

Objekttyp: **TableOfContent**

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

Band (Jahr): **83 (1999)**

PDF erstellt am: **22.07.2024**

### **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
<b>Keynote Lectures</b>	20
<b>HEAD</b> Creation, Maintenance and Management of the World's Assets: Appropriate Quality and Technology for the Future	20
<b>RITO</b> Aesthetics and Structural Design	22
<b>VANEGAS</b> Sustainability and Civil Engineering: From Concept to Action	24
<b>MARUYAMA</b> Life-Cycle Behaviour of Reinforced Concrete Structures – What do we need to know? –	26
<b>WENZEL</b> Quality Assessment and Damage Detection by Monitoring	28
<b>ROSTAM</b> Performance-Based Design of Structures for the Future	30
<b>GALGOUL, CLARO</b> Adequate Design Criteria: the Key Issue to Attain Project Quality	32
<b>PAKVOR</b> Rehabilitation: The Chance for Extending the Life of Structures	34
<b>HAJDIN</b> Information Technology in Practice – Exploiting Potentials	36
<b>COMBAULT</b> Quality, Erection Speed, Cost Reduction: Keys for the Future of Civil Engineering	38
<b>Session 1</b> <b>Durability &amp; Robustness</b>	40
<b>BRANCO, MACHADO</b> Search for Quality in the Vasco da Gama Bridge Project	40
<b>HOEJ, ROSTAM</b> Optimisation of Concrete for Durability and Accident Resistance	42



---

<b>DE REZENDE MARTINS</b> Design for Durability – A Matter of Good Choices and Good Codes	44
<b>GODART, PROST</b> Improvement of Bridge Design in Relation to the Action of Water	46
<b>SOUSA</b> Quality and Durability of Concrete Structures through CPF	48
<b>SUNDQUIST, RACUTANU</b> Swedish Experiences of Integral Bridges	50
<b>STAROSSEK</b> Progressive Collapse of Multi-Span Bridges – A Case Study	52
<b>SEIBLE, BENZONI, POST, FILIATRAULT</b> Performance Validation of Large Seismic Response Modification Devices	54
<b>ABUL ELMAGD, MAHMOUD</b> Masonry Reinforced with FRP – Walls with Openings	56
<b>PASTERNAK, SCHILLING, LUTZ, JANNER</b> The New Airship Hangar in Germany	58
<b>WITZANY</b> Mass-produced Structures of Multistorey Houses	60
<b>CHO, KIM, BANG</b> Structural Response of Represtressed Preflex Beams and Box Girder Bridges	62
<b>BRÜHWILER, MIVELAZ</b> From Corrosion of Existing to Durability of New Concrete Structures	64
<b>KUMAR JAIN, BHATIA</b> Effect of Strength of Concrete on Corrosion of Reinforcing Steel	66
<b>TRAVERSA, GIOVAMBATTISTA, DI MAIO, EPERJESI</b> Performance of Concrete Structures in Argentine Environments	68
<b>RIO, MORANDI, ULIARTE</b> High Performance Concrete in the Argentinean West Central Area	70
<b>SUGIE, FUNAZAKI</b> Durable Watertight Lining System for Tokyo Wan Aqua-Line Shield Tunnel	72
<b>FERNANDES</b> Indirect Loading and Indirect Supporting in High-Strength Concrete Beams	74
<b>HASSANI, TAKADA</b> Seismic Response of the Reconstructed Piers and of the Collapsed Pilz Piers	76



<b>Session 2</b>	
<b>Aesthetics</b>	78
GIMSING Bridge Aesthetics and Structural Honesty	78
IZUMI, FUNAZAKI Landscaping of Tokyo Wan Aqua-Line	80
CREMER The Val-Benoit Cable-Stayed Bridge	82
MIRTALAEI, FARSHAD, SEIFOLLAHI, NAHVI, SAGHAFIAN, KEYVANI Combining Aesthetic and Structure for the Large Domes in Isfahan	84
KOMINEK Cable-Stayed Mariansky Bridge in Usti nad Labem	86
BILLINGTON, BREEN Development of a New Substructure System for Standard Bridges	88
BUDJEVAC, MITROVIC Stainless Steel Structures of Zepter Palace in Belgrade	90
AKTUĞLU ORBAY Aesthetics in the Past and the Future of Airship Buildings	92
<b>Session 3</b>	
<b>Sustainability</b>	94
GEIKER, LAURIDSEN, EDVARDSEN Sustainable Design and Maintenance of Concrete Structures	94
DICKSON Developments in Structural Form to Minimise Environmental Impact	96
SCHLAICH Indigenous Solar Electricity Generation	98
DURMISEVIC, SARIYILDIZ A Step towards Sustainability through Underground Space Utilisation	100
REIJ Sustainable Engineering: Tools and Aids	102
PICKETT, DAS Future Trends in Design and Maintenance of Structures	104



