SPIS TREŚCI

nr 1

TECHNICAL PAPERS

1 Quantification of Oxidative Aging of Polymer-Modified Asphalt Mixes Made with Warm Mix Technologies / Hakseo Kim, Soon-Jae Lee, Serji N. Amirkhanian, and Kyu-Dong Jeong

9 Prediction of Elastic Modulus of Concrete Using Support Vector Committee Method / Javad Sadoghi Yazdi, Farzin Kalantary, and Hadi Sadoghi Yazdi

21 Laboratory Study for Comparing Rutting Performance of Limestone and Basalt Superpave Asphalt Mixtures / Ghazi G. Al-Khateeb, Taisir S. Khedaywi, Turki I. Al-Suleiman Obaidat, and Ahmad Mirwais Najib

30 Prediction of Early Age Normal Concrete Compressive Strength Based on Dynamic Shear Modulus Measurements / Giri Venkiteela, Zhihui Sun, and Husam Najm

39 Concrete Deterioration Mechanisms under Combined Sulfate Attack and Flexural Loading / Rundong Gao, Qingbin Li, and Shunbo Zhao

45 Microstructural Characterization of Asphalt Mixtures Containing Recycled Asphalt Materials / Augusto Cannone Falchetto, Antonio Montepara, Gabriele Tebaldi, and Mihai O. Marasteanu

54 Artificial Neural Network Modeling for Dynamic Modulus of Hot Mix Asphalt Using Aggregate Shape Properties / Dharamveer Singh, Musharraf Zaman, and Sesh Commuri

63 Fractional Characteristics of Coal Fly Ash for Beneficial Use / Zhenwei Zhu, Xiqing Wang, Sheng Dai, Baoshan Huang, and Qiang He

70 Texas Department of Transportation Fly Ash Database and the Development of Chemical Composition–Based Fly Ash Alkali-Silica Reaction Durability Index / Lianxiang Du, Elizabeth Lukefahr, and Andy Naranjo

78 Characterizing Stability of Asphalt Emulsions Using Electrokinetic Techniques / Ambarish Banerjee, Amit Bhasin, and Jorge Prozzi

86 Properties and Applications of Cement-Treated Sand-Expanded Polystyrene Bead Lightweight Fill / Linchang Miao, Fei Wang, Jie Han, Weihua Lv, and Jing Li

94 Evaluation of Fly Ash Stabilization of Recycled Asphalt Shingles for Use in Structural Fills / Ali Soleimanbeigi, Tuncer Edil, and Craig Benson

105 High-Calcium Bottom Ash Geopolymer: Sorptivity, Pore Size, and Resistance to Sodium Sulfate Attack / Chaicharn Chotetanorm, Prinya Chindaprasirt, Vanchai Sata, Sumrerng Rukzon, and Apha Sathonsaowaphak

112 Synthesis, Characterization, and Application Properties of Aminosulfonate-Phenol-Salicylic Acid-Formaldehyde (AH) Polymer in Concrete / Hui Zhao and Min Deng

120 Stress-Strain Behavior and Statistical Continuous Damage Model of Cement Mortar under High Strain Rates / Jikai Zhou and Xudong Chen
Impact of Alkali Silica Reaction on Fly Ash-Based Geopolymer Concrete / Kunal Kupwade-Patil and Erez N. Allouche

Fatigue Tests of Bituminous Mixtures with Inclusion of Initial Cracks / Piotr Mackiewicz
 TECHNICAL PAPERS
160 Variation of Resilient Modulus, Strength, and Modulus of Elasticity of Stabilized Soils with Postcompaction Moisture Contents / Naji Khoury, Robert Brooks, Santhoshini Yadav Boeni, and Damodar Yada
174 Effect of Temperature on Strength and Elastic Modulus of High-Strength Steel / Wei-yong Wang, Bing Liu, and Venkatesh Kodur
183 Robust SCC Mixes through Mix Design / Sandra Nunes, Paula Milheiro-Oliveira, Joana Sousa Coutinho, and Joaquim Figueiras
194 Characterization of Asphalt Mixtures Using Controlled-Strain Repeated Direct Tension Test / Xue Luo, Rong Luo, and Robert L. Lytton
208 Characterization of Fatigue Damage in Asphalt Mixtures Using Pseudostrain Energy / Xue Luo, Rong Luo, and Robert L. Lytton
219 Selective Absorption of Asphalt Binder by Limestone Aggregates in Asphalt Mixtures / Rong Luo and Robert L. Lytton
227 Probabilistic Analysis of the Degradation Evolution of Stone Wall Cladding Directly Adhered to the Substrate / A. Silva, P.L. Gaspar, and J. de Brito
236 Use of Recycled Sand Produced at Construction Sites in Bedding Mortars / Leonardo F.R. Miranda, Camila S. Constantino, Carla R. Monich, and Antônio A. de M. Neto
243 Influence of Fly Ash on Slump Loss and Strength of Concrete Fully Incorporating Recycled Concrete Aggregates / Weerachart Tangchirapat, Chaiyanunt Rattanashotingununt, Rak Buranasing, and Chai Jaturapitakkul
252 New Method for Detecting Asphalt Contamination within Fine Aggregate Medium through Chemical Testing / Benjamin F. Bowers, Baoshan Huang, and Xiang Shu
266 Physical and Marshall Properties of Borogypsum Used as Filler Aggregate in Asphalt Concrete / Tuba Kütük-Sert and Sezai Kütük
274 Mechanical Properties and Freeze-Thaw Durability of Strengthening Mortars / Pietro Bocca and Alessandro Grazzini

