Esa Eranti • George C. Lee

COLD REGION STRUCTURAL ENGINEERING

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E. ERANTI

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MCGRAW-HILL BOOK COMPANY

New York St. Louis San Francisco Auckland Bogotá
Hamburg Johannesburg London Madrid Mexico
Montreal New Delhi Panama Paris São Paulo
Singapore Sydney Tokyo Toronto

Library of Congress Cataloging-in-Publication Data

Eranti, Esa M.
Cold region structural engineering.

Bibliography: p.
Includes index.
1. Structural engineering — Cold weather conditions.
I. Lee, George C. II. Title.
TA636.E73 1986 624.1'0911 85-16797
ISBN 0-07-037034-6

1234567890 DOC/DOC 8932109876

ISBN 0-07-037034-6

The editors for this book were Joan Zseleczky and Ingeborg M. Stochmal, the designer was Naomi Auerbach, and the production supervisor was Sally Fliess. It was set in Caledonia by Progressive Typographers.

Printed and bound by R. R. Donnelley & Sons, Inc.

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PREFACE

Because of the many research interests among its faculty, the Center for Cold Regions Engineering, Science, and Technology (CREST) was formally established at the State University of New York at Buffalo in 1979. The areas of expertise of the participants at the Center cover a wide range of fields in engineering and in the natural sciences. Shortly after the formation of CREST, the first author joined the engineering school as a research associate, working with the second author on a cold region structural engineering research project. During 1979 we held extensive discussions and concluded that there is a lack of published material summarizing available information on structural design and construction in cold regions. This led to our collaborative effort to collect and review available information and to the publication of two summary reports, "Introduction to Ice Problems in Civil Engineering" and "Introduction to Cold Regions Structural Design and Construction," which formed the basis of this book.

The field of cold region engineering covers a wide range of topical areas; however, it is not possible to summarize all the information in a single volume. Therefore, we do not claim that this book is, in any way, all inclusive. We have concentrated our efforts on some of the cold region engineering areas that have relatively practical significance. Special attention has been given to alternative engineering solutions and practical approaches, including simple design formulas, graphs, and tables. The theoretical backgrounds of selected problem areas are also briefly discussed as introductions to the subjects.

Because cold region engineering is multidisciplinary and international in nature, we have attempted to include most of the relevant information from North America, Scandinavia, and, to the extent possible, the Soviet Union, in order to provide the reader with a relatively uniform view of

some of the most feasible approaches and solutions to cold region engineering problems.

Although much emphasis has been given to practical engineering approaches, this book can also be used as a reference book in cold region engineering courses. The list of references contained in this book is fairly extensive, and it should be useful for those interested in furthering their understanding of the current state of the art.

In our effort to collect and digest the available information, we received invaluable assistance from the U.S. Army Cold Regions Research and Engineering Laboratory and the Technical Research Centre of Finland. It would not have been possible for us to complete the manuscript without the technical information provided to us by these two organizations. Further, we would like to acknowledge the support of the State University of New York at Buffalo and of Erkki Juva Consulting Engineers and Finn-Stroi Ltd. of Finland. We would also like to express our appreciation to a number of individuals who assisted us in various capacities during the preparation of the manuscript, including Jenn-Shin Hwang, Helen Liu, Liisa Viitanen, Leena-Marjut Rautio, and Pat Doeing.

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Cold region structural engineering Hardcover â€“ January 1, 1986. by. E Eranti (Author).Â Best-sellers rank #5,239,946 in Books (See Top 100 in Books) #1,842 in Structural Engineering #454,666 in Reference (Books). Tell the Publisher! I'd like to read this book on Kindle. The Cold Regions Research and Engineering Laboratory (CRREL) is a United States Army Corps of Engineers, Engineer Research and Development Center research facility headquartered in Hanover, New Hampshire, that provides scientific and engineering support to the U.S. government and its military with a core emphasis on cold environments. CRREL also provides technical support to non-government customers. Cold region Structural Engineering. January 1986. Edition: II.Â Because of the many research interests among its faculty, The Center for Cold Regions Engineering, Science, and Technology (CREST) was formally established at the State University of New York at Buffalo in 1979. the areas of expertise of the participants at the Center cover a wide range of fields in engineering and in the natural sciences. Shortly after the formation of CREST, the first author joined the engineering school as a research associate, working with the second author on a cold region structural engineering research project. During 1979 we held extensive discussions and concluded tha Structural Design forCold Region Engineering Lecture 14 Thory of Plates Shunji Kanie. Theory of PlatesKirchhoff Plate Kirchhoff Plate Pure Bending Such as Bernoulli Euler Assumptions Isotropic and homogeneous The thickness of the plate is thin (Comparatively to the length and width) Linear filaments of the plate (Even after the deformation) Kirchhoff hypothesis. Technological advances for cold regions in research, development, and engineering practice are relevant to the journal. Theoretical papers must include a detailed discussion of the potential application of the theory to address cold regions problems. The journal serves a wide range of specialists, providing a medium for interdisciplinary communication and a convenient source of reference. Benefits to authors We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more.