

TEXTBOOK OF PRODUCT
ENGINEERING AND STRENGTH
DESIGN OF FURNITURE

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Preface to the book, "Strength Design Of Furniture," published in 1978 by Carl A. Eckelman, Professor of Wood Science, Purdue University, West Lafayette, Indiana.

Preface

Although furniture designers have always been concerned with the strength of the furniture they create, a methodology has never developed which permits a designer to analyze the strength requirements of a specific piece of furniture and then calculate on a scientific basis the size of the members and the joints needed to satisfy these requirements. Several years ago, the author became interested in problems related to the strength of furniture and undertook research to obtain quantitative answers to a number of perplexing strength problems. Additional investigations followed which over a period of years have developed into a continuous program of furniture research. The collection of data and information which followed resulted in the need to transmit this knowledge to others. Short courses were held for industry personnel and a formal university class was developed and taught to present what had been learned in a systematic manner. The formalized set of class notes developed formed the basis for this book. In general, the intent of this book is to introduce and develop the concepts and principles of strength design as applied to furniture and to collect pertinent information concerning the subject into a single document. No book of this nature can ever be complete, however, since research constantly produces new knowledge which should be included with the old. Nevertheless, a start must be made at some point, and this book should be recognized for what it is, a first attempt to organize and present a rational methodology for the strength design of furniture.

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All the chapters of this book, "Textbook of Strength of Materials" have been written by Dr.R.K.Bansal in such a simple and easy-to-follow language such that even an average student can understand easily by self-study. This book consists of topics such as Simple stresses and strains, Principal stresses and strains, Strain energy, Centre of Gravity, Shear Force, Bending moment, Deflection of Beams, Retaining wall and Dams, Torsion , Thin cylinders and Thick cylinders, Columns and Struts, Riveted and welded joints and many more. Apart from these, huge number of objective type questions which ha