

Objekttyp: **TableOfContent**

Zeitschrift: **IABSE reports = Rapports AIPC = IVBH Berichte**

Band (Jahr): **79 (1998)**

PDF erstellt am: **09.08.2024**

Nutzungsbedingungen

Die ETH-Bibliothek ist Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Inhalten der Zeitschriften. Die Rechte liegen in der Regel bei den Herausgebern. Die auf der Plattform e-periodica veröffentlichten Dokumente stehen für nicht-kommerzielle Zwecke in Lehre und Forschung sowie für die private Nutzung frei zur Verfügung. Einzelne Dateien oder Ausdrucke aus diesem Angebot können zusammen mit diesen Nutzungsbedingungen und den korrekten Herkunftsbezeichnungen weitergegeben werden. Das Veröffentlichen von Bildern in Print- und Online-Publikationen ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Die systematische Speicherung von Teilen des elektronischen Angebots auf anderen Servern bedarf ebenfalls des schriftlichen Einverständnisses der Rechteinhaber.

Haftungsausschluss

Alle Angaben erfolgen ohne Gewähr für Vollständigkeit oder Richtigkeit. Es wird keine Haftung übernommen für Schäden durch die Verwendung von Informationen aus diesem Online-Angebot oder durch das Fehlen von Informationen. Dies gilt auch für Inhalte Dritter, die über dieses Angebot zugänglich sind.



Table of Contents

Preface	3
Table of Contents	4
List of Authors	14

Bridges

Plenary Session: Honshu-Shikoku Bridges	
Keynote Lectures	21
S. KASHIMA	
Technical Advances in the Honshu-Shikoku Bridges	23
J.M. MULLER	
Very Long Span Bridges: Concepts, Materials and Methods	35
Working Session: Honshu-Shikoku Bridges	49
T. HOJO, T. MIYATA, H. YAMADA, T. FUJIWARA	
Wind-resistant Design of Cables for the Tataru Bridge	51
M. TATSUMI, K. HATA	
Vibration Control of the Main Towers of the Akashi Kaikyo Bridge	57
S. KURINO, M. FUCHIDA, M. KITAGAWA, M. SHIMOMURA	
Design and Construction of the Akashi Kaikyo Bridge's Superstructure	63
S. KASHIMA, K. SAKAMOTO, Y. SANO, K. HIGUCHI	
Construction of Akashi Kaikyo Bridge Foundation	69
N. HIRAHARA, T. TAKAZAWA, Y. YANAKA	
Erection of the Tataru Bridge's Superstructure	75
M. OKAHARA, I. YOSHIDA, K. OKUDAIRA, A. OKUKAWA	
Future Trans-Strait Road Projects and Technological Issues	81
J. FUKUI, N. FURUYA, M. OKAHARA	
New Types of Undersea Foundations for Next Generation Projects	87
K. IRIYA, T. ITOHIYA, G. TOKUNAGA, C. SHINKAI, S. SOGO	
Prevention of Thermal Cracking in the Anchorage of the Akashi Kaikyo Bridge	93
K. KAWAGUCHI, Y. KANISAWA, H. FUJII	
Construction of the Kurushima Bridge	95
R. TORIUMI, T. MIYATA, H. SATO, H. AKIYAMA	
Full Model Wind Tunnel Test of the Akashi Kaikyo Bridge	97
N. FURUYA, T. SAITO, J. SAKIMOTO, M. ITO	
Results of Monitoring and Simulation Analyses for Deep Excavation	99

