

The development of timber as a construction material for bridges in Norway

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Abstract

Throughout the nineties, a new generation of wooden bridges were born in Norway. This was the result of mixing traditional knowledge about the use of wood with the use of modern glulam technology and innovative solutions regarding connections. In addition, the use of preservatives in combination with constructive protection made the bridges more durable. In the past two decades there has been a continuous development of bridge technology. It is not an important target to use as much timber as possible, but rather to exploit the best characteristics of every material, including steel and concrete. This has led to that we can push the limits of the use of this environmentally friendly material. This paper shows some examples of bridges that have been built and presents a record-breaking bridge that may be the next step in the timber bridge era

Keywords: Timber Bridge, glulam, arch bridge, truss bridge, network arch bridge.

1 Introduction

The completion of the Evenstad Bridge in 1996 may be said to be the beginning of a new era of timber bridge building in Norway. The development of new types of dowel connections and block-glued glulam for the arches carrying several of the venues built for the winter Olympics held in Lillehammer in 1994 gave rise for modern construction methods for timber bridges. For timber bridges also the introduction of combined treatment, i.e. the combination of salt treatment with creosote treatment, was a prerequisite to satisfy the requirement of at least 100 years' service life

without completely cover the load carrying structure.

20 years later more than 150 bridges carrying pedestrian and road traffic are built. The timber bridge are still under continuous development and improvement in order to expand the area of use. The motivation for use is based on the possibility of making durable and sustainable constructions with high aesthetical quality using the only raw material that the nature recycle by its own. Since it is a governing policy for the Norwegian Public Roads Administration that one utilizes the best features of every material, it is of great interest to have durable and economically competitive alternatives to steel and concrete.