

PGSuper Professional Tutorials

From BridgeSight Software

VBent Exporter

BridgeSight

Software™

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Title PGSuper Tutorial – VBent Exporter	Publication No. BS06062014-1	
<p>Abstract The BridgeSight VBent Exporter is another productivity enhancing feature of PGSuper Professional. The VBent Exporter extracts complex superstructure geometry and structural analysis results from PGSuper Professional and stores them in a PGSuper/VBent eXchange (PVX) file for later import by VBent. This document describes how to use the VBent Exporter, and how to import data from PVX files into VBent.</p>		
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<p>Notes</p>		
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<p>Specification AASHTO LRFD Bridge Design Specifications PGSuper Professional Version 1.4</p>		
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Introduction

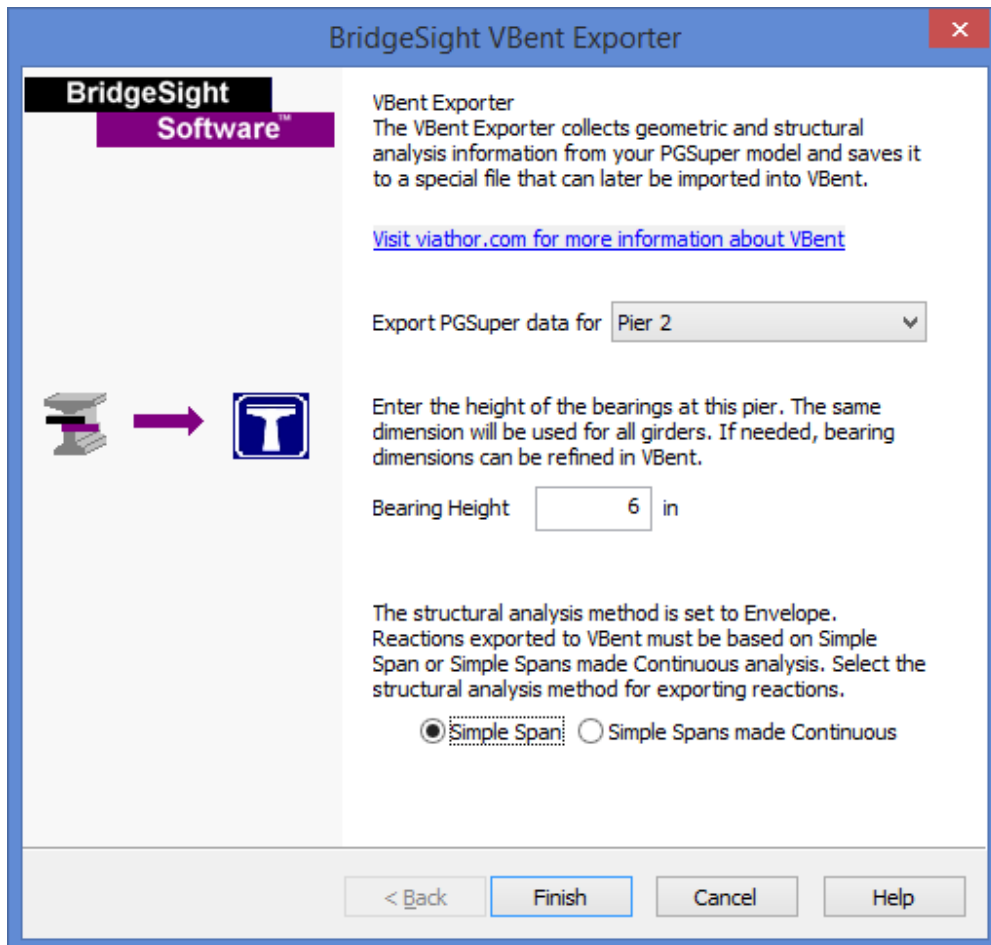
BridgeSight Inc has joined forces with our friends at Viathor to provide PGSuper Professional and VBent customers a powerful new way to integrate superstructure and substructure design. The BridgeSight VBent Exporter extracts information from a PGSuper model and prepares it for import into VBent. Importing superstructure geometry and structural analysis results into VBent saves you time, money, and increases accuracy. This tutorial will guide you through the process of exporting data from PGSuper Professional into VBent.

