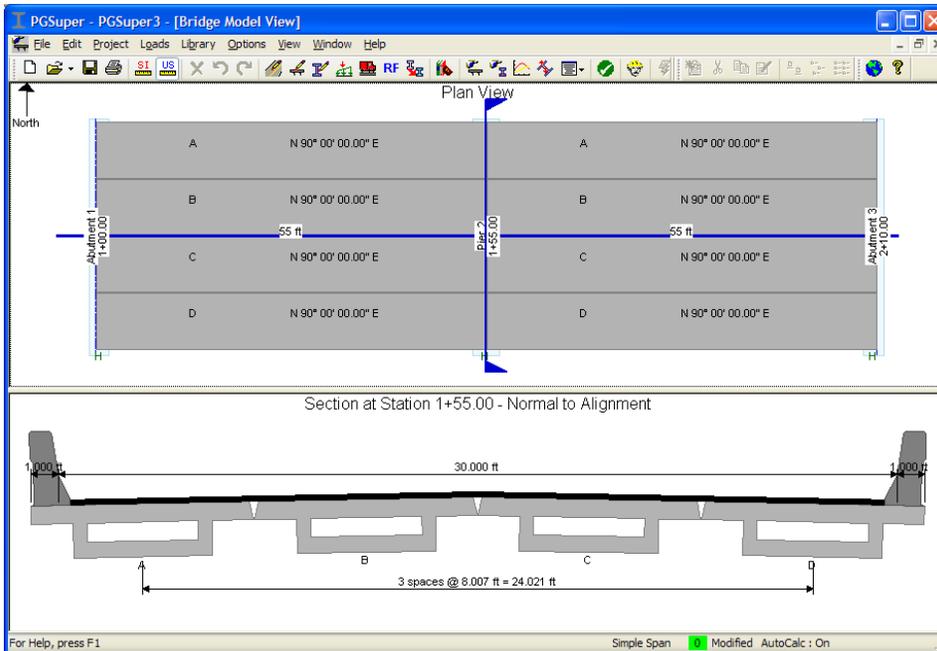
Load rating analysis includes evaluation of strength and service limit states for flexure and shear as well as checks for reinforcement yielding under permit loading (MBE 6A.5.2.2b). Engineers can control live load factors, allowable stress limits, member condition factors, system factors, live loads, and dynamic load allowances.

The Load Rating Report provides a concise summary of the load rating analysis including rating factors, governing structural response (moment, stress, shear) and critical location.

For more information about the LRFR Load Rating capabilities in PGSuper, see our tutorial document titled “LRFR Load Rating with PGSuper”.

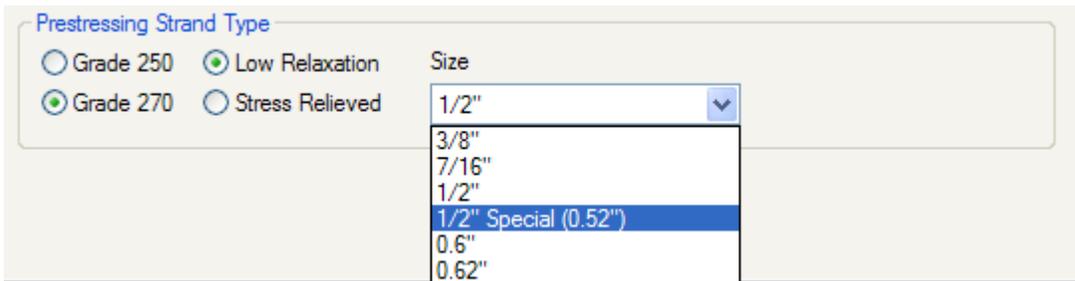
## TxDOT Decked Slab Beams

TxDOT has recently developed a precast-prestressed girder section for Accelerated Bridge Construction (ABC). This section offers many advantages over other beam types including improved span capabilities, reduced weight, and accelerated construction schedules. PGSuper has added support for the decked slab beam.



## 1/2" Special and 0.62" Diameter Strand

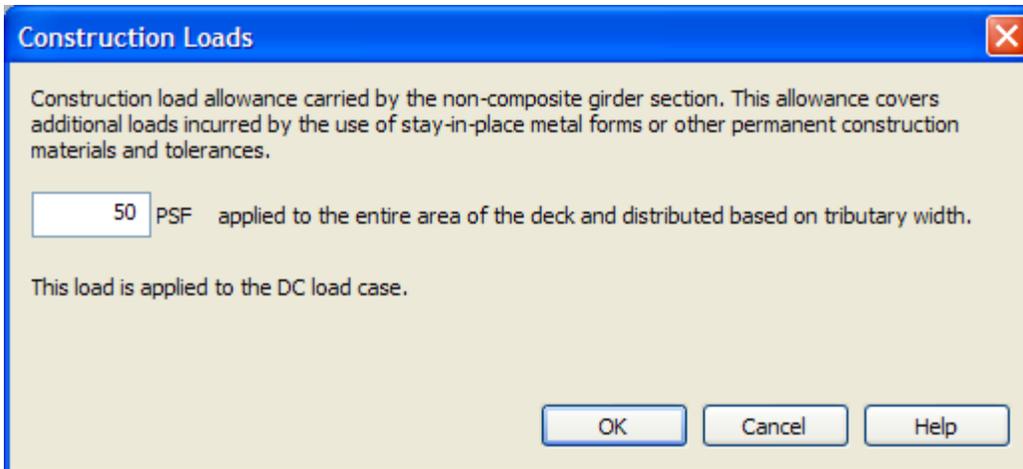
There are many new types of prestressing strand available in the industry. The availability and usage of strand varies throughout the country and the world. High Steel Structures Inc of Lancaster, PA identified a need to round out the strand type capabilities of PGSuper. High Steel contracted with BridgeSight Inc to add 1/2" special and 0.62" prestressing strands to the software.



