

Concrete Repair, Rehabilitation and Retrofitting

Editors:

M. Alexander, H.-D. Beushausen, F. Dehn & P. Moyo



Flexural strengthening of RC beams via external prestressing <i>C.K. Ng</i>	410
Liesbeek Parkway bridge widening <i>A.A. Newmark</i>	412
Characterizing old reinforced-concrete structures for compliance with new standard requirements <i>V. Corinaldesi, F.M. Liberatore, F. Pascucci & G. Moriconi</i>	414
Bond behaviour of post-installed rebars under one-directional and reversed cyclic loading <i>I. Simons, R. Eligehausen & M. Kretzschmar</i>	416
Partial versus full wrapping confinement systems for concrete columns <i>J.A.O. Barros & D.R.S.M. Ferreira</i>	418
Strengthening of concrete masts using multi-axial AR-glass structures <i>R. Hempel, M. Butler, D. Proske, G. Franzke & Th. Engler</i>	420
Experiment on shear resistance of RC wall-frame structures strengthened with CF-grids <i>Y. Goto, A. Kitano & O. Joh</i>	423
Shear strength of retrofitted reinforced concrete sections <i>J. Hegger, S. Görtz, A. Sherif & S. Rauscher</i>	426
Performance evaluation of retrofitted dry-stack block masonry structure <i>H.C. Uzoegbo, J.V. Ngowi & R. Senthivel</i>	429
A unique strengthening solution for the Agter Paarl Road Bridge <i>W.J. Martin & E. Kruger</i>	431
Bond behaviour and design of post-installed rebar connections <i>I. Simons & R. Eligehausen</i>	433
 <i>Seismic retrofit and rehabilitation</i>	
Seismic retrofit strategy for under-designed reinforced concrete frame systems and subassemblies using FRP composites <i>S. Pampanin, D. Bolognini, A. Pavese & G.M. Calvi</i>	437
Seismic assessment and repair of corrosion-damaged reinforced concrete structures in New Zealand <i>J.R. Mackechnie</i>	440
Seismic rehabilitation: A case study <i>M.S. Kircil, B. Hancioglu & Z. Polat</i>	442
Experimental tests on seismic retrofit of RC columns <i>P. Delgado, P. Rocha, V. Rodrigues, A. Arêde, N.V. Pouca, A. Costa, R. Delgado & M. Santos</i>	444
Seismic strengthening techniques for existing RC Structures <i>M. Yaqub, Q.Z. Khan, J. Iqbal & H. Jawad</i>	445
Structural retrofitting of buildings affected by earthquake in India with intensity of 7.7 on Richter scale <i>S. Sengupta</i>	447
A performance assessment of a RC frame building using a record obtained at its foundation <i>P. Bonelli, M. González & R. Boroschek</i>	449
 <i>Retrofitting techniques and FRP systems</i>	
Alternative analytical modelling of retrofitted reinforced concrete members <i>E. Raue & H.-G. Timmler</i>	453

