

On-site grading of old timber members

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Summary

Old timber members can often be saved from replacement or heavy strengthening through a careful on-site examination and diagnosis. This paper briefly explains the proper approach to an old load bearing timber structure in order to effectively assess its actual condition. Wood decay and damage, strength-reducing wood features, biological hazard etc. are considered within a grading procedure which may include both visual and instrumental techniques. The main objective of this procedure is the assignment, to any relevant transverse section of each timber element, of realistic design values for the main mechanical properties after deducting any possible decay.

1. General

It is today recognised that historical load bearing timber structures must be conserved as an essential part of mankind's cultural heritage.

In *ICOMOS International Wood Committee Principles of Practice for the Preservation of Historic Timber Buildings 1999*, it is pointed out that "...Not only original materials, but structural function as well should be conserved...". In other words, any timber member should continue to give its contribution to the global load bearing capacity of the structure.

In fact, a conservation according to the above mentioned principles cannot be achieved without having at hand reliable strength data for the timber members commonly found in our historic buildings: uncertainties about the behaviour of those timber members would unavoidably lead to unnecessary reinforcements or even to replacements, which will be possible sources of new structural problems in the future.