
BOOK REVIEWS

Nordic Concrete Research

Reviewed by Gunnar M. Idorn, Consult ApS, Tovesvej, Naerum, Denmark.

REFERENCE: *Nordic Concrete Research*, The Nordic Concrete Federation, Publication No. 2, Oslo, Norway, 1983, 263 pp.

This book contains 15 papers about current cement and concrete technology and structural research in the five Nordic countries, selected among 236 reported projects from a Nordic Concrete Federation "Research in Progress 1981-84" compilation. Titles, origin, and keywords (some of which are almost key-sentences to the horror of librarians) of the projects are given as the last chapter. Anyone with an interest in knowing what is being studied in the Nordic research regime can use the list of project titles as initial guide.

Of the 15 papers there are 3 on structural research, 4 on general technology issues, 1 on a combined structural/technology study of 74-year-old concrete visintini beams, 5 on unusual technology problems, 1 about site problems with fixings and 1 presenting energy consumption calculations for concrete producers, more a cost/effectiveness exercise than research.

The unusual topics comprise sisal-reinforcement of concrete in Africa, impact damage by falling objects on offshore platforms, properties of cryogenic concrete, application of vacuum carbonation on lightweight concrete, and surface sealing against frost-salt damages.

The structural research comprises a constitutive model for concrete structures, a fatigue study of large concrete tubes (offshore use), and the feasibility of high-strength concrete.

General technology studies comprise corrosion of concrete with silica fume (effects of cracks), response of steel to high temperatures, frost resistance and strength at low temperatures (Finnish winters), and hydration of blended cements.

The papers indicate close contact between the research and its various sponsors, and represent mostly short-term trouble shooting efforts, except for a few which are primarily education oriented.

One wonders why some of the papers have not preferably been offered to wider circulating periodicals for publication, and whether such an eclectic book will prove worthwhile to have prepared and offered for international sale.

One also traces a market for training courses in professional research planning and technique, and in communication, among other things, to improve the linguistic level of the presentations.

It is a flaw that no paper has been selected about the very active and profitable research and development regarding curing technology that is going on in several of the Nordic countries. If a Publication No. 3 is envisaged for 1984, its value could be increased by presentations of estimated or calculated returns on the investments in the more prominent research projects.

Concrete Problems: Causes and Cures

Reviewed by Dennis T. Smith, vice-president, general manager, Rocky Mountain Ash Co.

REFERENCE: Ropke, J. C., *Concrete Problems: Causes and Cures*, McGraw-Hill Book Co., New York, 1982, 187 pp.

According to the author, the purpose of this book is to provide "help in understanding the theory of concrete, its limitations, the factors that may cause problems and how to avoid them, and how to correct concrete problems should they occur."

The subject matter is rather wide ranging in scope, starting with a discussion of the ingredients for making concrete and specifications governing their production and acceptability. This includes air entrainment and other admixtures and their effect on freshly mixed (plastic concrete is the term used by the author) and hardened concrete.

The principles of concrete mixture design are dealt with, and examples of such design are given.

Care in the production of concrete from the component materials is advised, and some problems, such as high or low air content, delayed set, and slump control, are highlighted with suggested solutions.

Suggested solutions to problems with hardened concrete, such as cracking, buckling, and crazing, are presented.

In addition to the technology of concrete that the book deals with, there is included inspection and quality control considerations, operation of a concrete plant, and principles of conduct for the concrete producer. The last chapter consists of a "Glossary of Concrete Terms."

The reader should be aware of a number of lapses in accuracy of expression, particularly in the last chapter. The importance of maintaining control of the water-cement ratio is slighted in some cases where variations in material proportions are involved. Generalities are sometimes drawn without attention being called to possible significant exceptions. Statements at variance with ASTM standards show up occasionally.

However, the book should be helpful in many ways. It calls attention to and defines problems, many that are all too common and others only occasionally encountered in the production and placing of concrete and the maintenance and repair of hardened concrete in structures. Keeping in mind the caveat expressed above, it could be a useful guide for the man on the job and the man at the plant.