<b>Session 4</b>	
<b>Maintenance &amp; Reliability</b>	106
BLOOMSTINE, RUBIN, VEJE Corrosion Protection by Means of Dehumidification	106
FUZIER, STUBLER, JARTOUX Low Maintenance Cable-Supported Structures – A New Concept	108
POPOVIC Design of Parking Structures for Reduced Maintenance	110
BURDET, BADOUX Deflection Monitoring of Prestressed Concrete Bridges Retrofitted by External Post-Tensioning	112
SEIBLE, BURGUENO Advanced Composite Bridges for the 21st Century	114
KARLSSON, ANDERSEN Acceptable Reliability Levels for Existing Road Bridges	116
AHLENIUS Uncertainties of Explosion Loads and its Influence on Reliability	118
ARDITI, NAWAKORAWIT Designing Buildings for Maintenance Using Property Manager Input	120
BREYSSE, LAFFRECHINE Urban Database for the Sewer Networks Management	122
HOMMEL, VEJE, ENGELUND Zárate - Brazo Largo Bridges, Rehabilitation Design Basis	124
REYS DE ORTIZ External Beam-Column Joints – The Importance of the Stirrups	126
<b>Session 5</b>	
<b>Monitoring</b>	128
NAKAMURA, SAKAMOTO, FUJINO, YANAGIHARA Monitoring of Displacements on Suspension Bridges using GPS	128
BAILEY, NUSSBAUMER, SCHUMACHER Traffic Load Models and Weigh-In-Motion Data	130
INAUDI, CASANOVA, VURPILLOT Bridge Deformation Monitoring with Fiber Optic Sensors	132
TAERWE, DEGRIECK, BAETS, DE WAELE, MOERMAN Monitoring of Concrete Structures with Integrated Bragg Grating Sensors	134



PASCALÉ, ARDUINI, BONFIGLIOLI, MANFRONI New Applications of Fiber Optic Sensors for Structural Monitoring	136
RIZKALLA, SHEHATA Monitoring of a Highway Bridge Reinforced and Prestressed by CFRP	138
BRANCO, SANTOS In Situ Stress Evaluation of Reinforced Concrete Elements	140
PASTERNAK, HORVATH, IVANYI Thermovision – An Efficient Tool for Monitoring of Steel Members	142
JENSEN H. E., JENSEN J.S., PETERSEN Monitoring to Become Wiser: A Case Story	144
FANG W.-C., FANG I.-K., CHEN P.-L., CHEN S.-J., CHEN C.-R., CHEN C.-C. Monitoring System of Kao-Ping-Hsi Cable Stayed Bridge	146
CLEMENTE, BUFFARINI Dynamic Test of a Pedestrian Bridge as Part of Safety Assessment	148
WASTIAUX, PINCENT, VASSORD Monitoring of the New Tagus Bridge in Lisbon	150
SIMUNIC, GASPARAC, PAVLOVIC Monitoring of Maslenica Bridge during Construction	152
GONCALVES, MALITE, TAKEYA, DE SALES Monitoring of a Bridge over the Parana River during the Launching Phase	154
<b>Session 6</b> <b>Serviceability</b>	156
MICKLEBOROUGH, CHAN, NING Deflection Prediction of Reinforced Concrete Structures	156
TAERWE, MATTHYS FRP Reinforcement for Concrete Structures: State-of-the-Art	158
TAHERI, VAN BREUGEL Chloride Ingress in Blast Furnace Slag Cement in Marine Concrete Structures	160
BURDET, FAVRE Amount of Prestressing Based on Serviceability Requirements	162
PIMENTEL, PAVIC, WALDRON Vibration Performance of Footbridges Established via Modal Testing	164
COOPER, MURILLO, KRIMOTAT Performance Based Seismic Design for Bridges	166
MEZZI, BARTOCCI, PARDUCCI, MOGARELLI Active Control for the Operational Safety of Control-Towers	168



