



The durability of timber bridges

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Summary

Most of people mean that timber bridges are not very durable. However to ensure good durabilities, compatible with the requirements of the eurocodes, two elements are necessary : an adapted design and a diffusion of knowledge of this forgotten material. The protection of the wood of structure must indeed be the major objective of the designer.

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1. Introduction

1.1 An ignorance of wood

Currently in France, few references on timber bridges are available, except the eurocode 5 (for calculation) which obtained a specific part on the bridges.

Certain works carried out during twenty last years present problems of premature degradation. The lifespan of the recent works is too often lower than twenty years, whereas certain old works behave well: the timber bridge of Lucerne, in Switzerland, with more than six centuries of existence before its accidental fire in 1993, in is a notorious example.

This important dispersion of the lifespan of the wood works is explained by a loss of competence on the use of this material. Since the 14th century, the use of wood declined in France with the profit of the stone, material more expensive to the investment but less demanding in terms of maintenance than wood, considered to be too constraining by the building owners. At the 20th century, with the development of the concrete and metal, this phenomenon was still accentuated. In France, the important concepts on the behavior of wood and the rules of construction even were forgotten little by little.