Hydrogen: Science, Engineering, and Energy Systems

The limitations of fossil fuel supply and the need for decarbonization of energy systems presage the dawn of the hydrogen economy. However, realizing this vision will require developing and implementing solutions to engineering and technology challenges in hydrogen production, storage, utilization and distribution. "Hydrogen: Science, Engineering, and Energy Systems" presents a comprehensive overview of these issues. Hydrogen production alternatives are examined and the competing options analyzed on the basis of fundamental scientific principles. Similar discussions are included on other aspects of the hydrogen economy, not only answering questions of "how" and "what", but also explaining the observed phenomena by seeking answers to questions of "why" through an understanding of the basic properties of hydrogen.

Energy-Efficient Timber-Glass Houses

The book discusses combining timber and glass, two eco materials, with a view to developing an optimal contemporary energy-efficient house with an attractive design. Furthermore, the book connects an architectural design approach with structural research to show the possibilities of stabilizing the building with an increased size of the glazing. Research results where the glazing is considered as a load-bearing structural element are therefore presented in a manner leading to the development of an optimal model of the timber-glass house, considering both the structural and energy related aspects. The presented research work can be useful to designers and future experts in their planning of optimal energy-efficient timber buildings. The study is based on using timber and glass, which were previously neglected as construction materials. With suitable technological development and appropriate use, they are nowadays becoming essential construction materials as far as energy efficiency is concerned.


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