RANC, TOUTLEMONDE Fatigue Tests for Predicting the Serviceability of Composite Bridges	170
ROBERTS, SARVESWARAN, ATKINS Whole-Life Reliability Assessment of Deteriorating RC Structures	172
MEYER Quality Control of Structural Projects	174
<b>Session 7</b> <b>Design Criteria</b>	176
SANTOS DA SILVA Dynamical Load Factor for Highway Bridge Decks with Pavement Irregularities	176
EINSFELD, PACHECO, VELASCO Size Effect in Concrete Structural Members	178
VAN BREUGEL, LOKHORST Stress-Based Crack Criterion for Concrete at Early Ages	180
WYLLIE Performance-Based Seismic Design -The Future Practice	182
DORTON, REEL, GAGNON The New Canadian Bridge Code – Design, Evaluation, Rehabilitation	184
CUMMINGS, RANKIN, CLELAND, TAYLOR, SCOTT Comparison of Reinforcement Anchorage Tests with British Code Requirements	186
KAERN, HAUGE Eurocode Comparison Calculations for Storebaelt Bridges	188
FARKAS Modelling of Post-Tensioned Reinforced Concrete Flat Slabs	190
HERMAN, SIGMUND V., GULJAS Stability Studies of Water Tower's Vertical Flanges	192
MORENO JR, OLIVEIRA High Strength Concrete Beams Subjected to Reversed Loads	194
MORENO JR, MARINHO High Strength Concrete Beams Subject to Axial Compressive Stress	196
SIGMUND V., HERMAN, SIGMUND D. Experimental and Analytical Investigation of Sandwich Panels	198
ZDRAVKOVIC, RISTIC, ZLATKOV Experimental Investigation of Industrial Hall Structures in the Full Scale	200
ALBRECHT Punching of Flat Slabs – Comparison of Design and Construction	202



HAJEK Optimisation of Composite Waffle Slab Structure Design	204
JOH, GOTO Anchorage of 90-Degree Hooked Beam Bars in Exterior RC Joints	206
TSAI, HUANG Steel Energy Absorbers for Seismic Building Rehabilitation	208
BHATTACHARYYA, GHOSH, MAINI, KARMAKAR Thin Walled Steel Hollow Sections with Concrete Infill	210
ZOBEL, ALKHAFAJI, SOBALA Natural Thermal Behaviour of Polish Bridges	212
NAZIR Prestressed Aluminium Arch Dam	214
SELIVERSTOV, POPOV Development of Bridge Design Codes in Russia	216
<b>Session 8 Rehabilitation &amp; Preservation</b>	<b>218</b>
POINEAU, LACOMBE French Experience in Prestressed Structures Repair	218
ESKOLA, VILONEN New Life by Post-Tensioning: Rehabilitation of Two Box Girder Bridges	220
FUZIER, RAYMOND, AMIOT Modern Technology to Extend the Life Span of Bridge Structures	222
CZEMPLIK, HOTALA, BODARSKI Rehabilitation of Ancient Steel Structures	224
HALSALL, BUCKLEY Learning from Canadian Experience with Concrete Building Structures	226
BATTISTA, PFEIL Enhancing the Fatigue Life of Rio-Niteroi Bridge's Orthotropic Steel Deck	228
APPLETON Bridge Inspection and Assessment	230
BILCIK Failures, Repair and Protection of Cooling Towers	232
VOGEL, HUBER Preservation Strategy of the Shortest Highway Crossing of the Alps	234
HINO, TAHARA, FUJIMOTO, TSUTSUMI, OHTA Strengthening for an Existing RC Gerber Bridge Using External Cables	236