**Plenary Session: Long-Span Bridges**

Keynote Lectures	101
N.J. GIMSING Long Span Cable Supported Bridges: Present Technology and Trends	103
G. DIANA, F. CHELI, A. COLLINA, A. ZASSO, S. BRUNI Aerodynamic Design of Very Long-Span Suspension Bridges	115
Working Session: Innovative Design of Bridges	129
V. POPA, M.M. STANCIU A New Solution Proposal for a Long-Span Bridge	131
H. NAKAMURA, N. NARITA, K. MAEDA, K. NOMURA Applicability of Dischinger-Type to Ultra-Long Span Bridges	137
M. DE MIRANDA, M. PETREQUIN Beyond the Limits of Erection Activities	143
K. FURUICHI, M. OKIMOTO, Y. HISHIKI, T. TOMINAGA Long-Span Composite Cable-Stayed Bridge with New Hybrid Girder	149
T. MARUYAMA, Y. KAWAMURA, E. WATANABE, H. TANAKA A New Movable Floating Bridge Project in Osaka City	155
Y. FUJINO, K. WILDE, T. KAWAKAMI New Control Method for Flutter Suppression of Long-Span Bridges	161
H. IEMURA, A. IGARASHI, Z. AGUILAR, M. YASUDA Aseismic Design of the Akashi Kaikyo Bridge	167
S. UNJOH, K. YOKOYAMA, K. TAMURA, T. MORITANI Earthquake Protective Design for Super-Long-Span Bridges	173
G. DIANA, F. CHELI, S. BRUNI, A. COLLINA, G. TRAINI, F. NATONI Noise and Vibration Induced by Train: The Case of the Messina Bridge	179
M. LAGODA, G. LAGODA, T. WIERZBICKI New Conceptual Design for a Cable-Stayed Bridge in Poland	185
S. NAKAMURA, K. NISHIUMI Composite Suspension Bridge Tower with Concrete Filled Double Steel Walls	187
N. MASUI, I. YOSHIDA, K. RUSTAD Application of Gravity Base Structure Technology to Bridge Substructures	189
T. ARAVINTHAN, H. MUTSUYOSHI, Y. HISHIKI Ultimate Strength and Ductility of PC Beams with External Tendons	191
J. LARSEN, L.R. ELTVIK, A. VALEN Aerial Spinning for Intermediate Span Narrow Suspension Bridges	193
J. YAMAZAKI, K. IDO, H. KONO Prestressed Concrete Bridge with Tendons of Large Eccentricities	195



Working Session: Environmental Actions on Bridges	197
P. THOFT, H.I. HANSEN Wind Tunnel Experiments with Active Control of Bridge Section Model	199
J-P. FUZIER, J. STUBLER Wind Vibrations and Damping Systems for Stay Cables	205
K. MAEDA, M. IWAMOTO, Y. MORIZONO, M. NAGAI, Y. FUJINO Coupled Flutter Behavior of Ultra Long-Span Suspension Bridges	211
G.L. LAROSE, A. DAMSGAARD, R. JOHNSON Field Measurements of a 1210 m Span Suspension Bridge during Erection	217
G. GRILLAUD, D. DELAUNAY, J. JACOB, M. VIRLOGEUX Normandie Bridge: Wind Measurements and Validation of Previsional Studies	223
D.L. HOMMEL, L. HAUGE The Future Fehmarn Belt Link	229
S. TROIVE, H. SUNDQUIST Optimisation of Life-Cycle Costs of Concrete Structures	235
W. ZATAR, H. MUTSUYOSHI Earthquake Damage of Prestressed Concrete Viaduct Structures	241
A. MACHIDA, H. KHAIRY Vertical Component of Earthquake Motion and Inelastic Response of RC Piers	247
M. HAYASHIDA, H. HAYASHI, S. KAWAKITA Reconstruction of the Benten Viaduct after the 1995 Earthquake	253
M. MATSUMOTO, T. YABUTANI, K. ABE, K. GOTO Heaving Branch Coupled Flutter for Long Span Bridge	259
K. HOMMA, S. NAKAMURA Long Term Performance of Anti-Corrosion Method Using Titanium Clad Steel	265
A. GOTO, T. MORITANI, T. KURIHARA Effects of the Hyogo-Ken-Nanbu Earthquake on the Akashi Kaikyo Bridge	267
H. KIM, S. CHANG, M. LEE Configuration Analysis of a Self-Anchored Suspension Bridge	269
L. FAN, S. HU Seismic Behaviour of Long-Span Cable-Stayed Bridges	271
Working Session: Bridge Design Issues	273
T. CHAN, J. KO, C. LAU, K. WONG Vibration Measurement of Tsing Ma Bridge Deck Units during Erection	275
M. NAGAI, X. XIE, H. YAMAGUCHI, Y. FUJINO Static and Dynamic Instability Analyses of 1400-meter Long-Span Cable-Stayed Bridges	281
P. CLEMENTE On the Limit Span of Cable-Stayed Structures	287



