CONTENTS

Papers	Page
KEYNOTE ADDRESSES	
SCENARIO FOR A THIRD COMPUTER REVOLUTION IN STRUCTURAL ENGINEERING by Steven J. Fenves	3
INTEGRATED SYSTEM FOR RC BUILDING DESIGN by John M. Biggs, Peter J. Pahl, and Harry N. Wenke	13
AUTOMATED DESIGN OF FRAME STRUCTURES by Dag Kavlie and Johannes Moe	33
MULTIDISCIPLINARY DESIGN	
COMPUTER'S ROLE IN TRANSMISSION LINE DESIGN by Charles F. Beck	63
SYSTEMS ANALYSIS METHOD FOR PAVEMENT STRUCTURES by W. Ronald Hudson, B. Frank McCullough, Frank H. Scrivner, and Gary Carey	81
PROCEDURE FOR AUTOMATING AIRCRAFT WING STRUCTURAL DESIGN	
by Gary L. Giles	99
PARALLEL PROCESSING APPROACH TO BRIDGE PLANNING by Andrew K. C. Wong and Tung Au	115
(over)	

This Journal is published monthly by the American Society of Civil Engineers. Publications office is at 345 East 47th Street, New York, N.Y. 10017. Address all ASCE correspondence to the Editorial and General Offices at 345 East 47th Street, New York, N.Y. 10017. Allow six weeks for change of address to become effective. Subscription price is \$20.00 per year with discounts to members and libraries. Second-class postage paid at New York, N.Y. and at additional mailing offices. ST.

	Page
STRUCTURAL OPTIMIZATION	
DISCRETE STRUCTURAL OPTIMIZATION by Kenneth F. Reinschmidt	133
OPTIMUM DESIGN OF TRUSSES FOR ULTIMATE LOADS by William S. LaPay and George G. Goble	157
AUTOMATED OPTIMUM DESIGN FROM DISCRETE COMPONENTS by Aldo Cella and Robert D. Logcher	175
AUTOMATIC DESIGN OF SHELL STRUCTURES by Peter G. Smith and Edward L. Wilson	191
MINIMUM WEIGHT DESIGN OF LIGHT GAGE STEEL MEMBERS by Paul A. Seaburg and Charles G. Salmon	203
INTERACTIVE DESIGN	
MAN-ORIENTED PROGRAM SYSTEM FOR ENGINEERING DESIGN	
by George Rabe and Vincent A. Trossello	223
TOWER: DESIGN SYSTEM FOR GUYED TOWERS by Karl L. Reichelt, Dan M. Brown, and John W. Melin	237
INTERACTIVE GRAPHICS: SETTLEMENT AND SLOPE STABILITY by Robert L. Schiffman and Jack R. Stein	253
TECHNIQUE FOR INTERACTIVE COMPUTER GRAPHICS IN DESIGN	
by Richard Douty and Sidney Shore	273
PROBLEMS IN PROFESSIONAL PRACTICE	
EXPERIENCES WITH INTERACTIVE COMPUTING SYSTEM by LeRoy T. Boyer and John C. Casson	289
EXPERIENCE WITH POL ENVIRONMENT by Edward L. Murphree, Jr. and John W. Melin	301
STRUCTURAL AND FOUNDATION COMPUTER-BASED DESIGN by Richard F. Harig and Daniel J. McDermott	315
COST-EFFECTIVE MATCHING OF TASK AND COMPUTING DEVICE	
by Ralph E. Miller, Jr. and John McCaslin	329
COMPUTER CHARGES AND ENGINEERING ORGANIZATIONS by Daniel Roos	339

	Page
STRUCTURAL ANALYSIS	
AUTOMATIC GENERATION OF FINITE ELEMENT MATRICES by Rene W. Luft, Jose M. Roesset, and Jerome J. Connor	349
ELEMENT STIFFNESS MATRIX GENERATOR by Richard M. Gunderson and Ayhan Cetiner	363
EFFICIENT REANALYSIS OF MODIFIED STRUCTURES by Dag Kavlie and Graham H. Powell	377
CONSTRUCTION SELF-WEIGHT STRESSES OF PRECAST SHEAR WALLS	
by Donald H. Orme, Reginald G. Smith, and William R. Tinch	393
FINITE ELEMENT ANALYSIS OF HYPERBOLIC PARABOLOID SHELLS	
by Semih S. Tezcan, Krishna M. Agrawal, and George Kostro	407
INFORMATION PROCESSING	
SPECS—A SPECIFICATION PRODUCTION COMPUTER SYSTEM by Joseph M. Sussman, Robert D. Logcher, and Howard	
C. Stotland	425
FORMULATION OF DECISION LOGIC TABLES by Jimmy L. Noland and Chuan C. Feng	439
COMPUTER-AIDED PROCESSING OF DESIGN SPECIFICATIONS by Surendra K. Goel and Steven J. Fenves	463
CONSTRAINT PROCESSING IN DESIGN by Richard N. Wright, LeRoy T. Boyer, and John W. Melin	481
	101