Home

This is the home page for the Tutorials space that contains tutorials for all CSI programs, usually with the relevant model attached. Tutorials typically provide step-by-step instructions of how to create specific model or accomplish certain task.

On this page:

Browse tutorials by program

View table with all tutorials

Tips

- You may click on the table heading in the table below to sort by a particular column (default sorting is by title).
- Model ID uniquely identifies each model. "na" indicates that no model accompanies the tutorial.

<table>
<thead>
<tr>
<th>Model ID</th>
<th>Title</th>
<th>Description</th>
<th>Program</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>na</td>
<td>2D-view cutting planes</td>
<td>Setting the tolerance for cutting planes within 2D views such that all desired objects are displayed.</td>
<td>SAP2000</td>
<td>14.2.0</td>
</tr>
<tr>
<td>na</td>
<td>Acceleration load in arbitrary direction</td>
<td>Guidelines for acceleration-load application in an arbitrary direction. Applicable to static, modal, and buckling load cases.</td>
<td>SAP2000</td>
<td>14.2.3</td>
</tr>
<tr>
<td>80</td>
<td>Analysis and design of composite steel-girder bridge</td>
<td>Use CSiBridge to model a composite steel-girder bridge based on that from the LRFD Design Example, Steel Girder Superstructure Bridge (FHWA NHI-04-041).</td>
<td>CSiBridge</td>
<td>16.0.0</td>
</tr>
<tr>
<td>581.1</td>
<td>Applying parametric variation to bridge width and girder spacing</td>
<td>Demonstration of how to apply parametric variation to the deck width and girder spacing of bridge object with skewed abutments.</td>
<td>CSiBridge</td>
<td>18.0.1</td>
</tr>
<tr>
<td>581</td>
<td>Applying parametric variation to bridge width</td>
<td>Demonstration of how to apply parametric variation to bridge object with skewed abutments.</td>
<td>CSiBridge</td>
<td>17.2.0</td>
</tr>
<tr>
<td>na</td>
<td>Applying point, line, and area loads to bridge objects</td>
<td>This tutorial demonstrates point-, line-, and area-load application to bridge objects.</td>
<td>CSiBridge</td>
<td>15.0.0</td>
</tr>
<tr>
<td>na</td>
<td>Building models manually via the commands on the Advanced Tab</td>
<td>Tutorial that provides some tips for building bridge models manually via the commands on the Advanced tab.</td>
<td>CSiBridge</td>
<td>15+</td>
</tr>
<tr>
<td>na</td>
<td>Cable-stayed bridge</td>
<td>Tutorial included in the SAP2000 bridge-examples document.</td>
<td>SAP2000</td>
<td>11</td>
</tr>
<tr>
<td>na</td>
<td>Cable-stayed bridge first steps</td>
<td>Basic guidelines for modeling of cable-stayed bridges.</td>
<td>CSiBridge</td>
<td>all</td>
</tr>
<tr>
<td>na</td>
<td>Center-of-gravity determination</td>
<td>The process for determining center of gravity is given in this tutorial.</td>
<td>SAP2000</td>
<td>12+</td>
</tr>
<tr>
<td>na</td>
<td>Cold-formed steel truss</td>
<td>This tutorial demonstrates the modeling of a cold-formed steel truss system.</td>
<td>SAP2000</td>
<td></td>
</tr>
<tr>
<td>na</td>
<td>Complicated joint patterns</td>
<td>Guidelines for creating complicated joint patterns using interactive database editing.</td>
<td>SAP2000</td>
<td>14.1.0</td>
</tr>
<tr>
<td>na</td>
<td>Composite section</td>
<td>Several approaches to the modeling of composite sections.</td>
<td>SAP2000</td>
<td>12.0.0</td>
</tr>
<tr>
<td>na</td>
<td>Concrete bent with nonprismatic cap beam</td>
<td>Create and modify a concrete bent which features a nonprismatic cap beam. Materials, sections, grids, and supports are defined.</td>
<td>SAP2000</td>
<td>12.0.1</td>
</tr>
<tr>
<td>na</td>
<td>Concrete box-girder bridge model</td>
<td>Model from the SAP2000 Bridge Examples document.</td>
<td>SAP2000</td>
<td>11.0.8</td>
</tr>
<tr>
<td>na</td>
<td>Concrete confinement for Caltrans sections</td>
<td>Changing the confinement characteristics for reinforced-concrete Caltrans sections within the Section Designer.</td>
<td>SAP2000</td>
<td>14.2.4</td>
</tr>
<tr>
<td>na</td>
<td>Create and copy frame properties</td>
<td>Use interactive database editing to create and copy frame section properties between models.</td>
<td>CSiBridge</td>
<td>15.0.0+</td>
</tr>
<tr>
<td>na</td>
<td>Create and copy frame load combinations</td>
<td>This tutorial explains how interactive database editing allows users to create and copy load combinations from one model to another.</td>
<td>SAP2000</td>
<td>14.2.3</td>
</tr>
<tr>
<td>na</td>
<td>Create bulb-girder sections with rounded corners</td>
<td>Use the Section Designer to create a bulb-girder section with rounded corners.</td>
<td>SAP2000</td>
<td>14.2.0</td>
</tr>
<tr>
<td>na</td>
<td>Create circular openings</td>
<td>Circular openings may be created within area objects, and the surrounding mesh may be improved.</td>
<td>SAP2000</td>
<td>all</td>
</tr>
<tr>
<td>na</td>
<td>Create custom sections using polygonal shapes</td>
<td>Create custom cross sections by drawing polygonal shapes within the section designer, then modify or add to their geometry through reshape mode or interactive database editing.</td>
<td>SAP2000</td>
<td>14.2.0</td>
</tr>
<tr>
<td>na</td>
<td>Defining lanes from frames in CSiBridge</td>
<td>Describes procedure for defining lanes from frames in CSiBridge.</td>
<td>CSiBridge</td>
<td>17.3.0</td>
</tr>
<tr>
<td>na</td>
<td>Design first steps</td>
<td>An overview of the design-check procedure for steel-frame structural systems.</td>
<td>SAP2000</td>
<td>all</td>
</tr>
</tbody>
</table>
Dynamic loading imposed on structure by lowering a mass via a pulley assembly