Textile structures for shear strengthening <i>A. Brueckner, R. Ortlepp, S. Weiland & M. Curbach</i>	456
Some results from the experiments of flexural strengthened RC beams by CFRP sheets <i>X. Chunhong, Z. Rongxin & W. Pu</i>	458
Shear-flexure interaction of RC elements strengthened with FRP sheets <i>P. Colajanni, L. La Mendola & A. Recupero</i>	460
Mineral based bonding of CFRP to strengthen concrete structures <i>B. Täljsten & T. Johansson</i>	463
End anchors' effect on the behavior of CFRP strengthened beams – experimental investigation <i>N. Chutarat & R.S. Aboutaha</i>	465
Interaction between FRP shear strengthening and transverse steel reinforcement in RC beams <i>C. Pellegrino, E. Caon, M. Cazzanello, M. Manera & C. Modena</i>	467
Debonding of externally bonded CFRP at low and high temperatures <i>E.L. Klammer, C.S. Kleinman & D.A. Hordijk</i>	469
Behavior of square concrete columns strengthened with Carbon Fiber Reinforced Polymer (CFRP) strips <i>S. Mehdizad Taleie & H. Moghaddam</i>	471
An empirical approach for the determination of ultimate FRP strain in FRP-strengthened concrete beams <i>C.K.Y. Leung & M.Y.M. Ng</i>	474
A novel Carbon Fiber Reinforced Polymer (CFRP) system for post-strengthening <i>U. Meier & I. Stöcklin</i>	477
The behaviour of RC beams retrofitted with CARDIFRC after thermal cycling <i>F.G. Farhat & B.L. Karihaloo</i>	480
 <i>Theme 4: Performance monitoring and health assessment</i>	
Seismic performance evaluation of prestressed bridges constructed by cantilever method using displacement based approach <i>A. Rahai & B. Alipour Gorji</i>	485
Condition assessment of bridges in South Africa: Challenges and opportunities <i>P. Moyo & M.G. Alexander</i>	486
The use of nanotechnology in concrete structures for durability and health monitoring <i>N. Robinson, A. Norris, M. Saafi & P. Romine</i>	488
Non-destructive assessment of repair efficiency with impact-echo and ultrasonic methods – an overview <i>A. Garbacz</i>	490
Wireless monitoring of concrete structures using Micro-Electro-Mechanical Sensors (MEMS) <i>C.U. Grosse, J. Kurz, H.-W. Reinhard, M. Krüger, P.J. Marrón, K. Rothermel, J. Meyer & G. Feltrin</i>	493
Non destructive bridge supervision – traffic and dynamic influences <i>H. Falkner & V. Henke</i>	495
Damage and condition assessment of R.C. structures for rehabilitation by linear polarization (N.D.T.) <i>D.P. Mase & H.O. Thakare</i>	498
Acoustic emission monitoring and numerical modeling of a FRP-strengthened concrete structure <i>A. Carpinteri, G. Lacidogna, M. Paggi & N. Pugno</i>	500

Use of two-stage (pre-placed aggregate) concrete in construction and repair of concrete structures <i>H.S. Abdelgader, A.E. Ben-Zeitun & A.A. Al-Galhud</i>	325
Repair of historical concrete structures and monuments <i>H.S. Müller, E. Bohner & M. Günter</i>	327
<i>Repair materials and systems</i>	
Investigations on durability behaviour of concrete repair systems exposed to outdoor weathering <i>R. Breitenbücher, C. Homey & B. Siebert</i>	331
Rehabilitation of concrete pavements with geotextiles and steel meshes <i>C. Raab & M.N. Partl</i>	333
Effect of admixtures on the fresh and hardened properties of modern rendering systems <i>J.C.-M. Capener</i>	335
Behavior of cement-based patch repair materials in plain and reinforced concrete members <i>A.H. Al-Saidy, K.S. Al-Jabri, A.W. Hago & A.S. Al-Nuaimi</i>	337
Ultrasound monitoring of setting and hardening of shotcrete including alkali-rich or alkali-free accelerators <i>N. De Belie, C.U. Grosse & H.-W. Reinhard</i>	339
The effect of silica fume and polymer on properties of repair concrete in simulated conditions of the Persian Gulf <i>T. Parhizkar, A.A. Ramezaniapour, A.M. Raiss Ghasemi & N. Mozafari</i>	341
Effectiveness of surface coatings on limiting the ingress of chlorides into the barrier wall of the Confederation Bridge <i>A.N. Scott, M.D.A. Thomas, T.W. Bremner & D. McGinn</i>	343
Flexible polymer-cement repair materials and their applications <i>I. Razl</i>	345
Properties of polymer-modified mortars with hydrocalumite for intelligent repair materials <i>Y. Ohama, M. Ota & H. Tatematsu</i>	347
Aqueous polymers for the construction industry <i>J. Pakusch</i>	350
Rapid polymer concrete repairs using available fillers <i>D.W. Fowler, C. Suh & P. Pietrasik</i>	352
Polymers in concrete for repair: Where have we been and where are we going? <i>D.W. Fowler</i>	354
Development of repair materials based on calcium sulfo-aluminate cement <i>J. Péra & J. Ambroise</i>	356
Modification of mortars and concrete by polymer dispersions based on saccharides <i>C. Berken, K.P. Großkurth & E.-J. Yaacoub</i>	358
Repair mortar colour matching by colourimetric method <i>Y. Zhang & D. Kruger</i>	360
Modification of epoxy repair materials with waste fillers <i>G. Michalcova & V. Petránek</i>	362
Characterization of the durability and service life evaluation of repair mortars for concrete elements <i>R. Nsambu & A.M. Gomes</i>	365

