

PGSuper Professional Tutorials

from BridgeSight Software

PGSuper Professional Overview

BridgeSight

SoftwareTM

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<p>Abstract This document provides an overview of the advanced features of the PGSuper Professional software product. The features described include the Girder Design Dashboard™, AASHTOWare Exporter, 3D Visualization, LandXML Data Exchange, Analysis Results Exporting, and Enhanced Reporting.</p>		
<p>Notes The features described in this document are available exclusively to PGSuper Professional customers.</p>		
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Introduction

PGSuper Professional is an enhanced version of the open source PGSuper software that is cooperatively developed by the Washington (WSDOT) and Texas (TxDOT) Departments of Transportation with assistance from BridgeSight Inc. PGSuper is an excellent piece of software in its own right and BridgeSight makes it even better with our one-of-a-kind advanced feature set.

The features described in this document are part of the PGSuper Professional software product published by BridgeSight Inc. These features are proprietary extensions to PGSuper. A license must be purchased from BridgeSight Inc. to use these features. Visit www.bridgesight.com for details. Free trial licenses are available to qualified organizations.

It is important to note that PGSuper Professional is built on the exact same binary files that comprise the open source version of PGSuper. The Pro extensions simply add more functionality. This means that the underlying compute engines and basic PGSuper features are tested and verified using the same strict quality control standards employed by WSDOT and TxDOT.

Service and Support

PGSuper support is available from the WSDOT and TxDOT only for projects in their agencies.

PGSuper users with projects in other agencies can obtain telephone and email technical support from BridgeSight through purchase of our PGSuper Professional product.

PGSuper Professional customers get toll-free telephone support, email support, high priority treatment in the PGSuper.com support forms, and free upgrades, for the duration of their support contract. Support is always provided by licensed professional engineers who understand the software thoroughly.

With PGSuper Professional you get the peace of mind that this indispensable bridge engineering tool is backed by a reputable and proven company.

Exclusive PGSuper Professional Libraries

Our growing online library of Professional PGSuper DOT Configurations puts an agency's standard girders and design policies just a few mouse clicks away. Our exclusive libraries can save hundreds of hours of data entry and validation on many projects.

Configure PGSuper

PGSuper
Select a Configuration to establish project templates and c

PGSuper doesn't have any default girders, design criteria, or of configurations. Select a configuration option.

Use a configuration published on a Configuration Server

Select a Configuration Server

PGSuper Professional Manage

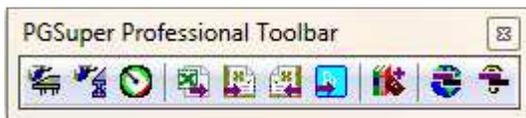
Select a Configuration

- PCI Northeast Beams
- CalTrans
- Oregon
- Florida
- Tennessee
- Colorado

PGSuper Professional Features

The advanced exclusive features of PGSuper Professional integrate seamlessly into the familiar PGSuper user interface. These features are easily identified in the menus with the BridgeSight logo and are available through the PGSuper Professional toolbar.

