

The impact of properties of Croatian common wood species in their selection and use in the ancient roof constructions

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In the last, almost fifteen years, the great number of wooden buildings, houses and objects of Croatian's cultural heritage were restored with fine workmanship. As the wood was the main construction materials in the ancient roof constructions, the scientists and specialists from the Faculty of Forestry also took part in those reconstruction and conservation processes. Many parts of those objects, particularly roof constructions, were made of more available home-grown wood species, particularly fir wood (*Abies alba* Mill.), spruce wood (*Picea abies* Mill.) and pine wood (*Pinus sylvestris* L. and *P. nigra* L.).

Today, in spite ardour, across all Croatia there are still so many ancient buildings that have never been restored. It happened due to the always presence and never forgotten bad circumstances (war), but also due to the lack of stronger investment in the field of heritage protection.

However, since all Croatian's heritage objects are under the protection of the municipal departments for heritage protection, all the methods and preservatives used in the carried out restoration processes were carefully discussed and approved by both sides.

In this article the objects that were discussed are situated in Zagreb, Split and island Vis. They are: the wooden pavilion "Jeka" (Echo) in the Forest-park Maksimir, Manor house (Gupčeva kuća) at Markov trg (Mark square) in upper town (Gornji grad), old house in Tkalčićeva street (Zagreb old down town), old Church of Blessed Virgin Mary in Remete near Zagreb and the Main Railway Station of Zagreb. Other objects are old Art gallery at the very centre of Split (near Diocletian palace) and old school at the island of Vis in town Vis (south Croatian Adriatic Coast).

It is obvious that builders in ancient times had been deprived for the limits in the use of high quality home grown wood species (which were present in a great amount), and were "widely open" to its use.

The authors' intention was to inform and advice people who would be involved in future restoration efforts and investors on the possibilities of the optimum and quality restoration of the valuable and ancient wooden objects, both from the view of the maximum protection of recent state of heritage, as well as from the aspects of the necessary replacement availability of worn-out and/or decayed wooden parts with new ones.

Appropriate identification and selection of wood, particularly roof elements and ancient wood artefacts is also important. It is also obvious that the deterioration of wood in cultural [assets](#) follows the same physiological mechanisms as in modern structures. Therefore rules and data for prediction of service life derived from old wooden structures can be used to model the service life of recent wooden structures and vice versa. Subsequently, the knowledge on the properties of

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related home grown wood species which were, still are, or will be used for the roof constructions, is invaluable.

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