Development of genetically engineered biosealant for crack remediation <i>S.S. Bang, T.J. Elliott, S. Hassan & J.K. Roth</i>	367
<i>Bonded concrete overlays</i>	
Roadmap for improvement of crack resistance of repair materials <i>D. Burke, C. Brown, A.M. Vaysburd & B. Bissonnette</i>	371
On the compatibility measure in the repair systems <i>L. Czarnecki & M. Runkiewicz</i>	373
Rehabilitation strategies and material performance of SCC used for the repair of the Jarry/Querbes underpass in Montreal <i>K.H. Khayat, N. Petrov, R. Morin & M. Thibault</i>	375
Two different techniques for the evaluation of concrete surface roughness <i>L. Courard, F. Perez, B. Bissonnette, M. Gorka & A. Garbacz</i>	377
Relationship between surface characteristics and superficial cohesion of concrete <i>A. Garbacz, M. Gorka & L. Courard</i>	380
Effect of surface preparation techniques on the cohesion of superficial concrete: Comparison of jack-hammering and water jetting <i>L. Courard, B. Bissonnette & N. Belair</i>	383
Innovative non-destructive assessment of adherence failure of the top layer in an industrial floor <i>L.F. Luco & R. Pombo</i>	386
Effects of repeated loading on the shear connection between old and new concrete <i>K. Zilch & A. Müller</i>	388
Development of test method for cracking tendency of repair materials <i>B. Bissonnette, M. Morency, K. Von Fay, A.M. Vaysburd & C.D. Brown</i>	390
Crack development in bonded concrete overlays subjected to differential shrinkage: A parameter study <i>H. Beushausen & M.G. Alexander</i>	393
Efficient testing of fibers with the Baenziger Block <i>A. Schiegg & H. Baenziger</i>	395
Survey on Swedish practice for bonded overlays and patch repair <i>P. Skoglund & J. Trägårdh</i>	397
Bridge renewal under traffic load <i>J. Galic, V. Ukrainczyk & I.B. Pecur</i>	399
Microstructure, chloride migration and corrosion near the transition zone between substrate and repair concrete <i>P. Skoglund, M. Kalinowski & J. Trägårdh</i>	401
<i>Structural repairs and strengthening</i>	
Textile reinforced concrete with AR-glass-fibre-multifilament yarn – a new innovative compound material for concrete repair and rehabilitation <i>R. Hempel, H. Schorn, G. Franzke & U. Helbig</i>	405
Strengthening RC beams by external reinforcement <i>J. Cairns, F. Minelli & G.A. Plizzari</i>	407