Modeling of pulley assembly with the primary goal of applying the pulley assembly loads to the structure.

SAP2000 17.2.0

Haunched steel-girder bridge

Guidelines and tutorial for modeling haunched steel-girder bridges.

SAP2000 12.0.2

Hinge first steps (CSiBridge)

Basic introduction to hinge application in CSiBridge.

CSiBridge

Hinge first steps (SAP2000)

Basic introduction to hinge application in SAP2000.

SAP2000

Import frame properties from shape libraries

Guidelines for importing frame properties from shape libraries.

CSiBridge 15.1.1+

Influence-based moving-load analysis first steps (CSiBridge)

Procedure for setting up influence-based moving-load analysis.

CSiBridge 18.0.1

Influence-based moving-load analysis first steps (SAP2000)

Procedure for initiating influence-based moving-load analysis.

SAP2000 12.1.0

Joint renumbering

The process for renumbering structural joints is outlined in this tutorial.

SAP2000

Joint-pattern first steps

This tutorial provides an introduction to the assignment of joint patterns.

SAP2000 12.1.0

Lane definition per layout line or frame

This tutorial provides guidelines for lane definition according to either layout-line or frame-object configuration.

SAP2000 14.2.0

Layout-line geometry

Guidelines for defining vertical and horizontal layout lines, also known as baselines.

SAP2000 14.2.0

Locate center of mass

Procedure for locating the center of mass for a structural system.

