

Optimum design and manufacture of wood products

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Abstrak

This book is the first attempt to summarize the existing scientific methods and to present new developments and results in this field. First of all, a large array of functional relationships was elaborated and described in details in a voluminous chapter. Beside the strict mathematical optimization methods, an engineering approach is outlined and demonstrated in many worked examples. The essence of this approach is a recognition that, in many practical cases, the optimum is uniquely determined by a particular constraint. The scientific methods of engineering design of wood products are discussed, compared and illustrated with numerical examples. Special attention is paid to the joint elements and, for their easy optimum selection, new similarity equations are developed and illustrated by practical examples.

In the last chapter, the general principles of optimum manufacture, interactions among product structure, degree of automation and optimized production technology are discussed. The main woodworking operations are also described and reference is given for optimum selection of their operational parameters. In the Appendix, over 50 colour pictures demonstrate the unique ornamental properties of various timber materials.