Experiments on flexural strengthened RC beams by CFRP sheets <i>Z. Rongxin, X. Chunhong & W. Pu</i>	236
Creep and temperature effects on RC lining support slabs in multi flue chimneys <i>A. Meda & P. Riva</i>	238
<i>Case studies and surveys</i>	
Rehabilitation of a grain concrete silo constructed by slip form method <i>A. Popaescu & O. Deaconu</i>	243
Rehabilitation of five major bridges on the Garden Route in South Africa <i>C.J. Thompson</i>	245
Rehabilitation of hydraulic structures in tropical climates: A case study <i>P. Singh & H.B. Mahmud</i>	247
Repair of piles in Port of Dar es Salaam <i>L. Hepkema</i>	249
Initial survey of concrete structures in Swedish harbours – a case study in the Port of Trelleborg <i>H. Wall & L.O. Nilsson</i>	251
Damage assessment of a RC bridge structure showing damages at the prestressing steel <i>C. Sodeikat, C. Gehlen & A. Schießl</i>	253
Damage assessment of a RC tunnel structure showing delaminations <i>C. Gehlen & C. Dauberschmidt</i>	255
Condition assessment of concrete bridges in Sweden <i>O. Enochsson, A. Puurula, A. Stenlund, H. Thun, M. Nilsson, B. Täljsten, T. Olofsson & L. Elfgren</i>	257
Condition assessment of a turbo-generator foundation concrete structure <i>D. Bandyopadhyay</i>	260
High rise concrete façade defects: Causes and remedies <i>A.N. van Grieken</i>	262
Structural diagnosis and repair of fire damaged industrial structure <i>A.K. Tiwari</i>	264
The bridges of Timisoara – struggling throughout the time <i>A. Bota</i>	266
Repair and widening of the Carlisle Bridge <i>M.G. Latimer</i>	268
Type of effects and extent of corrosive attack on cooling towers, rehabilitation and their service life <i>R. Drochytka, J. Bydzovsky, Z. Snirch & O. Horky</i>	270
<i>Theme 3: Concrete repair, rehabilitation and retrofitting</i>	
<i>Design procedures and specifications</i>	
Manual REHABCON on concrete repair and rehabilitation <i>J. Rodriguez, R. Muñoz, M. Ramirez & C. Andrade</i>	277
Manual on rehabilitation of concrete structures: REHABILITAR Network XV.F from the Iberoamerican Program for Science and Technology (CYTED) <i>P. Castro-Borges, P. Helene, F. Pereira, M. Grochoski, R. Husni, M. Terán, E. Pazini, E. Monteiro, H. Muñoz, V. O'Reilly, H. Barrera, A. Aguado, C. Andrade, M. Castellote, E.I. Moreno, A.A. Torres-Acosta, A. Ayala, G. Quesada, F. Branco, J. Franco & O. Troconis</i>	280

Evaluation of best repair option through the repair index method, RIM <i>C. Andrade & D. Izquierdo</i>	283
A client's perspective on the implementation of rehabilitation procedures and durability specifications for structures on national roads in South Africa <i>E.J. Kruger & R. Ronny</i>	285
Securing a maintenance-free service life for concrete-silos <i>H. Fiala</i>	287
<i>Repair methods and techniques</i>	
Integrated protection system for chloride deteriorated concrete structures <i>R. Bäßler, A. Burkert & G. Eich</i>	291
Rehabilitation of spherical bridge bearings on Foreshore Freeways Bridges, Cape Town <i>R.K. Dickson, W.J. Martin & P. Vink</i>	293
10 years experience with repair of a coastal concrete bridge <i>C.K. Larsen & J.-M. Østvik</i>	294
Microbial ureolytic calcium carbonate precipitation for remediation of concrete surfaces <i>W. De Muynck, B. De Graef, N. De Belie, J. Dick, W. De Windt & W. Verstraete</i>	296
Primers for the reinforcement as a repair method of concrete in columns of buildings exposed at a tropical marine environment. Influence of adjacent zones <i>P. Castro-Borges</i>	298
Injection into cracks in concrete made with reactive aggregates <i>H. Fiala</i>	301
Cathodic protection of the historic rail bridge over the Silvermine River <i>A.A. Newmark & P.D. Ronné</i>	303
Cathodic protection of reinforced concrete – a system with woven carbon mesh <i>Ø. Vennesland, R. Haug & J.H. Mork</i>	305
The use of penetrating corrosion inhibitors as a treatment for structures corroding due to chloride ingress <i>K.D. Stanish & M.G. Alexander</i>	308
Concrete repair strategies including surface-applied corrosion inhibitors <i>U. Maeder, F. Wombacher & B. Marazzani</i>	310
Performance of an organic corrosion inhibitor in concrete affected by both chloride and carbonation-induced corrosion <i>R. Heiyantuduwa, M.G. Alexander, J.R. Mackechnie & T. Rylands</i>	313
Significance of the concentration of chloride in the repair of concrete highway structures using surface applied corrosion inhibitors <i>M.G. Richardson, E. Grimes, C. McNally & T.A. Söylev</i>	315
Repair of the Pungwe Bridge in Mozambique <i>L. Hepkema</i>	318
Repair and rehabilitation of a prestressed deck bridge (case study) <i>L.A. Qureshi, M. Yaqub, Qaiser-u-Zaman & K.A. Qureshi</i>	320
Shotcrete for rehabilitation of fire affected building <i>Q.Z. Khan, M. Yaqoob & L.A. Qureshi</i>	322
Rehabilitation of 50 bridges in and around Port Elizabeth on the N2 <i>G.E. Hoppe, V.A. da Silva & E.J. Kruger</i>	324

