



## 100-Year Performance of Timber-Concrete Composite Bridges in the United States

<https://research.thinkwood.com/en/permalink/catalogue2561>

Author: Wacker, James

Dias, Alfredo

Hosteng, Travis

Year of Publication: 2020

Format: Journal Article

Application: Bridges and Spans

Topic: Serviceability

Keywords: Concrete

Composite

Superstructure

Performance

Inspection

Research Status: Complete

Series: Journal of Bridge Engineering

Summary:

The use of timber–concrete composite (TCC) bridges in the United States dates back to approximately 1924 when the first bridge was constructed. Since then a large number of bridges have been built, of which more than 1,400 remain in service. The oldest bridges still in service are now more than 84 years old and predominately consist of two different TCC systems. The first system is a slab-type system that includes a longitudinal nail-laminated deck composite with a concrete deck top layer. The second system is a stringer system that includes either sawn timber or glulam stringers supporting a concrete deck top layer. The records indicate that most of the TCC highway bridges were constructed during the period of 1930–1960. The study presented in this paper discusses the experience and performance of these bridge systems in the US. The analysis is based on a review of the relevant literature and databases complemented with field inspections conducted within various research projects. Along with this review, a historical overview of the codes and guidelines available for the design of TCC bridges in the US is also included. The analysis undertaken showed that TCC bridges are an effective and durable design alternative for highway bridges once they have shown a high performance level, in some situations after more than 80 years in service with a low maintenance level.

Online Access: Free

### Resource Link

[https://www.fpl.fs.fed.us/products/publications/specific\\_pub.php?posting\\_id=97924&header\\_id=p](https://www.fpl.fs.fed.us/products/publications/specific_pub.php?posting_id=97924&header_id=p)