

## ECONOMICS OF LOW COST BRIDGES

REVIEWED BY

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There are some features which influence the use of creosoted timber bridges in the State of Texas which are not covered in the paper of Mr Seiler.

First—Texas has been known as a timber producing state and has at present seven creosoting plants, but local timber of the larger sizes required in timber bridge construction such as stringers and caps is almost depleted by the requirements of state highways and railroads in their construction work. For this reason prices of such material are almost on a comparable competitive basis with steel and reinforced concrete. For this reason there is a tendency to use other types of construction rather than timber.

Second—The climatic conditions on the Texas coast are rather hard on creosoted Douglas fir, however, we have used it extensively in the construction of three rather large bridges. The treatment specified was 10 lbs per cu. ft according to the empty cell method. We hope that this will prove adequate to preserve the timber for a period of years, but due to seasoning checks which extend beyond the treatment there is some doubt as to the life of the material. It is possible that the material will have a long and useful life of twenty-five or more years. We trust that such will be the case.

Third—Most state highway departments do not have constitutional authority to insure certain timber structures against destruction by fire. There is a fire hazard which should be taken into consideration in timber bridges. The State of Texas has enough timber bridges to make it too expensive to consider paying premiums on insurance against fire. Therefore, the State Highway Department acts as its own insurance company.

During the past seven years at least 12 timber bridges have been consumed by fire. During the past four years all timber bridges constructed have been provided with a fire wall at suitable intervals in the hope that the entire structure will not be consumed in case a fire should become started.

Fourth—In case of reconstruction after a period of years a rather annoying condition comes up as to what shall be done to traffic. This happens in cases where a suitable detour without traveling an excessive distance is not available. This is a cost which should be considered in making a comparison of a semi-permanent material such as timber with a more durable type of material such as steel or concrete.

These features should be taken into consideration in securing a comparison in cost of a bridge structure of the various types of materials.