

Project

New Carquinez Bridge, San Francisco, California, USA

The new bridge across the Carquinez strait replaces the 1927 westbound steel-truss bridge, which was scheduled for demolition. The bridge is located 25 miles northeast of San Francisco, between the cities of Crockett and Vallejo. It connects San Francisco with Sacramento via interstate Highway 80, and carries a 25-metre-wide roadway consisting of four highway lanes, two shoulders and a bike and pedestrian lane. The bridge spans 1,056 metres, with a distance of 728 metres between the two main towers.

Designed to provide safe passage even after earthquakes of 8.0 on the Richter scale, the new Carquinez Bridge was the first major suspension bridge to be built in the USA since the 1970s.



Location

Crockett, California, USA

Client

California Department of transportation (Caltrans)

Contractor

Joint venture FCI Constructors, BAM International, Flatiron Structures Company, Cleveland Bridge California

Contract period

January 2000 – May 2004

Contract sum

\$ 235 million

‘The bridge is designed to withstand quakes of 8.0 on the Richter scale.’

Scope of work

The new Carquinez Bridge contract comprised the construction of a 1,055-metre orthotropic steel-box girder suspension bridge including twin concrete towers. The orthotropic girder is supported by vertical suspenders and two 512-millimetre diameter main cables. The cables are supported by two 120-metre tall towers, and anchored at a tunnel anchorage at the north end and a gravity anchorage at the south end. The main cable consists of 8,584 separate 5-millimetre wires compacted to a 512-millimetre diameter cable wrapped with 3.5-millimetre wire. Each cable splits into 37 strands of 232 wires.

Each tower rests on 12 piles of three metres in diameter. The piles are 90 metres long at the south tower and 60 metres long at the north tower.

View from the north on completed south anchor



Piling of a 3-metre diameter pile



Pier with completed 4-metre-high strut and shear key