GREINER, OFNER, KERNBICHLER, UNTERWEGER Bridge Rehabilitation with a Specific Composite Deck Construction	238
PAUL, PAPEZ Rehabilitation of the Austrian Mint, a Historic Monument	240
BATTISTA, PFEIL Damping Wind and Traffic-Induced Oscillations of the Rio-Niteroi Bridge	242
MOURA Upgrading of the North Viaduct of the Suspension Bridge in Lisbon	244
POPOVIC, NUGENT Rehabilitation of Parking Garages	246
WITZANY Preservation of Structural Monuments – Charles Bridge	248
KARBHARI, VASQUEZ, SEIM, MOKAPETRIS FRP Composite Strengthening of Concrete Slabs	250
COSTA A., APPLETON Assessment and Repair of a Concrete Dockyard	252
HARAJLI Analysis of the Ultimate Response of Externally Prestressed Beams	254
YOKOTA, MATSUBUCHI Recent Experience of Upgrading Berthing Facilities in Japan	256
MELO, GOMES, JARDIM Reinforced Concrete Deep Beams Strengthened in Shear	258
RIPPER, COSTA J.P., BRAZAO FARINHA Repairing to Extend the Lifespan: the Multi - Strategy Criteria	260
AJDUKIEWICZ, BROL, MALCZYK, WLASZCZUK Rehabilitation of the Highest Wooden Telecommunication Tower	262
SOFRONIE Rehabilitation of Masonry Buildings and Monuments	264
<b>Session 9</b> <b>Information Technology</b>	266
GARRETT, SIEWIOREK, SMAILAGIC, SACKIN, SMALL, SUNKPHO Design of Computer Support for Field Operations	266
BENTO, PORTELA, MORA RAMOS, SILVA Model-Based Diagnosis for the Monitoring Large Concrete Dams	268
BIEN Ecobridge - Railway Bridge Management System for the Future	270



VOS Quality Awareness in Education Practice	272
DA SILVA VELLASCO, PEIXOTO, MARTHA, DE ANDRADE An Integrated Steel Design System Developed for Educational Purposes	274
TURK, FISCHINGER Learning Engineering from Breakdown Cases	276
BEUCKE, SCHNEIDER Active Integration Concepts Based on a Communication Standard	278
SMITH, SHEA Extending Active Control to Build Intelligent Structures	280
LUNABBA Computer-Aided Quality Monitoring of Bridge Construction	282
MOLNAR, LUBLOY, BAKO The Hungarian Bridge Management System	284
DO NASCIMENTO, LINCOLN, FERRAZ, SIQUEIRA, LANCASTRE Management System for a Highway in Brazil	286
RACUTANU Learning from the Damage History of Bridges – A Case Study	288
TIEN Bridge Databank and Computer Technique	290
ATTAF On the Free Vibration of Honeycomb Sandwich Plates	292
FEIJO, SCHEER Virtual Prototyping in the Construction Industry	294
IBRAHIM Analysis of Plated Structures by Coupling Techniques	296
HARVEY The Role of Equilibrium Analysis in Structural Assessment	298
ALMEIDA, ROEHL Analysis of Prestressed Multi-Girder Bridge Decks	300
<b>Session 10</b> <b>Construction</b>	302
JENSEN H.E., CHRISTOFFERSEN, ENGSTROEM Early-Age-Crack Control: A Case Story	302
DOMINAS Rock-Concrete Structures	304



---

<b>MUFTI, BAKHT</b> Innovative Deck Slabs for Highway and Forestry Bridges	306
<b>MÄKELÄINEN, MALASKA</b> Study on a Frame System with Composite Slim Floors	308
<b>COBB</b> Integrating Automation into the Life Cycles of Structures	310
<b>FALBE-HANSEN, LARSSON</b> The Oeresund Bridge: Monitoring Construction Quality	312
<b>DAVIS, ZHOU</b> The Jiangyin Yangtze River Highway Suspension Bridge	314
<b>KIKURA, WATANABE, OHNO</b> Bridge Construction of Malaysia-Singapore Second Crossing	316
<b>TAKAC, BOGICEVIC</b> Investigation of Highwall Carrier Made of Wood	318
<b>KIKURA, WATANABE, OKINO</b> Construction of the New Tenkenji Bridge	320
<b>ROUJANSKI</b> Block Panel Structures with the Prestressed Membrane	322
<b>KOLLEGER, BENKO</b> Improving Quality of Post-Tensioning Tendons with Plastic Duct	324
<b>SELIVERSTOV, CHEMERINSKY, KLIMOV</b> Steel Bridges on the Peripheral Motorway, Ankara, Turkey	326
<b>CHEKANOVYCH</b> Prestressed Concrete Structures for the Future	328
<b>IABSE REPORTS – RAPPORTS AIPC – IVBH BERICHTE</b>	330