 TECHNICAL NOTES
289 Determination of Apparent Activation Energy of Concrete by TMC and Mathematical Means / Yonghe Xu, Xiong Zhang, Xiaomin Liao, and Yun Zhou
296 Modified Time of Setting Test for Fly Ash Paste and Fly Ash–Soil Mixtures / Xin Kang, Gi-Chun Kang, and Louis Ge
TECHNICAL PAPERS
303 Verification of Masonry Building Code to Flexural Behavior of Cement-Stabilized Soil Block / Adam G. Tennant, Craig D. Foster, and B.V. Venkatarama Reddy
318 Efficient Utilization of Recycled Concrete Aggregate in Structural Concrete / Nyok Yong Ho, Yang Pin Kelvin Lee, Wee Fong Lim, Tarek Zayed, Keat Chuan Chew, Giau Leong Low, and Seng Kiong Ting
328 Prediction of Viscoelastic Behavior in Asphalt Concrete Using the Fast Multipole Boundary Element Method / Xing-yi Zhu, Wei-qiu Chen, and Zhong-xuan Yang
337 Shakedown Analysis of Geogrid-Reinforced Granular Base Material / Qiming Chen, Murad Abu-Farsakh, George Z. Voyiadjis, and Gael Souci
347 Monitoring the Evolution of Accelerated Carbonation of Hardened Cement Pastes by X-Ray Computed Tomography / Jiande Han, Wei Sun, Ganghua Pan, and Wang Caihui
355 Effect of Basalt Fiber on the Asphalt Binder and Mastic at Low Temperature / Dong Wang, Linbing Wang, Xinyu Gu, and Guoqing Zhou
365 Sustainable Photocatalytic Asphalt Pavements for Mitigation of Nitrogen Oxide and Sulfur Dioxide Vehicle Emissions / Marwa Hassan, Louay N. Mohammad, Somayeh Asadi, Heather Dylla, and Sam Cooper III
372 New Unreacted-Core Model to Predict Pyrrhotite Oxidation in Concrete Dams / Izelman Oliveira, Sergio H.P. Cavalaro, and Antonio Aguado
382 Performance Characterization of Half Warm Mix Asphalt Using Foaming Technology / V. S. Punith, Feipeng Xiao, and David Wingard
393 Behavior of Thermoset Shape Memory Polymer-Based Syntactic Foam Sealant Trained by Hybrid Two-Stage Programming / Guoqiang Li, Abe King, Tao Xu, and Xiaoming Huang
403 Laboratory Evaluation of Warm-Mix Open Graded Friction Course Mixtures / James E. Wurst III and Bradley J. Putman
411 High-Volume Fly Ash Concrete with and without Hydrated Lime: Chloride Diffusion Coefficient from Accelerated Test / J. Hoppe Filho, M.H.F. Medeiros, E. Pereira, P. Helene, and G.C. Isaia

TECHNICAL NOTES
419 Comparative Study on Performance of Wax-Modified and Typical SMA Mixtures / Ali Mokhtari and Fereidoon Moghadas Nejad

ERRATA
TECHNICAL PAPERS

429 Study of Laboratory Compaction System Variance Using an Automatic Proctor Calibration Device / Scott J. Wasman, Michael C. McVay, Keith Beriswill, David Bloomquist, John Shoucair, and David Horhota

438 Influence of the Type of Binder and Crumb Rubber on the Creep and Recovery of Crumb Rubber Modified Bitumen / P. S. Divya, C. S. Gideon, and J. Murali Krishnan

450 Mechanical Behavior of a New Base Material Containing High Volumes of Limestone Waste Dust, PFA, and APC Residues / Behrooz Saghafi, Hassan Al Nageim, and William Atherton