Theme 2: Condition assessment of concrete structures

Corrosion assessment and service life aspects

- Structural assessment methodology for residual life calculation of corroding concrete structures 139
J. Rodriguez, L.M. Ortega, C. Andrade & D. Izquierdo
- A rapid technique for detecting corrosion of steel in reinforced concrete 141
L. Tang
- Determination of corrosion related values for reinforced concrete structures 143
R. Bäßler, A. Burkert, G. Eich & B. Isecke
- Durability based design of RC structures in Persian Gulf region using DuraPGulf model 145
R. Alizadeh, P. Ghods, M. Chini, M. Hoseini & M. Shekarchi
- Remaining service-life predictions: Experiences of Dutch investigations 148
M.R. de Rooij, K. van Breugel & R.B. Polder
- Influence of unsteady external environment on corrosion rate in reinforced concrete 150
Y. Hiraishi, S. Miyazato & K. Yokozeki
- Assessment of reinforcement corrosion in a concrete highway tunnel 153
L. Tang & B. Malmberg
- Deterioration rate of concrete bridges in South Africa 155
J.J. Rautenbach

NDE/NDT and measurement techniques

- RILEM TC 189-NEC (Non-destructive evaluation of the concrete cover): Objective and status quo 161
L.F. Luco
- Non-destructive techniques for the condition assessment of railway bridges 163
R. Helmerich & E. Niederleithinger
- Monitoring the moisture distribution in concrete structures 166
M. Raupach, C. Dauberschmidt & L. Wolff
- Nondestructive evaluation of concrete cover layer adequacy for corrosion protection 168
C.L. Barnes & J.-F. Trottier
- Application of X-ray tomography for the verification of damage mechanisms in concrete 170
F. Weise, Y. Onel & F. Dehn
- Study of the assessment of defects in tunnel using an infrared thermographic technique 172
J.H. Choo, H.S. Ryu, S.R. Ahn, G.S. Bae, J.Y. Lee & S.G. Oh
- Impact-echo techniques for non-destructive inspection of concrete structures 174
C.U. Grosse, R. Beutel, H.-W. Reinhard & M. Krüger
- Sensitivity of a non-destructive vacuum test method to characterize concrete permeability 177
M. Romer & A. Leemann
- Air permeability measurements for the assessment of the in situ permeability of cover concrete 180
E. Denarié, M. Maître, D. Conciatori & E. Brühwiler
- Applicability of single-chamber vacuum cell for the evaluation of the air-permeability of concrete walls 183
K. Imamoto, K. Shimozawa, J. Yamasaki & S. Nimura
- Effect of aging related to the freeze/thaw and deicing salt resistance of concretes 186
C. Brandes & P. Schießl
- A novel method to measure moisture profiles in concrete structures 188
A. Sjöberg

- In situ moisture state of coastal concrete bridges 191
R.H. Relling & E.J. Sellevold
- Non-destructive evaluation of fire affected RC structure 193
M. Yaqub & Q.Z. Khan
- Bearing test methods for determining the residual load carrying capacity of rigid concrete pavement constructions before rehabilitation 195
F.-M. Adam
- Chloride and sulphate content in concrete with Laser-Induced Breakdown Spectroscopy (LIBS) 197
A. Taffe, D. Schaurich, F. Weritz & G. Wilsch
- Assessment of foundation slabs with US-echo in the re-use process 199
A. Taffe, M. Krause, B. Milmann & E. Niederleithinger
- Consultant activity leading to improved technical prescriptions (NDT) 201
G.V.M. Teodoru
- Sample size of rebound method for the determination of concrete strength 203
M. Zhao, H. Feng & J. Li
- Shearography – a novel non-destructive testing technique for concrete strength appraisal 205
M.Y.Y. Hung, C.Y. Yiu, H.M. Shang & L. Liu
- Galvanostatic pulse corrosion measurements on a recent thermal swimming pool containing seawater 208
L. Luo & G. De Schutter
- Monitoring cementitious materials during setting and hardening with an ultrasonic shear wave reflection method 210
T. Voigt, Z. Sun & S.P. Shah
- Digital image analysis of cracks in concrete of different grades 212
A. Shamshad, M.A. Megat Johari, W.M.A. Wan Hussin, S.A. Mohd. Sanusi & T.A. Majid