SAP2000

Manual modeling of bridge foundations

PowerPoint presentations are attached which provide detailed examples of a 2-span PCC-girder bridge with three different foundation types. A step-by-step modeling procedure, with detailed descriptions and sketches, outlines the process.

CSiBridge 15.1.1+

Manual modeling of wall-type bents

This tutorial describes a manual modeling process for wall-type bents within bridge objects.

SAP2000 14.2.2

Manual modification of bridge bearings

Guidelines for the manual modification of bridge bearings automatically created by the bridge modeler.

SAP2000 12.0.2

Merging two models

Tutorial describing how to merge two models.

CSiBridge 17+

Model from Bridge Seismic Design Request manual

Example bridge model from the Bridge Seismic Design Request manual.

CSiBridge 16.0.0

Modeling a pin connection between crossing members

Modify joints and apply constraints such that a pin connection allows crossing members to translate freely.

SAP2000 14.2.3

Modeling simply supported shells

Procedure for modeling simply supported shells and coordinating their support systems.

SAP2000

Moment-curvature analysis for hollow prestressed-concrete piles

Perform moment-curvature analysis on custom sections developed within the Section Designer.

SAP2000 12.0.1

Obtain results for individual stages of a staged-construction load case

Options and an example of how to obtain results for individual stages of a staged-construction load case.

SAP2000 14.2.4

Pushover analysis first steps

Guidelines for performing pushover analysis.

SAP2000 12.0.1

Radial point load

Application of point loads in the radial direction using the Advanced Joint Coordinate Axes feature.

SAP2000 14.2.4+

Reinforced-concrete column and beam design

Design reinforced-concrete columns and beams while considering combined performance measures and interaction-surface output.

SAP2000

Section-cut first steps

Introductory tutorial for using section cuts.

SAP2000 all

Steel bridge

Tutorial included with the SAP2000 Bridge Examples document.

SAP2000

Steel-frame pipe rack

A detailed and extensive procedure which describes the modeling, analysis, and design of a 3D steel-frame pipe rack system.

SAP2000

Steel-girder bridge with variable flange thickness

Guidelines and tutorial for creating a steel-girder bridge with variable flange thickness.

SAP2000 14.0.0

Step-by-step moving-load analysis first steps (CSiBridge)

Procedure for setting up step-by-step moving-load analysis.

CSiBridge 18.0.1

Step-by-step moving-load analysis first steps (SAP2000)


SAP2000 all

Tall shear wall building

Walk-Thru Example for Shear Wall Building Assessment in Perform-3D

Perform-3D

Time dependent properties first steps (SAP2000)

Basic introduction to using time dependent material properties

SAP2000 14+

Time-history analysis first steps

Overview of the procedure for time-history analysis.

SAP2000

Tuned-mass damper

An overview of the tuned-mass damper and guidelines for modeling the device.

SAP2000

Using load optimizer to optimize tension in cables of a cable-stayed bridge

This page provides the cable-stayed bridge model that is described in the CSiLoadOptimizer Technical Note.

CSiBridge 19.2.2
<table>
<thead>
<tr>
<th>na</th>
<th>Using the graphical user interface</th>
<th>Tips and tricks for efficiently using the graphical user interface to develop models in SAP2000 and ETABS.</th>
<th>ETABS, SAP2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>na</td>
<td>Variable girder spacing</td>
<td>Procedure for developing a model with variable girder spacing.</td>
<td>SAP2000 14.1.0</td>
</tr>
<tr>
<td>na</td>
<td>Vibrating-machinery steel skid on piles</td>
<td>This tutorial demonstrates the modeling of vibrating machinery and its connection to a steel-skid structural system.</td>
<td>SAP2000</td>
</tr>
<tr>
<td>na</td>
<td>Water pressure</td>
<td>This tutorial provides guidelines for the application of loading induced by water pressure on an area object.</td>
<td>SAP2000</td>
</tr>
</tbody>
</table>