
Preface

There are two Canadian publications dealing with wood highway bridges which have been used by designers during the past few decades.

The first is *Modern Timber Bridges: Some Standards and Details*, which was published by the Canadian Institute of Timber Construction. The most recent edition appeared in 1970. This publication served admirably for many years as a basic reference – many readers received a copy of it when they were university students – but recent major developments, such as stress-laminated wood decks, came along after its last revision in 1970.

The other is Chapter 13, Bridges, written by Raymond J. Taylor, in the book *Limit States Design of Wood Structures*, by Frederick J. Keenan, published by Morrison Hershfield Limited Consulting Engineers, in 1987. This provides an excellent summary of the use of wood in bridges, particularly in Ontario, but is too concise to be helpful at the detailed design level.

The scarcity of recently printed material on the design and construction of wood bridges is not an accurate reflection of advances made in this field during the two decades since the publication of the last edition of *Modern Timber Bridges*. Some of these advances are:

- a) The development of post-tensioning of laminated lumber bridge decks which transforms the deck from a loosely connected assemblage of individual planks into a rigid structural continuum or plate.
- b) The publication of the *Ontario Highway Bridge Design Code* (OHBDC), which first appeared in Limit States Design format in 1979. The approaches to bridge analysis, design and detailing in this code represented major advances over previous North American bridge codes.
- c) The extension of the OHBDC advances to the rest of Canada with the approval in 1988 of a new edition of CSA Standard CAN/CSA-S6-88, *Design of Highway Bridges*. This standard, in turn, will be replaced in the near future by the *Canadian Highway Bridge Design Code*, which will combine the knowledge and experience of the OHBDC and CSA code groups.
- d) The combination of stress-lamination with new wood products, such as laminated veneer lumber, to create innovative structural systems such as T-beam and cellular integrated decks.

With these advances, wood has grown out of its historic role as a material for bridges on secondary roads. Because of the improved structural behaviour and longevity of stress-laminated decks, wood is now being used as a bridge material for high-volume primary roads.

All of the advances outlined will facilitate the use of wood in bridges, leading to the need for publications which will help Canadian bridge designers to exploit the new developments. The time has come, therefore, to present to bridge designers this new Canadian Wood Council publication, *Wood Highway Bridges*.

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