

Book Review

Fundamentals of High Strength High Performance Concrete. Edward G. Nawy, Longman Group Ltd 1996 — Concrete Design and Construction Series, 1996. 340 pp. ISBN 0-582-22699-6.

This is an authoritative book on the subject of high performance (strength and durability) concrete and deals with the material which has evolved during this century from typical compressive strengths as low as 20 MPa to values greater than 140 MPa. The book provides a comprehensive state-of-the-art knowledge and it is a valuable reference for researches of this technology and for professional engineers engaged in the design and construction of structures based on the new technology. The book provides a sound combination of basic principles, material technology and its interaction with the design of structural elements which is the key to efficient application of the technology. The importance of the material from economic considerations is also established. The book is also a suitable text for teaching a post-graduate module on the subject. In this respect, a lack of exercises and limited worked examples is a limitation of the book.

The book has twelve chapters. Chapter 1 covers the General Performance Characteristics of High Strength Concrete. Chapter 2 deals with the key property of Permeability which governs the performance of high strength concrete. It also introduces design procedures for durability of high strength concrete. Chapters 3

and 4 are concerned with the constituents and mix design of high strength, high performance concrete. Chapter 5 deals with high strength lightweight concrete. Chapters 6 and 7 provide an in-depth cover of a comprehensive range of properties of high strength concrete. Procedures for analysis and design of the material are also given. Chapter 8 introduces the fundamental aspects of high strength concrete and explains the mechanics of the material on the basis of classical failure theories. Chapter 9 provides a brief introduction to fibre reinforced concrete as a special example of high performance concretes. Chapter 10 puts in perspective the importance of high performance concrete in modern construction on the basis of economic considerations. Chapter 11 is a compact overview dealing with the latest revisions in the ACI 318-95 building code, which are relevant to the design of high strength concrete structural elements. Chapter 12 develops the vision for the future growth and use of this technology.

The book has some printing errors which will need correction in the next edition. It is based primarily on American design code requirements and, therefore, is particularly relevant to the North American market. Each chapter has a comprehensive range of references which complement the book in providing an in-depth study of the subject.

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