

Calculation of bridge deck slope and side length



Article Overview

Bridge deck slope is calculated using the rise-over-run principle, and side length can be determined from deck width and slope geometry.

Bridge Deck Slope

The slope of a bridge deck is typically expressed as a percentage or ratio, representing the vertical rise per unit of horizontal run. There are two main types:

- Longitudinal slope: along the length of the bridge, used for drainage and vehicle safety.
- Cross slope (transverse slope): across the width of the deck, usually 1–2% for concrete decks to ensure water runoff (). The slope can be calculated using the formula:

$$\text{Slope (\%)} = \frac{\text{Vertical Rise}}{\text{Horizontal Run}} \times 100$$

For example, if a bridge deck rises 0.3 meters over a horizontal distance of 15 meters:

$$\text{Slope} = \frac{0.3}{15} \times 100 = 2\%$$

Determining Side Length

The side length of a sloped deck can be calculated using basic trigonometry. If the deck has a width W and a cross slope θ (in degrees), the sloped side length L is:...

Article Content

Apr 03, 2026

Bridge Deck

This will keep the deck drainage not collected in the deck drains from flowing down the spill slopes at the bridge corners, which can

Apr 13, 2026

260 Bridge Structures

This cross slope criteria applies to all bridge decks whether of cast-in-place concrete, precast concrete, or open steel decking. Use

Jan 06, 2026

Steel Bridge Design Handbook Vol

This module provides practical information regarding the decking options and design considerations for steel bridges, presenting

Dec 22, 2025

DESIGN OF BRIDGES

In order to cover the target values of local effects in secondary elements, characterized by influence surfaces with very small base

Jun 24, 2026

CHAPTER 17 Bridge Deck Design

The primary function of a bridge deck is to support the vehicular vertical loads and distribute these loads to the steel superstructure.

May 02, 2026

BDM Typical Deck, Typical Overhang, and Soffit Design

This BDM addresses the design of typical bridge decks, typical overhangs, and soffits for new bridges and bridge widenings as

Feb 20, 2026

Bridge Deck Drainage Design Guide | PDF

The document provides guidance on bridge deck drainage design including analyzing run-off, sizing grate inlets, managing sheet

Dec 04, 2025

Bridge Geometry Manual

Bridge Geometry Manual Publication No. FHWA-HIF-22-034 Infrastructure Office of Bridges and Structures

Aug 16, 2025

Bridge Design Guide

Feedback For TxDOT policy on designing bridges, please refer to the TxDOT Bridge Design Manual - LRFD. Please direct any

Jul 02, 2026

Roof Pitch Calculator

The roof pitch calculator calculates rise, run, slope, pitch, angle, and rafter length. Use the diagrams on this page when referring to

Jun 06, 2026

Bridge Deck Area Calculator

Estimate bridge deck plan area from key dimensions. Account for skew, overhangs, and utility openings quickly. Get net area and

Aug 19, 2025

LRFD Steel Girder SuperStructure Design Example

The first design step for a concrete bridge deck is to choose the correct design criteria. The following concrete deck

Nov 13, 2025

BRIDGE MANUAL

The geometric design standard for the clear roadway width on bridges is based on providing a level of geometric consistency

Aug 02, 2025

Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance

This study utilized a scaled physical model and varying downspout shapes and sizes to investigate the hydraulic performance of

Jun 08, 2026

CONCRETE DECK SLAB TABLE OF CONTENTS

Bridge Layout reference points are revised to lines thru center of bearings/ piles. Updated cantilever design values for CPSR railing

Jun 19, 2026

8.1 Typical Section

Typical Section The TYPICAL SECTION sheet provides specific details for the bridge or retaining wall section. Do not clutter this

Sep 29, 2025

Bridge Design Guide

For the sloped overhang, the slope of the bottom face of the overhang may vary significantly when used with curved slab edges

Sep 26, 2025

Bridge deck modelling and design process for bridges

The twin-girder composite bridge represents a large majority of the new road and railway bridges built in France:

Apr 13, 2026

CHAPTER 17 Bridge Deck Design

released in 2020. 8. Abstract The primary function of a bridge deck is to support the vehicular vertical loads and distribute these load.

Jun 09, 2026

Design of Bridge Deck Drainage

Each design agency should establish the percentage of bridge deck inlet blockage that will be incorporated into the design of bridge

Jun 05, 2026

PPCO Twist System

Decked-girder bridges with precast, prestressed concrete girders are used extensively throughout Washington state, particularly for

Jan 24, 2026

Chapter 7: Bridge Deck Construction

7. Deck grading for steel girder bridges. 8. Precast prestressed (PC PS) concrete girders and slabs, particularly deck grades and

Feb 19, 2026

Guidelines for Bridge Design

An effort has been made to discuss almost all aspects relating to the bridge design, which are necessary for preparing "Bridge

Dec 06, 2025

Deck Slope Calculator

Use our free deck slope calculator to determine the ideal rise, run, angle, percentage, and ratio for proper deck drainage. Ensure

Sep 13, 2025

Chapter 7: Bridge Deck Construction

Verify the overall deck width at several locations throughout the length of the structure, considering bridge cross slope (refer to

Apr 20, 2026

DESIGN OF BRIDGES

In modern codes, static models adopted previously, representing physically existing heavy vehicles, have been replaced by ideal

Nov 20, 2025

Civil Bridge Design Analysis Calculator

Bridge Design and Analysis Calculation: This calculator provides the calculation of bridge design and analysis for civil

Nov 04, 2025

DESIGN OF BRIDGE DECK DRAINAGE

A grate inlet will intercept a small portion of the flow from the triangular wedge of flow on the bridge deck along the length of the

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.greatpremiersolutions.co.za>

Email: sales@greatpremiersolutions.co.za

Phone: +27 82 914 3675

Address: Unit 5, Silicon Heights, 22 Electron Avenue, Cape Town, 8001, South Africa

This document is for informational purposes only. Specifications subject to change without notice.

