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Titolo	Structural Materials : Properties and Selection / / by José Antonio Pero-Sanz Elorz, Daniel Fernández González, Luis Felipe Verdeja
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ISBN	3-030-26161-1
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XII, 372 p. 181 illus., 32 illus. in color.)
Disciplina	691 620.11
Soggetti	Structural materials Engineering—Materials Materials science Structural Materials Materials Engineering Characterization and Evaluation of Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Conversion of units -- Introduction to the structural materials: naturals, metals, ceramics, polymers and composites -- Structural materials: Metals -- Structural materials: Ceramics -- Organic polymers -- Composites -- The selection of structural materials. Combined mechanical properties, charts for the selection of materials -- Materials for beams -- Materials for columns and struts (compression-tension) -- Materials for pressure vessels -- The cost, factor for the selection of materials -- Materials resistant to fatigue: Quenched and tempered steels -- Considerations about the temperature in service and the behaviour of materials.
Sommario/riassunto	The book covers the most important materials (naturals, metals, ceramics, polymers and composites) to be used mainly as structural engineering materials. Their main applications based on the properties are described in the first chapters of the book: mechanical, physical and chemical. The second part of the book is dedicated to the conceptual design by properties for a certain structural application:

stiffness, mechanical strength, toughness, fatigue resistance, creep, etc., taking into account the weight and the cost. One of the chapters of the second part of the book is focused on the heat treatments of steels in order to improve their resistance to fatigue. The book concludes with a critical comparison between materials considering their production, properties and cost, and the forecast about the utilization of the different fields of materials in structural applications.