Materials and structural assessments

- Evaluation of repair systems – basic principles 217
M. Hassanzadeh, M. Janz & G. Fagerlund
- Finite element analysis of RC beams retrofitted with steel plates 219
G. Arslan & F. Sevik
- Material and structural assessment of fire damage to the concrete deck of a motorway bridge 221
Y. Ballim & D. Silbernagl
- The problem of evaluation of a three storey RC building for restoration, strengthening and vertical extension 224
J.J. Msambichaka & L.M. Chamuriho
- Simplified equation for the dynamic rigidity of RC beams 227
M.M. Alshebani
- Structural evaluation and rehabilitation of concrete arches in the Progreso pier 228
A.A. Torres-Acosta, M.J. Fabela-Gallegos, D. Vázquez-Vega, M. Martínez-Madrid, P. Castro-Borges, E.I. Moreno & H.D. Cuadros-Abad
- Effects of strength degradations on seismic performance of RC buildings 231
H. Araki & K. Kabayama
- Seismic performance and damage level of RC buildings in urban area close to epicenter 233
K. Kabayama & H. Araki

Performance of concrete exposed to freezing and thawing in different saline environments <i>J. Šelih</i>	43	Sustainability of polymer-impregnated concrete panel as permanent form <i>M.A.R. Bhutta, K. Tsuruta, S. Takamura & T. Shindo</i>	86
Frost salt scaling modeling of cement paste <i>O. Copuroglu, E. Schlangen, K. van Breugel & A.L.A. Fraaij</i>	45	Steel fibre reinforced SCC – a durable and robust construction material <i>H. Falkner, M. Teutsch & J.P. Grunert</i>	89
<i>Innovative materials and influences of material composition</i>		Research of aerated self compacting concrete problems <i>R. Hela & A. Hubacek</i>	91
Surface protection systems on concrete: Investigations on durability and efficiency <i>M. Raupach & L. Wolff</i>	51	Carbon fibre composites for a new generation of tendons <i>H.P. Andrae & M. Maier</i>	93
Effect of rubber aggregate incorporation on the resistance of cement-based mortar to shrinkage cracking <i>A. Turatsinze, J.-L. Granju & S. Bonnet</i>	53	Use of stainless steel for durable concrete structures <i>T. Yamamoto, T. Yamaji & S. Mizuma</i>	95
Pore fluid analysis of cement mortar exposed to a chloride environment <i>D. McPolin, P.A.M. Basheer, A.E. Long, K. Grattan, T. Sun & W. Xie</i>	56	Corrosion protection of reinforcement for concrete structures <i>R.E. Wilmot</i>	98
Resistance of concrete sewer coatings to chemical and biogenic attacks <i>H.W. Kaempfer, A. Dimmig & J. Stark</i>	58	Synergic effect against corrosion between galvanized steel rebars and hydrophobic concrete <i>F. Tittarelli & G. Moriconi</i>	100
Construction of ferrocement water storage tanks and their comparison with R.C.C. and fibreglass tanks <i>L.A. Qureshi, M. Yaqub, Qaiser-u-Zaman & K.A. Qureshi</i>	60	Corrosion of RC columns repaired and wrapped with CFRP sheets <i>S. Bae & A. Belarbi</i>	102
Research of fresh concrete treatment against desorption by means of polymers <i>P. Matulová, R. Drochytka & V. Petránek</i>	62	Selected aspects of interaction of laser radiation with concrete surfaces <i>A.J. Klemm, P. Klemm & K. Rozniakowski</i>	104
Durability of polymer modified concrete in marine environment <i>M.M. El-Hawary</i>	64	<i>Service life modelling and prediction of durability</i>	
Calcium aluminate cements for repair applications <i>K.L. Scrivener</i>	66	Practical implementation of a reliability-based concrete durability design <i>C.K. Edvardsen, Y.I. Kim & J.C. Kim</i>	109
Durability of concretes with ferrous dusts exposed to liquid chemically aggressive environments <i>R. Hela & M. Hubertova</i>	67	A numerical model for durability predictions <i>E.A.B. Koenders, F.H. Cox & K. van Breugel</i>	110
Flexural behaviours of reinforced concrete member strengthened tension zone with reactive powder composite material <i>I. Ujike, K. Kato, Y. Konishi & M. Numata</i>	69	Service life prediction, re-evaluation and optimum repair strategy <i>B. Buhr, M. Sloth & E. Stoltzner</i>	113