PGSuper Professional commands



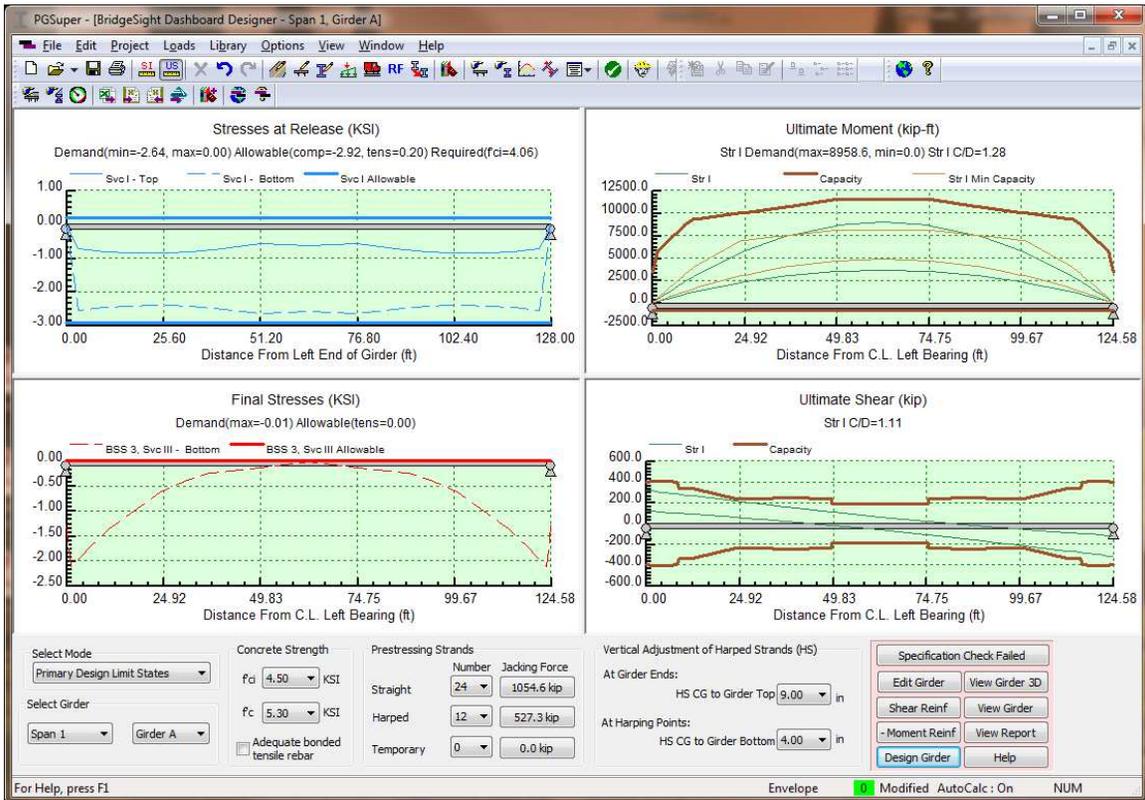
PGSuper Professional Toolbar

PGSuper Professional features include:

- Girder Design Dashboard™
- PGSuper to AASHTOWare Bridge Exporter
- 3D Visualization
- Enhanced Reporting
- LandXML Data Exchange
- Analysis Results Exporting
- Enhanced Library Management

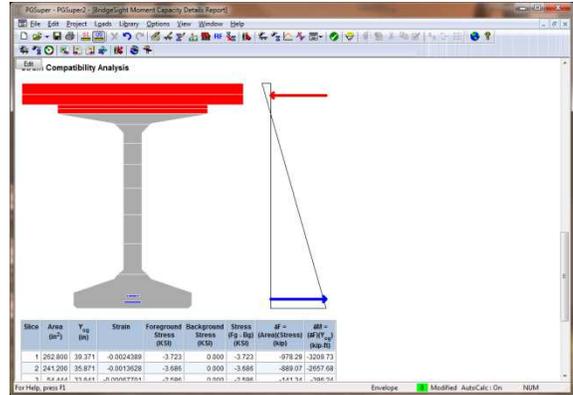
Girder Design Dashboard™

The Girder Design Dashboard™ puts engineers in control of the most important precast girder input and design results in a single, easy-to-understand view. The dashboard provides instant display of Service and Strength limit state results as changes are made to concrete strength, prestressing, and mild steel reinforcement. The Girder Design Dashboard™ simultaneously displays graphs of controlling Service and Strength limit states. A girder can be designed and modified, and reports can be created directly from within the Girder Design Dashboard™, so there is no need to switch between views or search for commands.



Verification of Moment Capacity

PGSuper uses a strain compatibility analysis to compute the nominal moment capacity of girder sections. Strain compatibility is an iterative numerical analysis method whereby the girder section is idealized with many discrete “slices” and, for a fixed location of the strain plane. The contribution of each slice is then summed to determine the overall resultant axial and flexural contribution of the section. The location of the neutral axis and the orientation of the strain plane are varied until the equilibrium state is found.

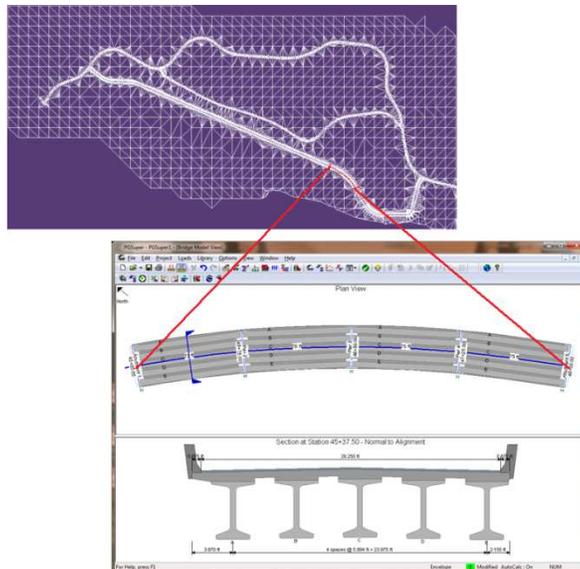


The PGSuper Details Report gives the final equilibrium condition of the analysis. The BridgeSight Moment Capacity Details Report takes the reporting of the strain compatibility analysis to the next level. This easy to read report gives a complete record of PGSuper’s strain compatibility analysis. It includes a graphical representation of the idealized girder section, tabular listing of the contribution of each "slice", and the resultant section capacity.

When PGSuper evaluates the stress in mild reinforcement and prestressing strands for a permit load rating it is necessary to compute the post-cracking increase in stress. Cracked section properties are required for this computation. An iterative numerical technique is used to determine the cracked section properties. The BridgeSight Cracked Section Analysis Details Report gives you all the details in an easy to read format.

