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Book review

BRIDGE REHABILITATION
W. Radomski, World Scientific Publishing, 2002, ISBN 1 86094 122 2, 792 pp.

This book is aimed at an international audience and gives a general introduction to bridge rehabilitation, a topic that is now important in most countries because of the deterioration of these structures in recent decades. It is a useful text for those with little experience of the subject, for example post graduate students.

Early chapters concentrate on terminology and the nature of the problem; factors leading to bridge deterioration are described and numerous examples are given of types of damage, including sketches of the appearance of the damage. The mechanisms of deterioration are also explained. The classification given for factors leading to bridge deterioration draws on international reviews, in particular those of relevant RILEM (Réunion Internationale des Laboratoires et Experts des Matériaux, Systèmes de Construction et Ouvrages) technical activities.

A general overview is given on assessment and evaluation techniques and is a good introduction to those relatively new to the subject. Practitioners will require more detailed information than this but the references at the end of each chapter provide some help in this respect. Detailed information about local standards and regulations are beyond the scope of this book.

Later chapters deal with the design of the rehabilitation process; rehabilitation of substructures, superstructures, bridge decks and bearings. The book covers concrete and steel structures but not masonry or wooden bridges. Great attention is paid to concrete highway bridges and composite bridges where rehabilitation problems are most extensive. Problems specifically related to railway bridges are only touched on in the book.

Bridge rehabilitation covers many complex engineering issues as well as economic aspects. A host of solutions have been developed to improve bridge durability. It was not possible to cover all of these in this book and the author has covered those he considers most important. There are also only brief references to bridge aesthetics which is an important consideration for many older, historical bridges. Many solutions related to improvements in functional requirements of bridges are swept up in a final chapter on 'modernisation'. This includes widening and enlargement of the clearance under bridges. This chapter also includes methods of improving durability such as cathodic protection and surface protection of structural members.

Bridge management systems have an important role to play in rehabilitation. The author leans heavily on experience in Poland and the USA. The details of such systems differ from country to country because of different economic conditions, different test methods and information systems. But the text covers the overall objectives of bridge management systems, the basic elements and functions, including economic analyses, which are similar in every country. Again, practitioners will need to seek additional information relevant to their country or bridge owner.

The book is the result of the author's study in Poland and it therefore leans heavily on Polish experience; many of the publications cited in the text are Polish. However the general character of the book, with emphasis on basic principles, makes it a useful text for civil engineering students.

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