

Construction of Climbing Bridge Supports



Summary of Content

Climbing bridge supports are constructed using specialized climbing formwork and shoring systems that allow vertical elements like pylons, towers, and piers to be built efficiently, safely, and with minimal crane use.

Foundations and Vertical Supports

Bridge supports begin with a foundation capable of handling the loads from towers, piers, or portal frames. Common foundation methods include H-piles, pipe piles, bore piles, or precast concrete piles depending on soil conditions and load requirements . The vertical elements themselves—bridge towers for cable-stayed or suspension bridges, and piers for conventional spans—are typically constructed using high-strength in-situ concrete. For tall or complex structures, mechanical climbing formwork is often employed to cast the concrete efficiently .

Climbing Formwork Systems

Climbing formwork systems are designed to move upward along the structure as construction progresses, eliminating the need for extensive scaffolding or crane operations. There are two main types:

- Self-climbing systems: These use hydraulic or mechanical mechanisms to lift the formwork along the wall or pylon surface. Platforms for workers, concrete pouring, and formwork positioning are integrated into the system .
- Rail climbing systems: These attach to the structure and allow formwork to climb along rails, often used for hollow or complex cross-sections . These systems can handle complex geometries, including tapered or curved pylons, and allow for fast cycle sequences while maintaining high load-bearing capacity and safety .

Article Content

CLIMBING TECHNIQUES FOR BRIDGE INSPECTION

Within one year, 20 bridge maintenance engineers were trained, and a formal program was established to organize, schedule, equip

Falsework

A certain type of bridge, the self-anchored suspension bridge, must be supported during construction, either by the use of cantilever

SCS Climbing System

Typical areas of applications for the SCS Climbing System are dams, locks, cooling towers, bunkers and strongroom vaults, pier

International Bridge Management Conference / Volume 1

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Bridge Inspection Climbing Techniques | PDF | Mountaineering

Caltrans evaluated using rock climbing techniques as an alternative and trained engineers in climbing. They performed a successful

Self climbing formwork ATR | ULMA

It is an ideal climbing system for skyscraper construction in building industry (high rise building cores such as lift-shafts, stairwells

Climbing formwork | ULMA Construction

High-tech self-climbing, rail guided and conventional formwork systems for high-rise walls. Most suitable for tower and skyscrapers,

Bridge Construction Techniques: From Planning to Execution

This article breaks down bridge construction techniques step-by-step—from initial planning to final execution

Bridge Formwork

Formwork for the construction of bridges. Deck formwork, formwork carriages, launching truss, heavy duty truss systems and heavy

RCS Rail Climbing System

PERI's RCS Rail Climbing System combines the advantages of different climbing systems in a modular system and is used as

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