Use of accelerated tests for evaluating the effectiveness of fly ash and ternary cementitious systems to control alkali-silica reactivity in concrete <i>P.-C. Nkinamubanzi, R. Chevrier & B. Fournier</i>	72	Maintenance strategy versus simplified deem-to-satisfy rules <i>L. Meyer & H-U. Litzner</i>	115
Mechanochemical synthesis of mullite and mullite-silicon carbide from secondary mineral resources used as an aggregate for fireproof concretes <i>M.V. Lukhanin, S.I. Pavlenko, N.M. Kulagin & E.G. Avvakumov</i>	74	Software for probability-based durability analysis of concrete structures <i>R.M. Ferreira & S. Jalali</i>	117
Prognostic models for creating new composite fireproof concretes and masses from secondary mineral resources <i>M.V. Lukhanin, S.I. Pavlenko, L.P. Myshlyaev & O.N. Kabayeva</i>	77	Models for environmental actions for reinforced concrete structures in marine and road environments <i>A. Lindvall</i>	119
Conception for creating superfireproof composite concretes and masses from secondary mineral resources <i>S.I. Pavlenko & M.V. Lukhanin</i>	79	Modeling of temperature behavior of concrete during hydration <i>J. Zach, H. Kminova & O. Horky</i>	121
Reduced carbonation of concrete by paraffin-wax <i>J. Lukas, C. Hecht & J. Dreyer</i>	81	Design of concrete structures for durable fire resistance <i>W.W.F. Klingsch</i>	123
Outdoor exposure of polymer-impregnated concrete (PIC) permanent form in Saudi Arabia <i>T. Maruya, Y. Matsuoka, M.A.R. Bhutta & K. Tsuruta</i>	83	Predicting chloride content profile in concrete using a concrete mix design parameter <i>C.C. Lim, N. Gowripalan & V. Sirivivatnanon</i>	125
		Modelling moisture and salt penetration in concrete <i>P. Rucker & R.E. Beddoe</i>	128
		Effect of duration and conditions of exposure on chloride diffusion <i>S.V. Nanukuttan, P.A.M. Basheer, D.J. Robinson & W.J. McCarter</i>	131
		Durability indexes and their use in corrosion rate prediction, with influence of binder type <i>A.N. Scott & M.G. Alexander</i>	133

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Table of Contents

Preface	XVII
ICCRRR Committees	XIX
<i>Keynote papers</i>	
Infrastructure asset preservation: Is it a façade? <i>N. Alli</i>	3
Concrete repair according to the new European Standard EN 1504 <i>M. Raupach</i>	6
Concrete repair – a composite system: Philosophy, engineering and practice <i>A.M. Vaysburd & P.H. Emmons</i>	9
Design of concrete to meet durability requirements; Development towards a performance specification in South Africa <i>G.R.H. Grieve</i>	12
Potential and limits of durability design <i>P. Schießl & C. Gehlen</i>	14
Repairs by the thin bonded overlay technique: The RILEM TC 193-RLS and last findings about the debonding mechanism <i>J.-L. Granju & A. Turatsinze</i>	16
Bonded concrete overlays – bond strength issues <i>J. Silfwerbrand & H. Beushausen</i>	19
Structural rehabilitations with Ultra-High Performance Fibre Reinforced Concretes (UHPFRC) <i>E. Denarié</i>	22
Developments in rehabilitation and consolidation of historical concrete and masonry constructions <i>D. Van Gemert, L. Schueremans, K. Van Balen, F. Van Rickstal, S. Ignoul & K. Brosens</i>	25
Use of new concrete materials for durable structures <i>J.C. Walraven</i>	28
<i>Theme 1: Concrete durability aspects</i>	
<i>Causes and mechanisms of deterioration</i>	
Latest insights and advances in understanding the ASR <i>J. Stark, E. Freyburg & C. Giebson</i>	35
Acid attack of self compacting concrete <i>V. Boel, K. Audenaert & G. De Schutter</i>	37
Reaction mechanisms and thermodynamic modelling of Thaumassite Sulfate Attack (TSA); experimental modelling <i>B. Hillemeier, K. Schubert & R. Herr</i>	40