J. TEIGEN, S. FJELDHEIM Assessment and Strengthening of Two Cantilever-Type Concrete Bridges	293
M. AFIFUDDIN, A. MACHIDA, T. SUGIYAMA, T. SATO Study on Stress Transfer Mechanism of Hybrid Rigid-Frame Bridge	299
M. ZIYAEIFAR, H. NOGUCHI Interaction of Moving Mass in Dynamic Analysis of Bridges	305
H. KOLSTEIN, N. ZHANG System Fatigue Assessment of Orthotropic Steel Bridge Decks	311
A. LARSEN, S. ESDAHL Computer-Aided Wind Engineering of Long-Span Bridges	317
D. BRUNO, A. LEONARDI Aerodynamic Instability of Long-Span Cable-Stayed Bridges	323
T. YOSHIMURA, Y. MIZUTA, W. KANG, H. JO, M. OKADO, A. MIYAKE Steel and Hybrid Stress-Ribbon Pedestrian Bridges	329
Y. ADACHI, S. UNJOH Damping Characteristics of Long-Span Suspension Bridges	335
H. AKIYAMA, S. SAEKI, K. FURUYA Corrosion Protection of the Main Cables of Suspension Bridges	341
J. CASAS, M. RAMIREZ-MARQUEZ Computer-Aided Bridge Design and Selection of Construction Methods Using Fuzzy Logic	347
F. CAFARELLA, W. SALVATORE A Proposal in Steel Arch Bridge Design: The Stayed Lonely Arch-Rib	353
T. LI A Large Arch Bridge Using Concrete Filled Steel Tubular	361
D. NATH Study of Cable-Stayed Bridges for Pipelines	367
M. ZIARA, S. JADA Repair and Strengthening of Slabs Using Bonded Concrete Overlays	373
J. TANG Hydraulic Lifting of Steel Box-Girders for Humen Bridge	375
H. ZOBEL, T. ALKHAFAJI, A. GOLUBINSKA Heat Straightening – an Unpopular Method of Repair of Steel Bridges	377
T. IRUBE, A. KAWATO Construction of a V-Shaped Rigid-Frame Bridge with High Piers	379
J. CASAS, J. SALAVERRIA Aramid Fibers Used for Bridge Repair and Strengthening	381
S. KIM, H. MHA, S. LEE Estimation of the Remaining Fatigue Life of a Railway Bridge	383



