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Titolo	Design of Structural Elements with Tropical Hardwoods / / by Abel O. Olorunnisola
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ISBN	3-319-65343-1
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XV, 284 p. 137 illus., 77 illus. in color.)
Disciplina	620.11
Soggetti	Building materials Forest products Ceramics Glass Composite materials Materials science Computer-aided engineering Structural Materials Wood Science & Technology Ceramics, Glass, Composites, Natural Materials Characterization and Evaluation of Materials Computer-Aided Engineering (CAD, CAE) and Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Anatomy and Physical Properties of Tropical Woods -- Mechanical Properties of Wood -- Timber Seasoning and Preservation -- Uses of Wood and Wood Products in Construction -- A Review of Basic Theory of Structures -- Structural Load Computations -- Design of Wooden Beams -- Design of Solid Wooden Columns -- Design of Built-Up Columns -- Design of Wood Connections -- Design of Wooden Trusses -- Wooden Bridges.
Sommario/riassunto	This book provides basic information on the design of structures with tropical woods. It is intended primarily for teaching university- and college-level courses in structural design. It is also suitable as a

reference material for practitioners. Although parts of the background material relate specifically to West and East Africa, the design principles apply to the whole of tropical Africa, Latin America and South Asia. The book is laced with ample illustrations including photographs of real life wood structures and structural elements across Africa that make for interesting reading. It has numerous manual and Excel spread sheet worked examples and review questions that can properly guide a first-time designer of wooden structural elements. A number of design problems are also solved using the FORTRAN programming language. Topics covered in the thirteen chapters of the book include a brief introduction to the book, the anatomy and physical properties of tropical woods; a brief review of the mechanical properties of wood, timber seasoning and preservation, uses of wood and wood products in construction; basic theory of structures, and structural load computations; design of wooden beams, solid and built-up wooden columns, wood connections and wooden trusses; as well as a brief introduction to the design of wooden bridges. Stands as the only text on structural design with tropical hardwoods for students and professionals based on sub-Saharan African species; Reinforces concepts with ample illustrations, including photographs of real-world wood structures and structural elements across Africa; Maximizes readers' understanding with numerous manual and Excel examples and review questions that guide first-time designers of wooden structural elements; Class-tested for over a decade by the author in teaching wood structural design at undergraduate and graduate levels; Written in a rigo rous yet lucid style appropriate for technical and non-technical readers.