Exporting PGSuper Data to VBent

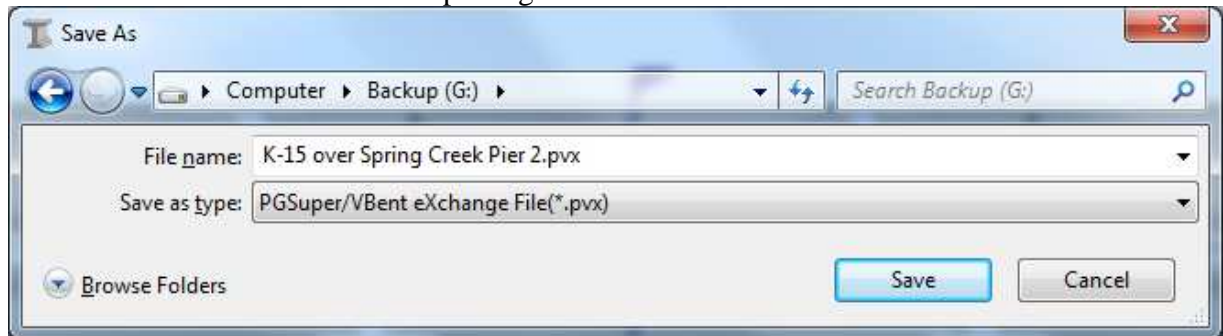
Exporting PGSuper data to VBent is simple. The wizard asks for some basic information and then a PGSuper/VBent eXchange (PVX) file is created. It can't get any easier.

To export PGSuper Professional data for VBent:

1. Select File | Export | **VBent Data**
2. The wizard will ask you to select a pier and enter bearing heights for exporting reactions. Additionally, if the PGSuper structural analysis method is set to "Envelope", you will be asked to choose between Simple Span or Simple Spans made Continuous analysis. Press the Finish button to continue.



3. Enter a name for the PGSuper/VBent eXchange (PVX) file. A file name will be generated based on the PGSuper file name and the selected pier. You can change the file name and location if you like. Press the Save button to start the export. Note the name and location of your PVX file. You will need this information when importing data into VBent.



TIP: Export VBent data by pressing the VBent Exporter icon on the PGSuper Professional toolbar or by right-clicking on a pier in the Bridge Plan View and selecting Export to VBent.

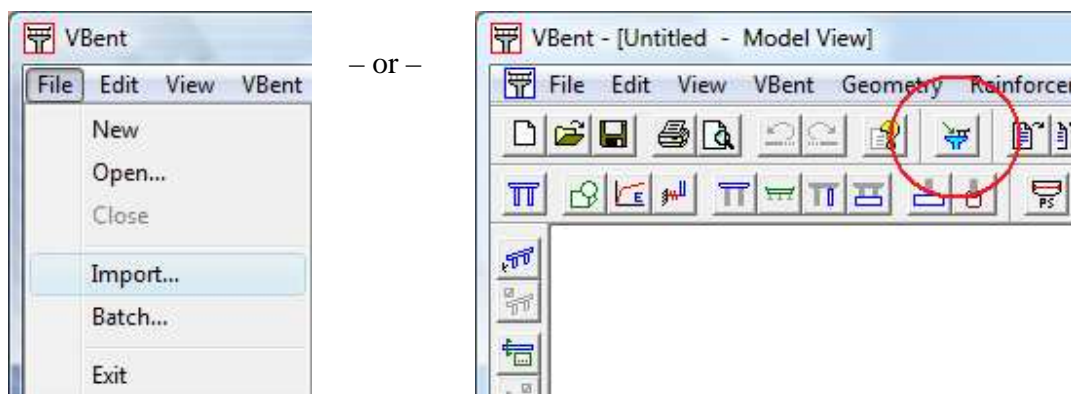
PGSuper Professional can only export the data that is contained in its bridge model. Therefore the information in the PVX file does not describe a complete pier. As discussed in the next section, VBent allows description of a simple bent during the import process, then the bent can be edited and described in detail using all of the power of VBent.

Importing PGSuper Data into VBent

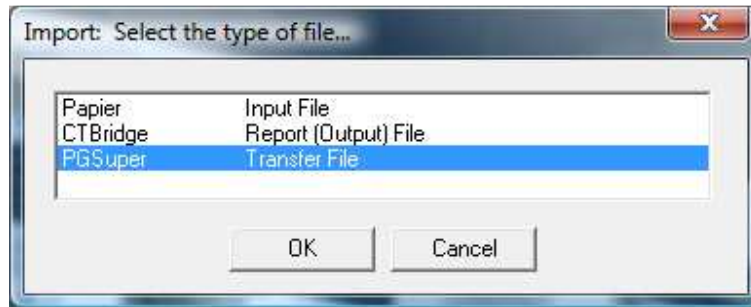
Importing PGSuper data into VBent is a simple two-step process. The first step is to choose an existing PGSuper/VBent eXchange (PVX) file to import, and then chose options for entering required minimum bent data that may include bent cap, columns, and footings.