I. SUGIE Retrofit of Corroded Splice Plates Using Epoxy Glued Escort Plates	385
H. VARASTEHPUR Shear Stress Distribution in Concrete/FRP Interface	387
S. ZDRAVKOVIC, D. RISTIC Dynamic Response of a Full Scale Tested Bridge	389
K. TAN, C. NG Effect of Deviators in Long-Span Beams Strengthened by External Tendons	391
W. BROWN, S. CRAIG Importance of Higher Strength Steel Wire in Ultra Long Span Designs	393
Working Session: Case Studies of Bridges	395
H. SATO, K. OGIHARA, N. FURUYA, R. TORIUMI Study on Wind Resistant Design of Super Long-Span Bridges	397
Y. YAMASAKI, T. IKEDA Cable Supported Bridge under Movement of Foundation due to Earthquake	403
R. BERGERMANN, M. SCHLAICH The Ting Kau Bridge in Hong Kong	409
S. NAKAZAKI, Y. YAMAGUCHI Very Long Suspension Bridges Using the Temporary Mass Method	415
H. TANAKA, T. UEDA, Y. MATSUSHITA Aerodynamic Stabilisation for Super Long-Span Suspension Bridges	421
P. CROCE, W. SALVATORE Stochastic Modelling of Traffic Loads for Long-Span Bridges	427
L. PETTERSSON Höga Kusten Bridge: Main Cable Anchorages and Pylon Foundations	435
M. YAO, R. KARUNA, C. BROWN, R. EVANS In-Service Modelling of the Humber Bridge	441
M. ASCHRAFI Comparative Investigations of Suspension Bridges and Cable-Stayed Bridges	447
J. FRANDBSEN, A. MCROBIE Comparison of Numerical and Physical Models for Bridge Deck Aeroelasticity	453
Ö. LARSSON, K. FALBE-HANSEN, A.H. JANSSON The Oeresund Bridge	459
C. HANSVOLD, H. NILSSON Sunningsund Cable-Stayed Bridge	465
O. R. HANSEN, F. ROUVILLAIN, D. OLSEN Great Belt East Bridge: Aerial Spinning of the Main Cables	471



E. SKETTRUP Great Belt East Bridge 1624 m Suspension Bridge Substructure	477
K. UMEZU, M. FUJITA, J. YAMAZAKI Study of a New Structural Type for Prestressed Concrete Bridges	483
I. FIRTH Poole Harbour Bridge: Innovation in Cable Stayed Bridge Design	489
J. COMBAULT, P. MORAND The Exceptional Structure of the Rion Bridge in Greece	495
V. SELIVERSTOV, O. CHEMERINSKI, A. CHVYREV, V. AKATOV, J. NAYANOV Controlling Methods of Bridge Launching Process	501
M. CHEKANOVICH New Building Technology for Prestressed Concrete Structures	507
M. YONEDA, K. OHNO, Y. TAMAKI Best Cross Stay Location for Super Long Span Suspension Bridge	513
A.H. JANSSON, I.H. OLOFSSON The Öresund Link: Bridges for Rail and Road Traffic	515
Y. NAKAYAMA Super Long-Span Suspension Bridge with 3-Chord Truss and 3 Cables	517
K. OHNO, M. YONEDA, Y. TAMAKI, K. KIMURA, S. MIYACHI Aerodynamic Stability of Suspension Bridge with Open Grating Deck	519
S. ZHOU Jiangyin Yangtze Highway Bridge: Foundations' Construction	521
M. YASUDA, M. OKUDA, T. MATSUMOTO Ten Years' Maintenance of Seto Ohashi Bridges	523
J. HIRAYAMA, S. ITO, Y. ASAKURA Erection of Long-Span Suspension Bridges by Direct Hoisting Method	525
M. HAYASHI, T. MORITANI, T. KURIHARA, A. GOTO Anti-Washout Concrete and Highly Workable Concrete	527
K. OHDO, H. NAGATA Construction Work under Low-Frequency Horizontal Motions	529
Y. SHIOI, A. HASEGAWA, H. YOSHIKOSHI, H. TAKAHASHI Tsugaru Strait Bridge	531
T. YOSHIMURA New System for Aerodynamic Stability of Suspension Bridge	533
M. RENK, C. FURRER Seismic and Safety Design Criteria for Expansion Joints	535
K. OGAWA, H. SHIMODOI, C. NOGAMI Super Long-Span Bridge with 2-Box and 1-Box Combined Girder	537



H. RACHMANTIO Planning and Construction of the First Cable-Stayed Bridge in Indonesia	539
M. KOMINEK Cable-Stayed Bridge with a Single Pylon in the Czech Republic	541
M. ZIYAEIFAR, H. NOGUCHI, P. NDORU LOMODI Cable Mounted Bridges: a New Approach in Construction of Long Bridges	543
P. CLEMENTE, G. NICOLOSI, A. RAITHEL Static Issues in Long-Span Suspension Bridge Design	545
H. YAMAGUCHI, M. NAGAI, X. XIE Ultimate Behavior and Strength of Long-Span Suspension Bridges	547
A. PETERSEN, L. HAUGE Design of the Road / Railway Bridge across the Oeresund	549