462 Soil Stabilization in the Fill Project of the Olympic Rowing-Canoeing Park in Beijing / Yu-xin Jie, Guang-xin Li, Fei Tang, Yan Jin, and Jian-xin Hua


484 Influence of Fungus on Properties of Concrete Made with Waste Foundry Sand / Gurdeep Kaur, Rafat Siddique, and Anita Rajor

491 Self-Solidification/Stabilization of Heavy Metal Wastes of Class C Fly Ash–Based Geopolymers / Xiaolu Guo and Huisheng Shi

497 Study of Robustness of Self-Compacting Concretes Made with Low Fines Content / L. García, M. Valcuende, S. Balasch, and J. Fernández-Llebrez

504 Simulation Study on the Stress Distribution in Modeled Recycled Aggregate Concrete under Uniaxial Compression / Jianzhuang Xiao, Wengui Li, David J. Corr, and Surendra P. Shah

519 Mortars Made with Fine Granulate from Shredded Tires / D. Pedro, J. de Brito, and R. Veiga


CASE STUDIES

540 Evaluation for Microsurfacing as Pavement Preservation Treatment / Yigong Ji, Tommy Nantung, Bill Tompkins, and Dwayne Harris

TECHNICAL NOTES

548 Photocatalytic Suspension for Road Pavements: Investigation on Wearing and Contaminant Effects / Claudio Brovelli and Maurizio Crispino
TECHNICAL PAPERS
555  Flexural Strength of Cement Paste Beam under Chemical Degradation: Experiments and Simplified Modeling / Hu Yang, Linhua Jiang, Yan Zhang, and Qi Pu
563  Investigation of Mechanical Properties of Short- and Long-Term Aged Asphaltite Modified Asphalt Mixtures / Mehmet Yılmaz, Baha Vural Kök, and Necati Kuloğlu
573  Evaluation of Permeable Friction Course Mixes with Various Binders and Additives / Jian-Shiuh Chen, Yang-Chou Sun, Min-Chih Liao, Chien-Chung Huang, and Ko-Wan Tsou
580  Use of the Falling-Head Method to Assess Permeability of Freshly Mixed Cementitious-Based Materials / Joseph J. Assaad and Jacques Harb
589  Use of Natural Zeolite to Produce Self-Consolidating Concrete with Low Portland Cement Content and High Durability / Ali Akbar Ramezanianpour, Ali Kazemian, Morteza Sarvari, and Babak Ahmadi
597  Micromechanical Structure-Property Relationships for the Damage Analysis of Impact-Loaded Sustainable Concrete / Savaş Erdem, Andrew Robert Dawson, and Nicholas Howard Thom
610  Evaluation of Fatigue Tests for Characterizing Asphalt Binders / Fujie Zhou, Walaa Mogawer, Hongsheng Li, Adrian Andriescu, and Audrey Copeland
618  Triple Blending with Fly Ash Microsphere and Condensed Silica Fume to Improve Performance of Cement Paste / J.J. Chen and A.K.H. Kwan
627  Environmental Degradation of Fiber-Reinforced Polymer Fasteners in Wood / Samuel L. Zelinka and Douglas R. Rammer
632  Engineering Properties of Silty Clay Stabilized with Calcium Carbide Residue / Apichit Kampala and Suksun Horpibulsuk
645  Double Punch Test: Simple Performance Test to Evaluate the Fatigue and Rutting Potential of Asphalt Concrete / Haifang Wen, Sushanta Bhusal, and Xiaojun Li

CASE STUDIES

TECHNICAL NOTES
662  Effects of High Volumes of Fly Ash, Blast Furnace Slag, and Bottom Ash on Flow Characteristics, Density, and Compressive Strength of High-Strength Mortar / H.K. Kim and H.K. Lee

Inverse Analysis of Related Parameters in Calculation of Concrete Drying Shrinkage Based on ANSYS Design Optimization / Quanmin Peng and Wenliang Liu

Evaluating Compaction Quality Using Elastic Seismic P Wave / A.O. Ilori, E.E. Okwueze, and V.I. Obianwu

Analysis of Fatigue Test for Bituminous Mixtures / Nouffou Tapsoba, Cédric Sauzéat, and Hervé Di Benedetto

Effective Medium Approach for Evaluating the Oxygen Diffusivity of Concrete / Jianjun Zheng

Time-Dependent Prestress Losses in Historic Clay Brick Masonry Walls Seismically Strengthened Using Unbonded Posttensioning / Najif Ismail and Jason M. Ingham

Interface Bond Mechanism of EVA-Modified Mortar and Porcelain Tile / Daihua He, Peiming Wang, Ping Liu, and Xinkuan Liu

Portable Pressure Device to Evaluate Lateral Formwork Pressure Exerted by Fresh Concrete / Ahmed F. Omran and Kamal H. Khayat