To import PGSuper Professional data into VBent:

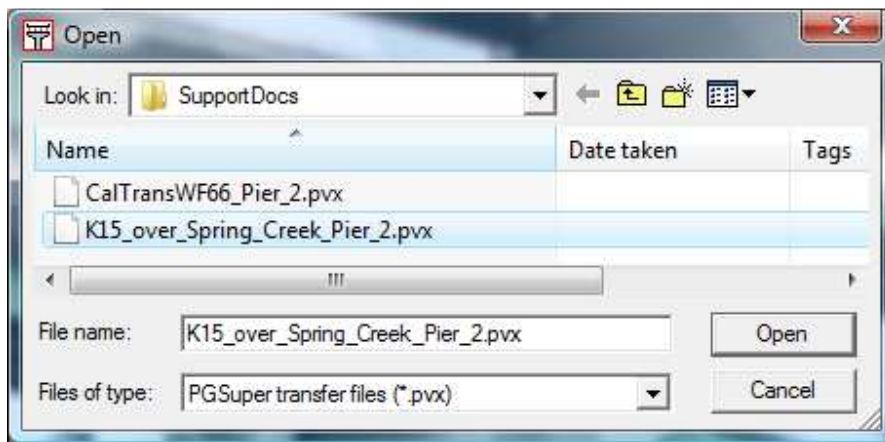
1. Begin by selecting the File / Import menu option, or clicking the Import toolbar button, as shown below.



When the File / Import menu option is selected, or the Import toolbar button is clicked, import options are displayed as shown below:



After selecting the PGSuper – Transfer File option from the import list, choose a PVX file using a standard open file window as shown below.



2. Once a PVX file has been chosen, an input window is presented to allow adjustment of the design specification, the system units, and minimum required information to create a simplified bent model. This input window is shown below.

Import From PGSuper

Design Specification: LRFD 2012

System Units: US

Create a simplified bent model

This data allows creation of a very simple bent model. This does not represent the full modeling capabilities of VBent, and this data may be modified at any time after the creation of the simplified bent.

Column Data

Columns: 2

Cross Section Type: Circle

Length: 20.0 ft

Width: 5.5 ft

Depth: 5.5 ft

Cap Data

Length: 46.188 ft

Width: 7.5 ft

Depth: 7.5 ft

Footing Data

Length: 16.0 ft

Width: 16.0 ft

Thickness: 4.0 ft

TIP: It is important to note that data in PVX files does not represent the full capabilities of VBent and is meant to provide a starting point for describing a bent model. Once the simple model is created, you can access all of the powerful modeling capabilities of VBent, through the normal program interface.

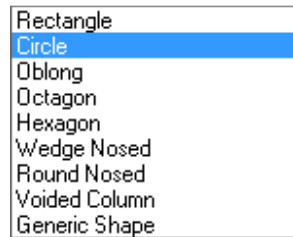
The design specification and system units are required for analysis of the substructure.

The simplified bent model consists of at least one column, and may also include a cap, as well as footings below each column. Initially, the bent cap is assumed to be rectangular in cross section and have no variation of top or bottom slope, but this data is easily changed later on. By default, the cap length is assumed to be the same as the bridge width found in PGSuper.

A bent cap is not required for the model. For example, a cap is not appropriate if the substructure contains a wall pier with bearings set directly on the wall. If cap data is turned off, the program sets the number of columns to 1.

You can enter any number of columns, as long as there is at least one column. If there are multiple columns, a cap is required. All columns in the simplified bent are assumed to be the same, but can easily be changed later.

A variety of column cross sections are available. Since this is a simplified model, only the width and depth of the column section are specified. Many of the section types have additional input options that can be changed within VBent. The list of available cross section types is shown below.



You can create spread footing foundations or leave them out of the simple bent model. If footings are created, they are located beneath each column with common dimensions for each footing.

The simplified spread footings can easily be changed to pile footings later on. Pile footings are not included in the simplified bent model because pile patterns tend to be unique to each bridge.

