Flat-turn bridge



Overview

The Flat Truss is a structural system commonly used in buildings and bridges. But what are its different members, and how does it work? Learn more in this article.

Key Takeaways

A flat-turn bridge is typically a bridge that combines a flat structural design, like a flat truss, with a pivoting or rotating mechanism similar to a swing bridge. Structural DesignFlat-turn bridges often use a flat truss system, which consists of interconnected triangles that distribute loads efficiently across the span. This design allows the bridge to support heavy loads such as vehicles, trains, or pedestrians while maintaining a relatively low profile.

Flat trusses are usually made of steel or timber and are supported by pin and roller connections, making the structure statically determinate and easier to analyze for internal forces (tension and compression) in each member.

Turning Mechanism

The "turn" aspect of a flat-turn bridge is similar to a swing bridge, which rotates horizontally around a vertical pivot. The bridge typically has a central support pin and a bearing ring near its center of gravity, allowing the span to pivot and clear a navigation channel for boats or ships. Depending on the angle of the channel, the bridge may rotate 90 degrees or less to allow passage.

Smaller bridges may pivot from one end like a gate, reducing the need for counterweights and simplifying the structure.

© 2026 PROMETHEAS OPTICAL - All rights reserved

Functionality

In operation, road or rail traffic is stopped while the bridge rotates. Once the waterway is clear, the bridge returns to its flat, closed position, allowing vehicles or trains to cross. The combination of a flat truss and a pivoting mechanism provides both structural efficiency and navigational flexibility, making it suitable for rivers, canals, or other waterways where movable spans are necessary.

Advantages

Efficient load distribution due to the flat truss designReduced weight compared to other movable bridges because counterweights are often unnecessaryFlexibility for navigation, allowing vessels to pass without permanent obstructionSimpler calculations and construction due to hinge and pin connections in the truss system Flat-turn bridges are a practical solution where both structural strength and movable functionality are required, combining the benefits of flat truss engineering with the pivoting mechanics of swing bridges.

Article Content

Flat Truss: What Is It? And How To Calculate It?

The Flat Truss is a structural system commonly used in buildings and bridges. But what are its different members, and how does it work? Learn more in this article.

List of bridge types

This is a list of different types of bridges. "The five main bridge designs". ECL Civil Engineering. 21 March 2022. "Yavuz Sultan Selim Bridge, Istanbul, Turkey -

Design and Evaluaion of Steel Bridges for Fatigue and Fracture ...

Most modern highway bridges on major roads are designed so that the stress is below the threshold which provides a structure which will confidently not exhibit fatigue crack extension.

Cambridge Flat

The Cambridge Flat bridge is a Warren Truss girder bridge that is formed by a top chord with a parallel chord (flat) geometry. This truss eliminates

Pipe Rack Design For Piping

If you want to change the sequence of the lines, a flat turn will not serve for this. Instead, you can choose the elevation difference method for the

Structural Analysis and Design of Moveable Bridges

© 2026 PROMETHEAS OPTICAL - All rights reserved

The design of movable bridges require much more effort than for the design of fixed bridges, for the reason that it must take into account the various position configurations of the leaf bridges and

What Is a Swing Bridge and How Does It Work?

Unlike drawbridges that lift upward, a swing bridge stays flat and simply spins to one side, clearing the waterway beneath it. It''s one of the oldest movable bridge designs still in use, with

What Is 3D Bridge Printing and How to Improve It

In this guide, we''ll walk through what bridging actually is, why it sometimes goes wrong, how to test your printer''s bridging ability, and what

Properties For Sale in Tunbridge Wells | Rightmove

Flats & Houses For Sale in Tunbridge Wells - Find properties with Rightmove - the UK''s largest selection of properties.

Fixed Bridge vs Floating Bridge: Which Is Best?

There are two major groups of electric guitars. Those with floating bridges and those with a fixed bridge. But what''s the best option for you?

Guitar Intonation Adjustment: How To Set Intonation On

Guitar intonation adjustment involves testing the intonation of each string by comparing the fretted 12-fret octave with the harmonic produced at the same fret.

Houses for sale in Tunbridge Wells | OnTheMarket

Find the latest properties available for sale in Tunbridge Wells with the UK''s most user-friendly property portal. Search houses & flats to buy from leading estate agents.

Every Kind of Bridge Explained in 15 Minutes

[Note that this article is a transcript of the video embedded above.] The Earth is pretty cool and all, but many of its most magnificent features make it tough for us to get around. When the

Celebrating Jamaica 50

MUCH like many other colonial-erected structures that have withstood the test of time, the Flat Bridge is revered as a national landmark in Jamaica. The bridge is situated just outside the

1BTN — 1 World. 1 Love. 1BTN.

© 2026 PROMETHEAS OPTICAL - All rights reserved

1BTN is a specialist radio station broadcasting Worldwide at 1btn.fm and also locally at 101.4FM and also DAB+. #pushtheBTN

How and Why to Adjust the Saddles of Your Guitar | dummies

If the strings are too high or too low, you have to adjust the action. To adjust the action, you need to raise or lower a part of the bridge known as the saddles (the parts just in front of the

How to ride Flat mountain bike Turns | MTB turning Basics Part #2 ...

Loose flat turns are a difficult Mountain bike skill. In this flat turn Mountain Bike Turning tutorial. We''re looking at how ride flat turns and get traction.

ICC Ladder Rack Cable Runway 90-Degree Flat Turn –

Description The ICC Ladder Rack Cable Runway 90-Degree Flat Turn provides a reliable solution for making smooth, horizontal turns—essential for any

Contact Us

Continue your research online:

Website: https://prometheas.fr
Technical inquiry: https://prometheas.fr/project-desk.html
North American project region: Ashburn, Loudoun County, Virginia, United States

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 PROMETHEAS OPTICAL - All rights reserved