This is a true testament to the value of Open Source Software. No other precast-prestressed girder software in the market would allow a third party to enhance software in this way. The end result is a benefit to the entire bridge engineering community.

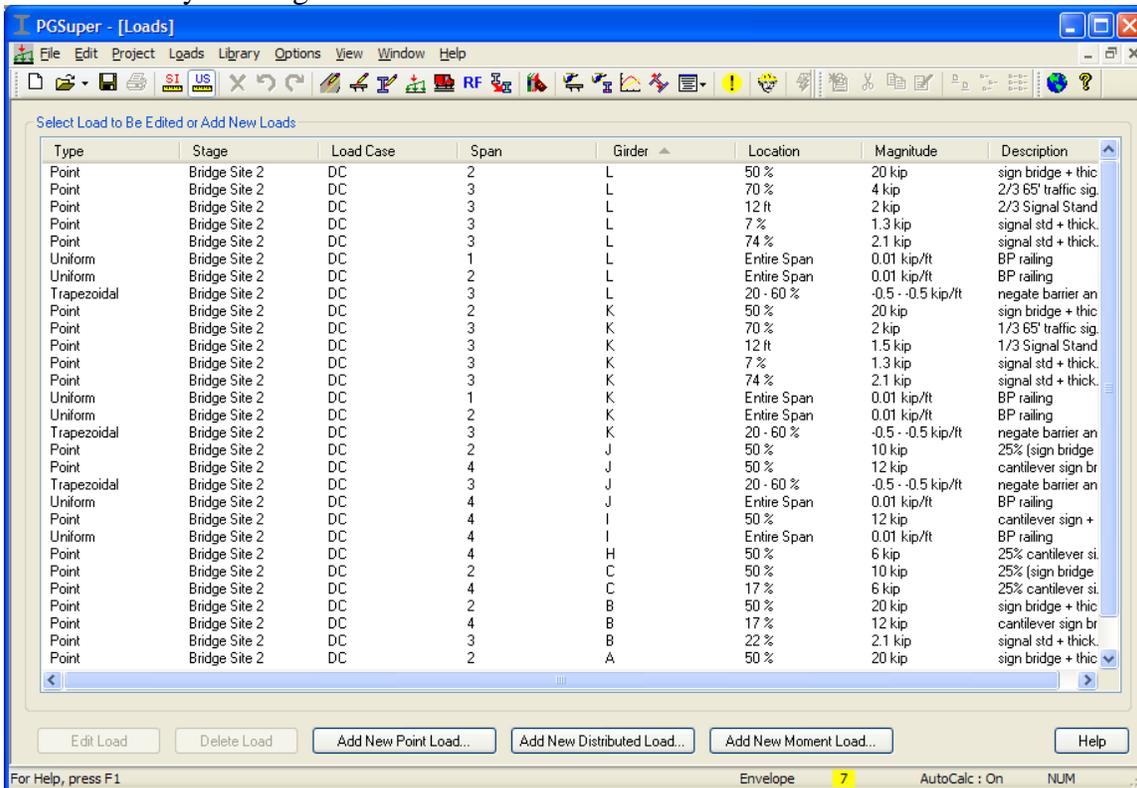
## Construction Loads

A construction load allowance can be added to the PGSuper dead load analysis. The allowance covers loads incurred by the use of stay-in-place metal forms or other permanent construction materials and tolerances. The load is applied as a pressure load to the entire deck area and is distributed based on tributary widths.



## Loads View Enhancements

Some complex bridge models require the use of many user defined loads. The loads view provides a complete listing of all the user defined loads in your project. As the number of loads grows, so does the need to manage them effectively. Load can now be sorted in the Loads View by clicking on the column headers.



## Support for Plug-ins and Extensions

PGSuper has an advanced software architecture that allows third parties to extend and enhance its capabilities. Plug-ins provide a simple means of importing and exporting data and interfacing with other applications. Extensions can add new menus, commands, toolbars, reports, and views to PGSuper.

Many of the WSDOT and TxDOT-specific features are implemented as plug-ins and extensions. These features can be optionally installed with PGSuper.

At BridgeSight Software, we have the skills and technology to extend and enhance PGSuper to meet your needs. For details, contact us at

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## Conclusion

PGSuper Version 2.3 is another home run for designers of precast-prestressed girder bridge systems. The advanced feature set has only gotten better with the addition of LRFR Load Rating, Decked Slab Beams, Construction Loads, and new user interface features.