Stiffness of High-RAP Asphalt Mixtures: Virginia’s Experience / Alex K. Apeagyei, Trenton M. Clark, and Todd M. Rorrer

Relevance of Hydrophobic and Oleophobic Properties of Antigraffiti Systems on Their Cleaning Efficiency on Concrete and Stone Surfaces / Katarina Malaga and Urs Mueller

Effect of Presoaked Expanded Perlite Aggregate on the Dimensional Stability and Mechanical Properties of Engineered Cementitious Composites / Suleyman Bahadir Keskin, Kamaran Sulaiman, Mustafa Sahmaran, and Ismail Ozgür Yaman

Experimental and Numerical Methods for Detection of Voids in Wood Poles Using Ultrasonic Testing / Fernando Tallavo, Mahesh D. Pandey, and Giovanni Cascante

Durability of Fly Ash–Based Geopolymer Structural Concrete in the Marine Environment / D.V. Reddy, Jean-Baptiste Edouard, and Khaled Sobhan

Geotechnical Properties of Blends of Recycled Clay Masonry and Recycled Concrete Aggregates in Unbound Pavement Construction / A.M. Azam and D.A. Cameron

Reaction Products in Carbonation-Cured Lightweight Concrete / Hilal El-Hassan, Yixin Shao, and Zaid Ghouleh

Laboratory Evaluation of the Workability and Compactability of Asphaltic Materials prior to Road Construction / Samer Dessouky, Arvindreddy Pothuganti, Lubinda F. Walubita, and Dale Rand

Assessment of the Durability Performance of Fiber-Cement Sheets / M. Jamshidi, H.R. Pakravan, and F. Pacheco-Torgal
INTRODUCTION
825 Special Issue on Materials Innovations for Sustainable Infrastructure / Xiang Shu, Baoshan Huang, and Jenny Liu

TECHNICAL PAPERS
829 Effect of Rejuvenator Sealer Materials on the Properties of Aged Asphalt Binder / Juntao Lin, Peida Guo, Jun Xie, Shaopeng Wu, and Meizhu Chen
836 Improved Mechanical Properties and Early-Age Shrinkage Resistance of Recycled Aggregate Concrete with Atomic Polymer Technology / Pizhong Qiao and Fangliang Chen
846 Laboratory Evaluation on Recycling Waste Phosphorus Slag as the Mineral Filler in Hot-Mix Asphalt / Guoping Qian, Shiyao Bai, Suoji Ju, and Tuo Huang
851 High-Strength Ceramsite Made with Sludge and Low-Quality Fly Ash / ZhengHong Yang, WenJuan Song, JianHui Yang, Lei Deng, Zhen Cao, and MeiLun Shi
864 Crack-Healing Investigation in Bituminous Materials / Jian Qiu, Martin van de Ven, and Andre Molenaar
871 Analysis of Characteristics of Electrically Conductive Asphalt Concrete Prepared by Multiplex Conductive Materials / Shaopeng Wu, Pan Pan, Mingyu Chen, and Yuan Zhang
880 Induction Healing of Porous Asphalt Concrete Beams on an Elastic Foundation / Quantao Liu, Erik Schlangen, and Martin van de Ven
886 Investigation into Laboratory Abrasion Test Methods for Pervious Concrete / Qiao Dong, Hao Wu, Baoshan Huang, Xiang Shu, and Kejin Wang
893 Influence of Ultraviolet Light on Photocatalytic TiO$_2$ Materials / Shannon Hanson and Paul Tikalsky
907 Integrated Experimental and Numerical Study on Permanent Deformation of Asphalt Pavement at Intersections / Linglin Li, Xiaoming Huang, Linbing Wang, and Chang Li
913 Improved Resistance of Long-Term Aged Warm-Mix Asphalt to Moisture Damage Containing Moist Aggregates / Feipeng Xiao, Veeralinga S. Punith, Serji N. Amirkhanian, and Carl Thodesen
923 Feasibility Study of Developing Green ECC Using Iron Ore Tailings Powder as Cement Replacement / Xiaoyan Huang, Ravi Ranade, and Victor C. Li
932 Neutron Scattering for Moisture Detection in Foamed Asphalt / Baoshan Huang, Yang Zhang, Xiang Shu, Yun Liu, Dayakar Penumadu, and X. Philip Ye
939 Effects of Types and Content of Warm-Mix Additives on CRMA / Xin Yu, Yuhong Wang, and Yilin Luo
TECHNICAL PAPERS
947 Elevated Temperature Material Degradation of Cold-Formed Steels under Steady- and Transient-State Conditions / Jihong Ye and Wei Chen
958 Two-Stage Viscoelastic-Viscoplastic Damage Constitutive Model of Asphalt Mixtures / Lu Sun, Haoran Zhu, and Yaoting Zhu
980 Simplified Model for Strength Assessment of Timber Beams Joined by Bonded Plates / Francisco Arriaga, Guillermo Iñiguez-Gonzalez, Miguel Esteban, and Jose L. Fernandez-Cabo
991 Development Length of High-Strength Steel Rebar in Ultrahigh Performance Concrete / Muhammad Azhar Saleem, Amir Mirmiran, Jun Xia, and Kevin Mackie
999 Role of Fly Ash Pozzolanic Reactions in Controlling Fluoride Release from Phosphogypsum / Sudhakar M. Rao and K. Asha
1006 Development of a Damage-Based Phenomenological Fatigue Model for Asphalt Pavements / Haifang Wen and Xiaojun Li
1013 Performance of Triangular Aperture Geogrid-Reinforced Base Courses over Weak Subgrade under Cyclic Loading / Yu Qian, Jie Han, Sanat K. Pokharel, and Robert L. Parsons
1022 Acoustic Emission Monitoring of Reinforced Concrete under Accelerated Corrosion / M. Di Benedetti, G. Loreto, F. Matta, and A. Nanni
1030 Reconsideration of European Empirical and Fundamental Specifications for Asphalt Mixtures / Miomir Miljković
1041 Stabilization of Phosphogypsum by Sulfur Polymer / Irene García-Díaz, Israel López-Coto, Juan Pedro Bolívar, Francisco José Alguacil, Manuel Gázquez, and Félix Antonio López
1050 Cost-Benefit Analysis of Thin Surface Treatments in Pavement Treatment Strategies and Cycle Maintenance / Guangming Wang, Dennis Morian, and Doug Frith
1059 Comparison of Thermal Stresses Calculated from Asphalt Binder and Asphalt Mixture Creep Tests / K.H. Moon, M.O. Marasteanu, and M. Turos
1077 Geotechnical and Geoenvironmental Properties of Recycled Construction and Demolition Materials in Pavement Subbase Applications / A. Arulrajah, J. Piratheepan, M.M. Disfani, and M.W. Bo
1089 Nonlinear Mechanical Behavior of Natural Argillite under Monotonic and Cyclic Loading / Diansen Yang, Serge Chanchole, and Pierre Valli
1097 Using a Saturation Function to Interpret the Electrical Properties of Partially Saturated Concrete / Jason Weiss, Ken Snyder, Jeff Bullard, and Dale Bentz

