

Bend of bridge frame



Summary of Content

A bridge bent is a transverse frame consisting of vertical columns and a horizontal cap beam that supports the bridge deck and transfers loads to the foundation.

Definition and Function

A bridge bent is a substructure support made up of two or more vertical columns connected at the top by a horizontal beam called a cap. It sits beneath the bridge deck and transfers vertical loads from the superstructure, such as the weight of the bridge and traffic, as well as lateral loads from wind or earthquakes, down to the foundation. Essentially, it acts as an intermediate support between bridge spans, distributing forces efficiently to the ground.

Components of a Bent

Every bent typically consists of three main components:

- **Cap Beam:** The horizontal member at the top that supports the bridge deck or girders and channels loads to the columns.
- **Columns:** Vertical members that carry the load from the cap to the foundation.
- **Footings:** The base of each column that transfers the load into the ground. Bents can be single-column, two-column, or multi-column, depending on the bridge width, load requirements, and site conditions. Special configurations include outrigger bents, where columns are located outside the bridge deck, and C-bents, which may have asymmetric layouts.

Frame Action in Bridges



Article Content

Rigid Frame Bridge Design Principles | PDF | Bending | Beam (Structure)

This thesis examines the rigid frame design of bridges. It discusses how the rigid frame principle has been applied to bridge design,

13.2 Hooks and Bends

Bridge Design Details 13.2 September 2025 Hooks and Bends The following figures and tables show the minimum requirements for

Manual for Heat Straightening, Heat Curving and Cold Bending of

This new manual provides the background knowledge and information to use heat straightening, heat curving and cold bending for

Rigid-frame bridge

A concrete rigid-frame bridge, United States A rigid-frame bridge is a bridge in which the superstructure and substructure are rigidly

What Is a Bridge Bent? Bents vs. Piers Explained

Bridge bents and piers both support bridges, but they work differently. Learn what a bent is, its parts, and where you'll

Bridge Inspection: Piers and Bents (BIRM)

A pier or bent is an intermediate substructure unit located between the ends of a bridge. Its function is to support the bridge at

Bent (structural)

The word "bent" is also used for the horizontal element of a two-pier bridge support, which is a support consisting of two vertical

Bending Moment Diagrams for Frames

This article discusses the concept of bending moment and its visualization through bending moment diagrams (BMDs)

BDP 5.6 Concrete Bent Caps

concrete bent consisting of columns and a bent cap beam is an intermediate support between bridge spans that transfers and resists

Frame bridges

Frequent types of frame bridges and their fields of application are illustrated on the right. Historically, frame bridges were often

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