Loads Transferred Into VBent

Reactions that are imported from PGSuper into VBent via the PVX file include those due to dead load, additional dead load, and live load. Dead load and additional dead load reactions are applied to each girder in the model. Live load reactions are applied to the overall bent.

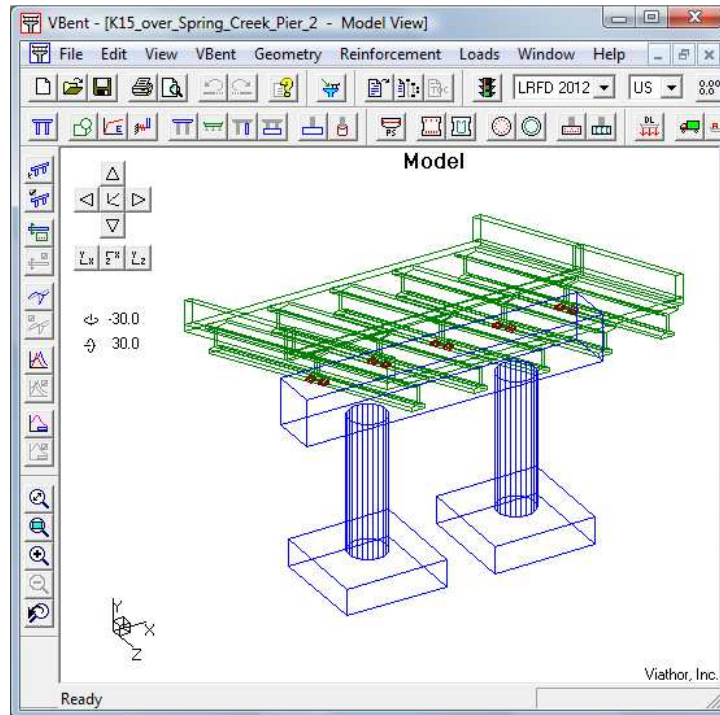
VBent requires truck and lane reactions to be defined separately, because impact is applied above the soil line, but not below it. And, for LRFD, impact is applied to the truck but not the lane. The PVX file does not provide separate truck and lane reactions, but VBent is able to separate out the truck and lane reactions in most cases.

Note also that only truck and lane combinations found in the PVX file are imported into VBent. Truck and lane combinations that don't control the design vehicle reactions in PGSuper are not included in the PVX import.

TIP: *You are encouraged to always verify imported reactions.*

Conclusion


The following figure shows a bent model created by accepting the defaults presented during the import process. As you can see, the process drastically increases productivity and accuracy by eliminating the need to copy and paste potentially hundreds of data fields between the two programs.




With just a few mouse clicks you can export complex superstructure geometry and structural analysis results from PGSuper Professional and import them into VBent to jump start your substructure design.

About BridgeSight and Viathor

BridgeSight and Viathor have teamed up to enhance your bridge engineering productivity by creating an efficient and accurate method for performing substructure analysis and design for precast-pretensioned prestress concrete bridge structures.

	<p>Viathor provides state-of-the-art software for the efficient and accurate design of concrete bridges. Their innovative and intuitive software is known for powerful capabilities, comprehensive solutions, and ease of use.</p> <p>For more information about VBent, and other Viathor products, visit Viathor's web page at http://www.Viathor.com</p>
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	<p>BridgeSight Inc. was founded in 1997 to provide software products, software development services, and training services for the bridge engineering industry.</p> <p>We invite you to check out this, and all of the other time-saving features in PGSuper Professional with a FREE 30 day demonstration version at http://bridgesight.com/TrialOffer</p>
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Customizing PGSuper

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

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PGSuper Professional

BridgeSight Inc. is offering an enhanced version of PGSuper called PGSuper Professional. In addition to all the great features in the free version of PGSuper you get:

- VBent Export for substructure analysis and design
- BridgeSight's one-of-a-kind Girder Design Dashboard™
- DXF Export
- PGSuper to AASHTOWare Bridge Exporter
- Custom Precast Girder Shapes
- 3D Visualization
- Export Analysis Results to Excel
- Enhanced Library Management
- LandXML Data Exchange
- Enhanced Reporting
- Toll-free telephone and direct email support
- Exceptional customer service from a reputable and proven company
- And more!

If you like PGSuper, you'll love PGSuper Professional!

Visit our web site at www.bridgesight.com for more information and a free trial offer.