

<<土木工程材料>>

图书基本信息

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前言

This text was written originally by Mr. Shan Somayaji of California Polytechnic State University in San Luis Obispo and published by Prentice Hall, USA. Higher Education Press of China would offer Chinese students some texts written in English to spread their knowledge. This book is recommended because it is a very practical text for the students in the junior year. The text is rewritten based on the standards and practice in China. Although a great deal of care is taken to see that the details are current, noncontroversial, and free of error, it is natural to expect errors and omissions due to the vastness in scope and breadth of this material. The author would be very grateful if these are brought to his notice at the following address: School of Civil Engineering Tsinghua University Beijing 100084. The author also wishes to acknowledge the valuable contributions of Prof. Wang Lijiu of Dalian University of Technology, whose insightful comments in reviewing this manuscript are greatly appreciated.

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### 内容概要

《土木工程材料(第2版)(改编版)》为高等教育出版社“世界优秀教材中国版”系列教材之一。为了更好地优化、整合世界优秀教育资源,并通过本土化使其最大程度地发挥作用,丰富我国的教育资源,促进我国的教学改革,提高我国高等教育的教学质量,高等教育出版社决定出版“世界优秀教材中国版”系列教材。

“世界优秀教材中国版”系列教材具有以下特征:

- 1.从全球各知名教育出版社精选最好的内容资源进行本土化改造,形成新的系列教材;
- 2.由国内一流学者根据我国高等学校的专业设置、课程体系及教学要求,对所选资源进行英文改编或中文改编,使之更具教学适用性;
- 3.围绕纸质版主教材,形成包括多媒体及网络资源与服务的整体教学资源集成方案,力争为广大师生提供最优的教学资源与信息服务。

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## 章节摘录

插图：The most significant requirement of a material used in civil engineering projects ( such as roads, buildings, dams, foundations, bridges, and power plants ) is that it be able to carry the design loads. In other words, the material should have adequate strength. Concrete used as a foundation slab should be able to carry the load from the superstructure and pass it on to the ground below safely and without causing settlement; a wood beam supporting a timber floor should be strong enough to transfer the floor loads to the supporting walls; the masonry of a gravity dam should possess satisfactory compressive strength; and so on. As explained, however, strength is a generic term that means different things in different applications. Lumber used as a floor joist or signpost must command high bending strength, but when used as a pile must have significant compressive strength. However, no matter how the loads are applied, all materials of construction are required to carry them safely. In addition to strength, materials are required to satisfy serviceability requirements, such as deformation limits, durability aspects, constraints on performance, and adaptability. Typically, serviceability implies satisfactory performance at all times. Recorded data on past performance, laboratory test results, and established practices will help to assess the serviceability aspects of a material. In general, a material should be able to satisfy nearly all functional aspects pertaining to a specific job. For example, a material whose surface is slick and slippery when moist is a poor choice for paving roads; a mortar that loses its binding property and crumbles with time is not a good choice for the construction of masonry walls; lumber that deteriorates from moisture or is susceptible to termite attack cannot be used in an exposed setting. When using varieties of materials in the same project the effects of the combination of two or materials on the durability of the structure cannot be ignored, especially in assessing the long-term performance.

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