CASE STUDIES
1107 Evaluating the Performance of Polymer Road Curbs / A. Mason, O. Korostynska, L.E. Cordova-Lopez, A. Al-Shamma’a, and M. Ledsham
TECHNICAL NOTES
1115 Experimental Investigations of Performance Characteristics of Rice Husk Ash–Blended Concrete / A. Muthadhi and S. Kothandaraman
1119 Use of Surface Free Energy Method to Evaluate Effect of Hydrate Lime on Moisture Damage in Hot-Mix Asphalt / F. Moghadas Nejad, Gh.H. Hamedi, and A.R. Azarhoosh
1127 Strength Characteristics of High-Volume Fly Ash–Based Recycled Aggregate Concrete / P. Saravanakumar and G. Dhinakaran
1134 Effects of Curing Conditions on Unconfined Compressive Strength of Cement- and Cement-Fiber-Improved Soft Soils / Chunyang Liu and Ryan D. Starcher

DISCUSSIONS AND CLOSURES
1142 Discussion of "Strengthening Two-Way Reinforced Concrete Floor Slabs Using Polypropylene Fiber Reinforcement" by Matthew J. Radik, Ece Erdogmus, and Travis Schafer / Duarte M.V. Faria, Valtér J.G. Lúcio, and António M. Pinho Ramos
1142 Closure / Ece Erdogmus and Travis Schafer

1143 Discussion of "Strength of Sawn Lumber and Wood Composite Dowel Connections Loaded Perpendicular to Grain. I: NDS Design Equations" by Daniel P. Hindman, David E. Finkenbinder, Joseph R. Loferski, and Philip Line / T.A.C.M. van der Put
1147 Closure / P. Hindman

1147 Discussion of "Strength of Sawn Lumber and Wood Composite Dowel Connections Loaded Perpendicular to Grain. II: Fracture Mechanics Equations" by Daniel P. Hindman, David E. Finkenbinder, Joseph R. Loferski, and Philip Line / T.A.C.M. van der Put
1151 Closure / Daniel P. Hindman
nr 9