Tall Buildings

Plenary Session: High-Rise Buildings Keynote Lectures	551
J. MITSUI Architecture and Urban Responsibility in High-Rise Design	553
R.S. NAIR Building Where They Said It Couldn't Be Done!	561
Working Session: High-Rise Buildings and Towers	573
A. SOBOYEJO Simplified Model for Wind Speed/Height Relationship and Design of High Rise Structures	575
J. KANDA, T. KUBOTA, M. ASANO, S. HIRASHIMA, Y. MATAKI Design Seismic Motions and Wind Loads for 1000 m High, 1000 Year Use Building	581
C.-A. GRAUBNER, G. KÖNIG, A. BERNEISER Wind Velocity and Building Reactions of High-Rise Structures	587
M. LENCZNER Structural Impact on the Environment: Aesthetics	593
V. MOCÁK Are There Intelligent Options in Skyscraper Design?	599
J. SCHLAICH High-Rise Tubes for Solar Chimneys	605
M. IWATA, K. HAYASHI, T. UNNO Applications of Damage-Controlled Structure to Diagonal Lattice Tube Building	613
D. KORISTA, M. SARKISIAN, A. ABDELRAZAQ Unique Structural Engineering Solutions for China's Tallest Building	619



H. MORI, K. KATAGIHARA, Y. KUROKI, Y. KAWASAKI, M. OKAMOTO High-Rise Condominium with Concrete Filled Steel Tubular Column and Visco-Elastic Damper	625
T. KUNUGI, H. TAKADA, N. MINE The Concept of the Parts Oriented Production System	631
B. BOSE Performance of Framed-Tube Structures under Vertical Forces	637
K.B. PRAKASH, K.T. KRISHNASWAMY Loss of Workability of Superplasticized Concrete in High Rise Construction	639
M. YAMADA Again, Shear Failure of RC Columns in 1995 Kobe Earthquake	641
G. CROCI, A. VISKOVIC, A. ORSINI Seismic and Wind Actions on the Asinelli Tower in Bologna	643
H. OHTA, T. ONO, K. KATAGIHARA, M. NAKAYAMA, T. TANABE Seismic Upgrade by Base Isolation System and Visco-Elastic Damper	645
X. GAO, F. ZHOU, W. CHEN Anti-Seismic Behavior of a Multi-Tower Building Model	647
K. MEN, M. QIU Ductility Design of Earthquake Resistant High-Rise RC Building	649
M. MILICEVIC, M. STANKOVIC, M. MIJALKOVIC Analysis and Design of a High-Rise Reinforced Concrete Structure	651
Working Session: Innovative Design against Vibration of Tall Buildings	653
M. NAKASHIMA Deformation Behaviour of Base-Isolated Buildings in Near-Fault Earthquakes	655
J. ZAI, D. YANG, G. CHEN, D. DING Active Structural Seismic Control Including Ground Rigidity Effects	661
K. OGAWA, T. SAITOH, T. TAMAKI, F. SAKAI, T. NISHIDA, D.-H. HA, Y. YABE Experimental Study on Isolation System with Friction Damping	667
M. YASUI, K. ITAGAKI, K. SAITO, S. FUKUMO Damage Control Design Based on Hysteresis Damping Effect	673
M. FUJII, K. ITAGAKI, K. TANAKA, Y. NAKATA Damage Control Design Based on Attenuation Mechanism by Unbonded Brace	679
M. RAOOF Design S-N Curves for Axial Fatigue of Spiral Strands	685
M. LORENTZON, K. ERIKSSON Welded High Strength Low Alloy Steels in Seismic Design	691



Long-Span Roofs

Plenary Session: Long-Span Roofs Keynote Lectures

- M. SAITOH
Role of String: Aesthetics and Technology of Tension Structures 699
- J. SCHLAICH
Long-Span Roofs: How to Reconcile Efficiency with Least Costs 711

