



# Geotechnical Engineering of Dams, 2nd Edition

By Robin Fell, Patrick MacGregor, David Stapledon, Graeme Bell, Mark Foster

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**Geotechnical Engineering of Dams, 2nd Edition** By Robin Fell, Patrick MacGregor, David Stapledon, Graeme Bell, Mark Foster

*Geotechnical Engineering of Dams, 2nd edition* provides a comprehensive text on the geotechnical and geological aspects of the investigations for and the design and construction of new dams and the review and assessment of existing dams. The main emphasis of this work is on embankment dams, but much of the text, particularly those parts related to geology, can be used for concrete gravity and arch dams.

All phases of investigation, design and construction are covered. Detailed descriptions are given from the initial site assessment and site investigation program through to the preliminary and detailed design phases and, ultimately, the construction phase. The assessment of existing dams, including the analysis of risks posed by those dams, is also discussed. This wholly revised and significantly expanded 2nd edition includes a lengthy new appendix on the assessment of the likelihood of failure of dams by internal erosion and piping.

This valuable source on dam engineering incorporates the 200+ years of collective experience of the authors in the subject area. Design methods are presented in combination with their theoretical basis, to enable the reader to develop a proper understanding of the possibilities and limitations of a method. For its practical, well-founded approach, this work can serve as a useful guide for professional dam engineers and engineering geologists and as a textbook for university students.

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## **Editorial Review**

### **Review**

Eleven years after the publication of the first edition of the excellent book Geotechnical Engineering of Dams, the geotechnical and dam engineering community can enjoy reading and analyzing the second edition, completely revised, updated, enlarged and enriched. [...] All chapters are almost equally important and interesting for any dam and geotechnical engineer, but I especially like chapters 8 and 9, dealing with internal erosion, piping and filters at embankment dams and in foundation. Apparently, a great experience and original research knowledge of part of the authors of the book is embedded in these thoroughly executed chapters. I cannot also avoid mentioning chapter 12 – Design of embankment dams to withstand earthquakes – in which an up-to-date review and analysis of this sensitive aspect of embankment dam design is given, still under intensive development.

Dam builders have always been aware of the fact that dams are firmly bonded to the foundation. But, with this extraordinary book, the bond seems even stronger! I am sure this book will be an unavoidable professional reference and guide in the libraries of all dam and geotechnical engineers. Also, I strongly recommend the book to advanced university students as a textbook, as well as a source of ideas for further research works.

*Ljubomir Tanchev, Professor on dams and hydraulic structures, University of Skopje, Macedonia*

This book fills a lacuna in the available comprehensive literature on Geotechnical Engineering of Dams. [...] It covers dimensions not seen in normally available and commonly prescribed textbooks. An intuitive sense of amalgamating both theory and practice is the distinguished and remarkable feature of the book. [...] A very important and useful aspect of the book is that it covers common errors in the five major aspects of safe dams and provides insight in these aspects by dealing with practical problems and case studies. The book very well covers all important geotechnical aspects of dam engineering for civil engineering students at undergraduate as well as at post graduate level and for practitioners. [...] Academicians & practicing engineers will be able to sharpen their knowledge with the help of input provided by the book. The book is useful to civil engineers [...] working in the area of geotechnical dam engineering and ground improvement.

*Prof. Gautam N. Gandhi, President, Indian Geotechnical Society, New Delhi, Formerly Principal, IDS, Nirma University, India*

The book is an excellent contribution in the area of dam engineering. Dam Engineering has become an important area in providing efficient infrastructure for water supply, power generation as well as resources generation and conservation. The revision of the previous edition is timely and up to date. [...] In summary, the treatise is comprehensive, up-to-date and needs to be studied by scientists and engineers, organizations, professional bodies, policy makers and builders connected with dam engineering.

*Prof. G.L. Sivakumar Babu, Chairman, International Technical Committee on Forensic Geotechnical Engineering ISSMGE / Governor, Region 10, American Society of Civil Engineers, USA / Editor-in Chief, Indian Geotechnical Journal, Department of Civil Engineering, Indian Institute of Science, Bangalore, India*

### **About the Author**

*Robin Fell* is Emeritus Professor of Civil Engineering at the University of New South Wales, Australia, and also works as a consultant. He has more than 40 years of experience in geotechnical engineering of dams, landslides and civil and mining projects in Australia and Asia. He has worked on over 100 dams worldwide and has been involved in all aspects of planning, site investigation, design and construction of embankment dams.

*Patrick MacGregor* is a Consulting Engineering Geologist with more than 40 years experience in the assessment of geological constraints for major civil engineering projects in a number of countries. He has been involved in dam investigation, design and construction, and particularly worked on hydroelectric developments at all stages from inception to operation.

*David Stapledon* spent many years investigating large dam construction sites in various countries. He was a Professor of Engineering Geology at the University of South Australia (1964 -1993) and worked as a Consultant in Engineering Geology, contributing to major dam projects in Australia, New Zealand and South East Asia. He has more than 50 years of experience and was awarded the John Jaeger Memorial Medal for Contributions to Geomechanics in 1995.

*Graeme Bell* has been a Consulting Dam Engineer since 1962. His role has varied from providing the full technical input, design management and construction advice for new dams to the preparation of complex structural analyses of existing dams. From 1979, he has acted as an independent reviewer on many dam projects, mainly in Australia, but also in several overseas locations.

*Mark Foster* has 20 years of experience in dam engineering and geotechnical engineering. This has involved a wide variety of projects including dam safety reviews, design of dam upgrade projects and dam safety risk assessments for embankment and concrete dams. He has a particular interest in the assessment of piping and internal erosion of embankment dams which was the topic of his doctoral research studies at the University of New South Wales.

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Have you spare time for a day? What do you do when you have much more or little spare time? Yep, you can choose the suitable activity to get spend your time. Any person spent their own spare time to take a go walking, shopping, or went to the Mall. How about open or perhaps read a book called Geotechnical Engineering of Dams, 2nd Edition? Maybe it is to be best activity for you. You realize beside you can spend your time together with your favorite's book, you can cleverer than before. Do you agree with it has the opinion or you have different opinion?

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