Mechanics and Models of Pavement Materials / Qingli (Barbara) Dai

TECHNICAL PAPERS
1153 Microstructural Association Model for Upscaling Prediction of Asphalt Concrete Dynamic Modulus / B. Shane Underwood and Y. Richard Kim
1162 Equivalent Loading Frequencies for Dynamic Analysis of Asphalt Pavements / Alvaro Ulloa, Elie Y. Hajj, Raj V. Siddharthan, and Peter E. Sebaaly
1171 Micromechanical Model for Predicting Coefficient of Thermal Expansion of Concrete / Changjun Zhou, Baoshan Huang, and Xiang Shu
1181 Time Temperature Superposition Principle Validation for Bituminous Mixes in the Linear and Nonlinear Domains / Quang Tuan Nguyen, Hervé Di Benedetto, Cédric Sauzéat, and Nouffou Tapsoba
1189 Mechanistic Modeling of Fracture in Asphalt Mixtures under Compressive Loading / Yuqing Zhang, Rong Luo, and Robert L. Lytton
1198 Energy-Based Mechanistic Approach to Characterize Crack Growth of Asphalt Mixtures / Xue Luo, Rong Luo, and Robert L. Lytton
1209 Evaluating Fatigue-Cracking Resistance of Asphalt Binders in a Standardized Composite Using Continuum Damage Theory / Arash Motamed, Amit Bhasin, and Anoosha Izadi
1220 Fatigue Properties of Asphalt Materials at Low In-Service Temperatures / Dong Wang, Linbing Wang, Christian Druta, and Guoqing Zhou
1239 Multiscale Chemico-Thermo-Hydro-Mechanical Modeling of Early-Stage Hydration and Shrinkage of Cement Compounds / Zhen Liu and Xiong Yu
1248 Investigation of Internal Frost Damage in Concrete with Thermodynamic Analysis, Microdamage Modeling, and Time-Domain Reflectometry Sensor Measurements / Qingli Dai, Kenny Ng, Yan Liu, and Xiong Yu

OTHER TECHNICAL PAPERS
1271 Sorption-Induced Swelling of Tire-Derived Aggregate: Experimental Study / Anh T. Ngo and Julio R. Valdes
1277 Tensile Creep Behavior of Concrete Subject to Constant Restraint at Very Early Ages / Ya Wei and Will Hansen
1285 Compression Behavior of Large-Sized Tire-Derived Aggregate for Embankment Application / Daniel Meles, Alireza Bayat, and Hamid Soleymani
1291 Evaluating Foamed Asphalt Stability Using Acoustic Emission Techniques / Alex K. Apeagyei
1299 Mechanistic Performance of Asphalt-Concrete Mixture Incorporating Coarse Recycled Concrete Aggregate / Anggraini Zulkati, Yiik Diew Wong, and Darren Delai Sun
1306 Stress-Strain Curves of Structural and Reinforcing Steels after Exposure to Elevated Temperatures / Zhong Tao, Xing-Qiang Wang, and Brian Uy
1317 Numerical Simulation of the Freezing Process of Concrete / An Duan, Ju Chen, and Weiliang Jin
Corrosion Damage Quantification of Prestressing Strands Using Acoustic Emission / Jesé Mangual, Mohamed ElBatanouny, Paul Ziehl, and Fabio Matta

Influence of Different European Cements on the Hydration of Cover-Zone Concrete during the Curing and Postcuring Periods / W.J. McCarter, G. Starrs, A. Adamson, T.M. Chrisp, P.A.M. Basheer, S. Nanukuttan, S. Srinivasan, and C. Green

Effect of Compaction Temperature on Rutting and Moisture Resistance of Foamed Warm-Mix-Asphalt Mixtures / Feipeng Xiao, V.S. Punith, and Bradley J. Putman

Acid Corrosion of Plain and Reinforced Concrete Sewage Systems / Ernest O. Nnadi and Juan Lizarazo-Marriaga

OTHER TECHNICAL NOTES
TECHNICAL PAPERS

1357 Prediction of Equivalency Factors for Various Subbase and Base Courses / Praveen Kumar and Shashi Kant Sharma

1366 Shear and Compressibility Behavior of Sand–Tire Crumb Mixtures / M. Neaz Sheikh, M.S. Mashiri, J.S. Vinod, and Hing-Ho Tsang

1375 Air-Void Distribution Analysis of Asphalt Mixture Using Discrete Element Method / Jingsong Chen, Baoshan Huang, and Xiang Shu

1386 New Methodology to Find the Healing and Fracture Properties of Asphalt Mixes Using Overlay Tester / Yasser Koohi, Rong Luo, Robert L. Lytton, and Tom Scullion

