Engineering Technical Letter

Analysis, Modeling & Design is the third volume of the five-volume set Rock Mechanics and Engineering and contains twenty-eight chapters from key experts in the following fields: - Numerical Modeling Methods; - Back Analysis; - Risk Analysis; - Design and Stability Analysis: Overviews; - Design and Stability Analysis: Coupling Process Analysis; - Design and Stability Analysis: Blast Analysis and Design; - Rock Slope Stability Analysis and Design; - Analysis and Design of Tunnels, Caverns and Stopes. The five-volume set “Comprehensive Rock Engineering”, which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wideranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts worldwide. Key features of this set are that it provides a systematic, global summary of new

developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are worldrenowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.

Reliability-based design is the only engineering methodology currently available which can ensure self-consistency in both physical and probabilistic terms. It is also uniquely compatible with the theoretical basis underlying other disciplines such as structural design. It is especially relevant as geotechnical design becomes subject to increasing codification and to code harmonization across national boundaries and material types. Already some codes of practice describe the principles and requirements for safety, serviceability, and durability of structures in reliability terms. This book presents

practical computational methods in concrete steps that can be followed by practitioners and students. It also provides geotechnical examples illustrating reliability analysis and design. It aims to encourage geotechnical engineers to apply reliability-based design in a realistic context that recognises the complex variabilities in geomaterials and model uncertainties arising from a profession steeped in empiricism. By focusing on learning through computations and examples, this book serves as a valuable reference for engineers and a resource for students.

This letter provides instructions for assigning a seismic risk code for existing Air Force buildings. The method for determining the priority for performing an evaluation for seismic risk of existing buildings on an installation is defined. The risk code will be used for identifying on an inventory existing buildings which require seismic hazard mitigation, and it identifies a mechanism for vertical reporting of the inventory to agencies outside the Air Force.

This Engineer Technical Letter (ETL) provides guidance in the identification, inspection, and evaluation of fracture critical members of in-service bridges owned and operated by the U.S. Army Corps of Engineers (USACE) on Civil Works projects. This ETL is not intended to provide guidance on analysis and design of bridges.

Many negative environmental impacts can be

avoided by designing flood channels that are in harmony with other fluvial components, minimizing disruptions to existing fluvial and biological systems, and incorporating environmental features into flood channel design. Environmental features are defined as any structures or actions employed in the planning, design, construction, or maintenance of flood control channels that produce environmental benefits. Environmental features may include modifications of standard techniques, such as selective clearing and snagging or single bank construction; modified channel designs, such as low flow channels, pools and riffles, and meandering alignments; structures for erosion and sediment control, water level management, and instream habitat; inclusion of recreational features in project design; and special designs and treatments for aesthetic purposes. Procedures are presented for the design of environmental features. These procedures are based largely on prior experience with the use of environmental features on modified channels and on fluvial processes and natural stream geometry. Tables are provided to help select the best environmental features based on environmental objectives and stream and watershed conditions.

Includes preprints of: Transactions of the American Institute of Electrical Engineers, ISSN 0096-3860.

This publication deals with modeling of infrastructure risk. The

objective, exploring different methodologies and related applications, recognized four major topics: Complex Models; Simulation Models; Distributional Models; and Deterministic Models. Focus is on the following issues: the state-of-the-art and practice, gaps between the arts and practices, ways to bridge the gaps, and future research directions. In the first chapter, papers can be found on Computational Nonlinear Models of Risk Assessment, Risk-Based Evaluation of Safety and Security Programs in Critical Infrastructure and Risk Assessment of Modes of Terrorist Attack. One of the papers in the chapter on Simulation Models is on Computational Models for the Simulation of Evacuations following Infrastructure Failures and Terrorist Incidents. Bayesian Belief Nets for Discrete and Continuous Variables and Development of Risk Based Software for Analysis of Power Engineering Accidents are two titles of papers in the third chapter of the book on Distributional Models. Finally, the fourth chapter on Deterministic Models focuses on Environmental Risk Ranking and more.

Engineering Technical Letter (ETL) 94-5: Fire Protection Engineering Criteria and Technical Guidance - Emergency Lighting and Marking of Exits

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

About 7,000 people lose their lives and nearly 100 million people are adversely affected by floods each year worldwide. Flooding occurs in almost every part of the world and is the result of extreme rainfall. Severe flooding also costs billions of dollars each year in damage and economic losses. This new volume focuses on two detailed studies that employ physically based

hydrologic models to predict flooding in the particularly challenging environment of small watersheds with mountainous terrain and high intensity/high variability rainfall.

This engineering technical letter(ETL) provides criteria for emergency lighting and the marking methods for means of egress.

Presents professional information designed to keep Army engineers informed of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development. Articles cover engineer training, doctrine, operations, strategy, equipment, history, and other areas of interest to the engineering community.

This ETL provides a guide specification (attachment 2) to use when specifying HVAC systems in facility construction projects. The purpose of commissioning is to bring the project's HVAC system to a state of dynamic operation.

This ETL provides guidance to help the Base Civil Engineer (BCE) and other users to obtain assistance in complying with the National Primary Drinking Water Regulations: Lead and Copper Rule (LCR). The SOW has been prepared to help in the preparation of local contracts, however, both AFCESA and Armstrong Laboratory have consulting firms available that are capable of performing LCR work for Air Force installations with installation funding. These instructions are to be used in developing a site-specific SOW, from the generic SOW, by any USAF installation.