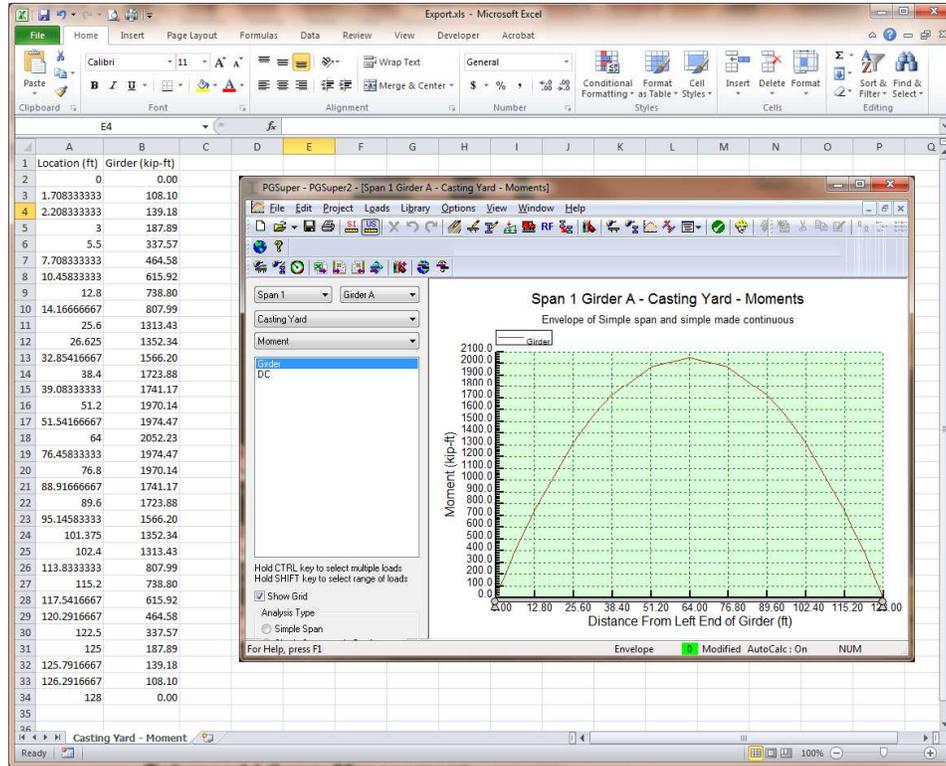
LandXML Data Exchange

PGSuper Professional adds LandXML data exchange capabilities to PGSuper. Use these features to import alignment and profile data from roadway design software or export PGSuper’s alignment and profile data to other software packages.



Analysis Results Exporting

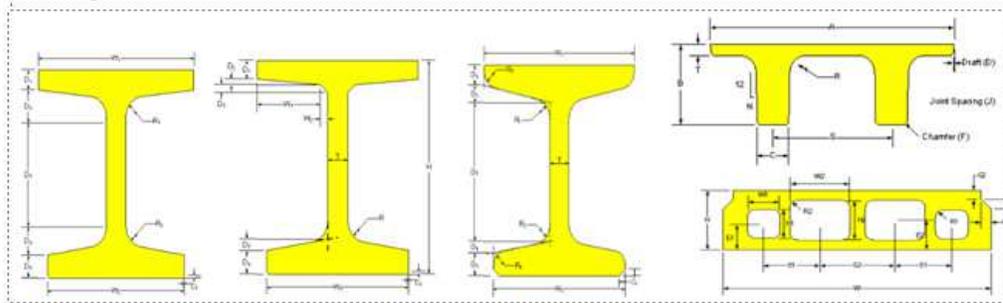
PGSuper computes thousands of structural analysis results, including moments, shears, deflections, and stresses. Use PGSuper Professional to export analysis results directly into Microsoft Excel or comma separated value (CSV) files.



Pro-Only Girder Sections

These exclusive parametric sections enable exact representation of the following girder shapes

- PCINE NEXT D & F Beam
- Florida I-Beam Shape
- Illinois I-Beam Shape
- Rectangular-Voided Slab



DXF Export

Quickly create accurate plan and section views of your PGSuper bridge model. Export DXF 2000 files to AutoCAD, MicroStation, Visio, and many other programs.



Enhanced Library Management

PGSuper Professional features also integrate into the PGSuper Library Manager application. With PGSuper Professional, you can selectively import individual library items into Project Libraries and Master Libraries. You no longer have to import all the library entries used in a project.

PGSuper Professional also adds reporting capabilities to the PGSuper Library Manager application. The Girder Properties report provides a tabulated listing of all the girders defined in a master library. With one click of the mouse, you can see the section properties of all the girders in your library.

More Information

More PGSuper Professional Tutorials are available at PGSuper.com. These tutorials dive into the nitty-gritty details of the advanced features described in this document.

Customizing PGSuper

PGSuper has an advanced software architecture that allows third parties to extend and enhance its capabilities. At BridgeSight Software, we can add new analysis capabilities to meet your needs. For details, contact us at

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