1394 Permanent Strain Modeling of Recycled Concrete Aggregate for Unbound Pavement Construction / A.R. Gabr and D.A. Cameron

1403 Modeling Mode I Fracture of Bitumen Films / O. Portillo and D. Cebon

1415 Effect of Previous Cyclic Shearing on Liquefaction Resistance of Mississippi River Valley Silt / Shuying Wang, Junsheng Yang, and Site Onyejekwe

1424 Levels of Variability in Volumetric and Mechanical Properties of Asphalt Mixtures / Louay N. Mohammad, Mostafa Elseifi, Samuel B. Cooper III, and Amar Raghavendra

1432 Laboratory Evaluation of Waste Cooking Oil-Based Bioasphalt as an Alternative Binder for Hot Mix Asphalt / Haifang Wen, Sushanta Bhushal, and Ben Wen

1438 Behavior of PVA Fiber-Reinforced Cementitious Composites under Static and Impact Flexural Effects / Hakan Nuri Atahan, Bekir Yılmaz Pekmezci, and Erman Yiğit Tuncel

1446 Development of Long Carbon Fiber-Reinforced Concrete for Dynamic Strengthening / Zahra S. Tabatabaei, Jeffery S. Volz, Benjamin P. Gliha, and Darwin I. Keener

1456 Material Properties of Structurally Viable Alkali-Activated Fly Ash Concrete / Aleksandra Radlińska, Joseph R. Yost, and Michael J. Salera

1465 Examination of Chloride-Induced Corrosion in Reinforced Geopolymer Concretes / Kunal Kupwade-Patil and Erez N. Allouche

1477 Quantum-Chemistry–Based Study of Beech-Wood Lignin as an Antioxidant of Petroleum Asphalt / Tongyan Pan, Qifeng Yu, and Stephen Lloyd

1489 Static and Dynamic Mechanical Properties of Cement-Asphalt Composites / Liu Yongliang, Kong Xiangming, Zhang Yanrong, and Yan Peiyu

1498 Experimental Investigation of Mechanical Properties of Nitinol, Structural Steel, and Their Hybrid Component / A. Jalaeefar and B. Asgarian

1506 Shear Behavior of High-Volume Fly Ash Concrete versus Conventional Concrete / Mahdi Arezoumandi, Jeffrey S. Volz, and John J. Myers

1514 Compression Behavior and Material Parameters of Radiata Pine at Different Orientations to the Grain / Steffen Franke and Pierre Quenneville

1524 Microstructural Changes of Lime Putty during Aging / Maria Goreti Margalha, António Santos Silva, Maria do Rosário Veiga, Jorge de Brito, Richard James Ball, and Geoffrey Charles Allen

1533 Creep Behavior of Geocell-Reinforced Recycled Asphalt Pavement Bases / Jitendra K. Thakur, Jie Han, and Robert L. Parsons

1543 Characterization of Linear Viscoelastic Behavior of Asphalt Concrete Using Complex Modulus Model / Yanqing Zhao, Hui Liu, Long Bai, and Yiqiu Tan
Dynamic Hysteretic Characteristics of High-Strength Steels (POSTEN60, POSTEN80) and Application of a Dynamic Hysteresis Model to FE Analysis / KyongHo Chang, GabChul Jang, Siegfried F. Stiemer, and Nathan Loewen
Durability of Underwater-Made Butt Steel Adhesive Joints under Laboratory Conditions: Theoretical Model / Panagiotis Frantzis

CASE STUDIES
Study on Serpentinites and the Consequence of the Misuse of Natural Stone in Buildings for Construction / D. Pereira, J.A. Blanco, and M. Peinado

