

# Cosumnes River Bridge

## A Landmark of Timber Design

By Donald A. Jaenicke

Timber bridges have been an integral part of the American landscape since Colonial days, and are still in demand today because they provide aesthetic, durable, and cost-effective spans.

One of the longest pedestrian timber bridges built in recent years is currently awaiting its unveiling near Sacramento, California. The Cosumnes River Pedestrian Bridge was designed to provide pedestrian, golf cart, and maintenance vehicle access between the north and south communities of the Rancho Murieta development separated by the Cosumnes River.

The bridge is a three-span, combination parallel chord/bowstring truss bridge measuring 410' long. It is made up of a 200' center span (bowstring truss), with two 105' side spans (parallel chord) that blend into the main span with a reverse curve section, which gives the structure its graceful flow.

The arched section in the center span adds depth and reduces deflection, allowing efficient chord sizes of structural glued laminated timber (glulam) to be used.



The glulam timbers were pressure treated after fabrication with Type A Pentachlorophenol to provide an expected service life of more than 75 years. The design pedestrian live load is 85 psf and the total cost of the project was \$1.75 million.

Design, fabrication, assembly, and installation of the bridge

superstructure was provided by industry veteran Western Wood Structures of Tualatin, OR. Quincy Engineering of Sacramento, CA led the project development process, and was responsible for the site civil engineering, foundation, abutment, and pier design. The Cosumnes River Pedestrian

### Credits:

**Design:** Robert Keller, P.E., Western Wood Structures, Inc.  
**Fabrication, assembly and erection:** Western Wood Structures, Inc.  
**Civil engineering, project management:** Quincy Engineering  
**General contractor:** Viking Construction



### Bridge Statistics

**Top Chord** – 8.75 inches by 16.5 inches  
**Bottom Chord** – 8.75 inches by 18 inches  
**Webs** – 8.75 inches by 6, 7.5, 9 and 12 inches  
**Bridge Deck** – 2.5-inch by 15-inch glulam  
**Purlins** – 3.125 inches by 10.5 inches  
**Floor Beams** – 5.125 inches by 15 inches  
**Cross Beams** – 6.75 inches by 6 inches, and 6.75 by 7.5 inches  
**Rail** – 2.125 inches by 6 inches, and 2.125 by 7.5 inches  
**Ledger** – 2.125 inches by 6 inches  
**Deck** – 12 feet wide between the trusses, with 11 feet 5.5 inches clear width between the rails

Bridge won the 2008 Engineering Excellence Merit Award presented by the Consulting Engineers and Land Surveyors of California (CELSOC).

The decision to specify curved glulam allowed for the graceful design of the structure, and the warm appeal of glulam timber has already resulted in the bridge becoming a “signature” structure for the Rancho Murieta communities. An added benefit was improved public safety, as the previous route over the river required the use of a narrow and busy state highway bridge. The communities also benefited from the lower cost, a lower carbon footprint, and the sustainable characteristics of glulam when compared to steel, concrete, or other building materials.■

*Donald Jaenicke's career spans the wood products industry nine years as marketing director at the Weyerhaeuser Company, nine years as ad manager of American Plywood Association, and twelve years as director of advertising and P. R. for the American Institute of Timber Construction (AITC). Donald may be reached at [donaldarthur@earthlink.net](mailto:donaldarthur@earthlink.net).*

For more information on laminated timber, visit the American Institute of Timber Construction's website, [www.aitc-glulam.org](http://www.aitc-glulam.org).