

Turtle Bay Sundial Bridge

Redding, CA

Owner

City of Redding, CA

Architect

Santiago Calatrava, SA, Zurich, Switzerland

Engineer of Record

Calatrava Firm, Zurich, Switzerland

Detailer

Tensor Engineering, Indian Harbour Beach, FL, NSBA/AISC member, NISD member

Fabricator

Universal Structural, Inc., Vancouver, WA, NSBA/AISC member

General Contractor

Kiewit Pacific Co., Vancouver, WA

Photo by David Greusel.

The 1,600-ton Turtle Bay Sundial Bridge opened July 2004 over the Sacramento River in Redding, CA. It consists of a 300'-long by 217'-wide single-inclined tapered pylon supporting a 722' truss span. The triangular pylon, inclined at 42 degrees, runs in a true north-south direction. At approximately 110' long by 75' wide, the open base of the pylon forms a plaza at a 36-degree angle between the east and west walls.

The west face, which supports the triangular deck span, inclines two degrees to the west, while the east face is inclined toward the west at 28

degrees. The north wall is a curved, warped surface connecting to the rear edge of the west and east walls. Each wall has both inner and outer faces which are 2'-8" apart at the base and taper to about 6" at the top.

The span is supported by 14 cables connected to transverse bulkheads in the deck truss and to plate brackets cantilevered from the west inclined face of the pylon. Horizontal and vertical stiffener systems, as well as skewed stiffeners, line up with the cable support brackets.

The entire structure is made up of plate material

varying in thickness from 1" at the base and reducing to 5/8" at the top.

The 722' pedestrian bridge deck system is a triangular pipe truss with a 14'-diameter bottom chord and two 11'-diameter top chords. The 23' wire translucent deck is framed in glass panels with granite accents. The deck is not symmetrical, and so it had to be cambered vertically, longitudinally, and transversely.

To learn more about the Turtle Bay Sundial Bridge, read "Sun Sculpture" in the October 2004 issue of MSC, available at www.modernsteel.com. ★