Working Session: Long-Span Roofs, Underground and Marine Structures 723

- K. HARA
Structural Design of the Osaka Dome 725
- N. SAHASHI, T. HISATOKU, Y. HANGAI, M. YAMADA
Structural Design of Large-Span Single Layer Latticed Dome 731
- S. BAN, S. MOTOHASHI, A. YOSHIDA, H. TSUBOTA
Nagano Olympic Memorial Arena: Design and Construction 737
- M. FUJITA, M. IWATA, Y. SHIGEMATSU
Structural Design and Construction of the Wins Garden Plaza 743
- H. KAMISAWA, K. KATAGIHARA, M. YAMAJI, T. YAMASHITA
Bangkok International Trade and Exhibition Centre: Large-Scale Suspended Roof 749
- H. BODE, C. ODENBREIT
Large Span Floor Beams with Web Openings 755
- N. UCHIDA, M. MAEDA, M. YOSHIZAWA
New Design of the France-Japan Friendship Monument 761
- G. DE MARTINO, M. GIUGNI
Earthquake Response of Elevated Storage Tanks 767
- M. KURODA, M. NAKANO, F. SUGINO, Y. KAWAMURA
Design and Construction of the World's Largest LNG Underground Tank 773
- N. MAEDA, K. NAKAMURA
Construction of a Huge Marine Structure in Japan 779
- G. MOE, P. TVEIT
Submerged Floating Tubes with Free Spans over 4000 m 785

General Aspects

Working Session: Innovation Design and Structural Materials 787

- X. YAN
Seismic Responses of Variable Stiffness Semi-Active Control System 789
- A. TANAKA, H. MASUDA
Investigation on the Statical Characteristics of Beam-to-Column Connections 795



Y. SUN, K. SAKINO Ductile Performance of RC Columns in High-Rise Buildings	801
K. WAKAMATSU, T. OKAMOTO, Y. SOBUE, Y. HIGASHIBATA, Y. MIYAUCHI Seismic Behaviour of Steel Encased Reinforced Concrete Columns	807
B. TSUJI Ultimate Strength and Collapse Mechanism of Composite Frames under Seismic Loading	813
P. HEAD Advanced Composites for Earthquake Resistant Structures	819
S.K. GHOSH, D. KARMAKAR, P.K. MAINI, D. MUKERJEE, S. MISHRA Use of I-Beams in Slim Floor Construction	825
A. FARAH Serviceability of Buildings Subjected to Seismic Excitations	831
D.L. HOMMEL, M.H. FABER Zarate-Brazo Largo Bridges: Stay Cable Damages and Rehabilitation	837
K.B. PRAKASH, K.T. KRISHNASWAMY Suitability of Recycled Aggregate Concrete in High-Rise Construction	843
K. TAGA, N. UCHIDA, S. OWADA Reconstruction of a Department Store Damaged in the 1995 Earthquake	845
C. ANGELOFF Coating Technology for Maintenance and Architectural Applications	847
Working Session: Assessment by Analysis and Experiment	849
I. AVRAMIDIS, K. ANASTASSIADIS Three-Dimensional Response Spectrum Analysis for Multicomponent Seismic Excitation	851
M. VASEK Small Strain Non-Linear Relations for 3D Space Beam Systems	857
D. MILASINOVIC The Finite Strip Method in Computational Engineering	863
Y. POCHTMAN Strength Optimisation and Crack Resistance of RC Structures	869
A. BERRAIS Knowledge-Based System for Dynamic Analysis and Design of Structures	875
H. WENZEL Monitoring the Big Bridges across the Danube in Austria	881
J. BENCAT Dynamic Tests and Monitoring of a Highway Bridge over the Danube	887
H. KANAJI Reconstruction Design for PC Girders Damaged by the Kobe Earthquake	893
IABSE REPORTS – RAPPORTS AIPC – IVBH BERICHTE	895