The influence of synergistic effects of cyclic freeze-thaw, deicing-salt attack and bending stress on behavior of reinforced concrete <i>P-F Huang</i>	502
Embeddable reference sensors for corrosion monitoring in concrete structures <i>T.H. Ha, S. Muralidharan, J-H. Bae, Y-C. Ha, H-G. Lee, K-W. Park & D-K. Kim</i>	504
Full scale load testing of 3 bridges in Mozambique for rehabilitation <i>D.S. Temple & K.G. Malcomson</i>	507
Author index	509

Preface

The First International Conference on Concrete Repair, Rehabilitation and Retrofitting (ICCRRR 2005) was held in Cape Town, South Africa, from 21–23 November 2005. The conference was a collaborative venture by researchers from the South African Research Programme in Concrete Materials (based at the Universities of Cape Town and The Witwatersrand) and The Construction Materials Section at Leipzig University in Germany. From the outset, the organisation and implementation of the conference carried a strong South African – German link, reflected in the excellent support given to the conference by researchers and practitioners from these two countries. Nevertheless, more than 200 papers from 45 countries were presented at the conference, which represents a high degree of international support for the event. This helped to fulfil one of the aims of ICCRRR 2005, namely to strengthen relationships not only between Africa and Europe but also between countries and regions from all over the world.

The conference has come at an opportune moment for concrete construction worldwide. By no means the only one of its kind, the conference nevertheless sought to focus on an increasingly important aspect in modern infrastructure provision and retention: that of appropriately repairing, maintaining, rehabilitating, and if necessary retrofitting existing infrastructure with a view to extending its life and maximising its economic return. Most countries, whether developed or developing, have seen a huge increase in their Repair and Rehabilitation (R & R) budgets over the last decade or so. Increasingly large amounts of national budgets are being diverted into R & R rather than into new construction. This poses very substantial challenges for engineers and infrastructure managers, to ensure that such operations are carried out from a sound scientific and engineering base and with maximum cost efficiency. The relative newness of the fields implies that a sound base of theory and practice is still being built up; this conference intends in part to address the issue of providing such a sound base and contributing to the development of these fields. Not a small part of this work is the provision of a good case study literature which can inform future work.

South Africa is no exception when it comes to the issue of R & R of national, commercial, and industrial infrastructure. However, much of this work is relatively recent, and approaches to the problem vary widely. Thus, in the local context, the conference aimed at providing an up to date “state of the art” of South African R & R practice so as to track current developments and provide a base for future developments.

The conference Proceedings contain papers, presented at the conference, and classified into a total of 15 sub themes which can be grouped under four main themes:

- Concrete durability aspects
- Condition assessment of concrete structures
- Concrete repair, rehabilitation and retrofitting
- Performance monitoring and health assessment

In assessing the number of papers in each of these main themes it is clear that the major interest in terms of submissions exists in the fields of concrete durability aspects in connection with material compositions, NDE/NDT and measurement techniques, repair methods and materials, and structural strengthening and retrofitting techniques.

All papers that were submitted for ICCRRR 2005 were subjected to a full process of peer review, and the Proceedings contain only those papers that were accepted following this process. The review of manuscripts was undertaken by members of the International Scientific/Technical Advisory Board and other identified leading experts, each acting independently on one or more assigned manuscripts. This invaluable assistance, which has greatly enhanced the quality of the Proceedings, is gratefully acknowledged.

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