
PREFACE

This issue contains a number of state of the art contributions on Timber Structures and Engineering. They are written by scientists, architects and engineers interested in promoting the use of timber as a construction material.

In fact, when trying to find a reliable timber engineering solution, the designers of structural elements are facing a major challenge, i.e. although timber is one of the most widely used materials in the world, it lacks the reliability of stone, concrete and other materials. Indeed, it is easy to understand why the Eurocodes only accept its use under simple uni-axial load conditions, in view of its anisotropy, heterogeneity and many other imperfections.

Timber has been regarded in the past as an unreliable material. Its main advantage was its local availability, which made its use easy and economical.

However, a major structural engineering revolution took place in the XXth Century. It was the emergence of composites, for which synergy between different materials offers a reliable and strong structural solution. One thus discovers the advantages of “composite materials solutions” in combination with more mechanically reliable materials, plus others that offer thermal, acoustic, insulation, fire resistance, anti seismic behaviour, and other properties.

Timber has gained credibility in structural applications despite its uncertainties in mechanical properties and its limited possibilities in the case of traction structural joints or multi-axial states of stress. It is also a beautiful material, which can be used for a multitude of complex structural forms which has led to its ever-increasing use in the modern built environment.

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