TECHNICAL NOTES
Parameters Controlling Tensile and Compressive Strength of Fiber-Reinforced Cemented Soil / Nilo Cesar Consoli, Rafael Rizzati de Moraes, and Lucas Festugato
Thermal Expansion Study and Microstructural Characterization of High-Performance Concretes / Fei Ren, John Jy-An Wang, and Beverly P. DiPaolo
TECHNICAL PAPERS
1579 Properties of Self-Consolidating Concrete Made with High Volumes of Supplementary Cementitious Materials / Hassan El-Chabib and Adnan Syed
1587 Effect of New Composite Cement Containing Volcanic Ash and Limestone on Mechanical Properties and Salt Scaling Resistance of Concrete / Ali Akbar Ramezanianpour, Mohsen Jafari Nadooshan, and Mansour Peydavesh
1594 Strength and Leachability of Solidified Sewage Sludge with Different Additives / Cheng Lin, Wei Zhu, and Jie Han
1602 Strain Capacity and Cracking Resistance Improvement in Mortars by Adding Plastic Particles / Kinda Hannawi, William Prince, and Siham Kamali Bernard
1611 Strength and Abrasion Characteristics of ISF Slag Concrete / Bhavna Tripathi, Anurag Misra, and Sandeep Chaudhary
1619 Rheological Properties and Chemical Bonding of Asphalt Modified with Nanosilica / Hui Yao, Zhanping You, Liang Li, Chee Huei Lee, David Wingard, Yoke Khin Yap, Ph.D.Xianming Shi, and Shu Wei Goh
1631 Development of Fracture Resistance Curves for Asphalt Concrete / Andrew Braham and Caleb Mudford
1638 Spent Brewery Grains for Improvement of Thermal Insulation of Ceramic Bricks / Eduardo Ferror, João Coroado, José Gamelas, Joaquim Silva, Fernando Rocha, and Ana Velosa
1647 Load Duration Effects in Wood at High Strain Rates / Christopher G. Gilbertson and William M. Bulleit
1655 Short- and Longer-Term Consolidation Effects of Portlandite (CaOH)$_2$ Nanoparticles in Carbonate Stones / P. López-Arce, A. Zornoza-Indart, L.S. Gomez-Villalba, and R. Fort
1666 Performance Characteristics of Bituminous Concrete with Industrial Wastes as Filler / Satish Chandra and Rajan Choudhary
1674 Strain Response of Reclaimed Asphalt Pavement Material Blends under Extended Loading Testing / Anthony J. Waldenmaier, Magdy Abdelrahman, and Mohamed Attia
1682 Laboratory Evaluation of the Geotechnical Characteristics of Wastewater Biosolids in Road Embankments / A. Arulrajah, M.M. Disfani, V. Suthagaran, and M.W. Bo
1692 Investigating the Relationships between the Electrical Resistivity Characteristics and the Volumetric Properties of Asphalt Mixtures / Seyed Arash Forough, Fereidoon Moghadas Nejad, and Hasan Ziari
1703 Thermochemical Pretreatments for Agricultural Residue Ash Production for Concrete / Feraidon F. Ataie and Kyle A. Riding
1712 Evaluation of Cold In-Place and Cold Central-Plant Recycling Methods Using Laboratory Testing of Field-Cored Specimens / Alex K. Apeagyei and Brian K. Diefenderfer
1721 Residual Mechanical Response of Recycled Aggregate Concrete after Exposure to Elevated Temperatures / Salah R. Sarhat and Edward G. Sherwood
1731 Limitation of the Artificial Neural Networks Methodology for Predicting the Vertical Swelling Percentage of Expansive Clays / Shlomo Bekhor and Moshe Livneh

1752 Effect of Testing Method and Strain Rate on Stress-Strain Behavior of Concrete / Xudong Chen, Shengxing Wu, Jikai Zhou, Yuzhi Chen, and Aiping Qin

1762 Experimental and Modeling Study on Magnetorheological Elastomers with Different Matrices / Jun-Tao Zhu, Zhao-Dong Xu, and Ying-Qing Guo


TECHNICAL NOTES

1776 Laboratory-Scale Investigation on Band Gradations of Aggregate for Concrete / W.B. Ashraf and M.A. Noor
TECHNICAL PAPERS
1783  Green Concrete Made with RCA and FRP Scrap Aggregate: Fresh and Hardened Properties / M. Shahria Alam, Emma Slater, and A.H.M. Muntasir Billah
1795  Effects of the Parent Concrete Properties and Crushing Procedure on the Properties of Coarse Recycled Concrete Aggregates / A. Akbarnezhad, K.C.G. Ong, C.T. Tam, and M.H. Zhang
1803  Commonly Used Porous Building Materials: Geomorphic Pore Structure and Fluid Transport / Liang Bo Hu, Cabot Savidge, Donna M. Rizzo, Nancy Hayden, James W. Hagadorn, and Mandar Dewoolkar
1813  How to Construct an Asphalt Binder Master Curve and Assess the Degree of Blending between RAP and Virgin Binders / Abbas Booshehrian, Walaa S. Mogawer, and Ramon Bonaquist
1822  Stress-Strain Model of Ultrahigh Performance Concrete Confined by Fiber-Reinforced Polymers / Pedram Zohrevand and Amir Mirmiran
1830  Ultrastrength Flowable Concrete Made with High Volumes of Supplementary Cementitious Materials / Ahmed Ibrahim, Hassan El-Chabib, and Ahmed Eisa
1840  Effect of Paste-to-Voids Volume Ratio on the Performance of Concrete Mixtures / Ezgi Yurdakul, Peter C. Taylor, Halil Ceylan, and Fatih Bektas
1852  Viscoelastic Transition of Unaged and Aged Asphalt / A. Padmerekha and J. Murali Krishnan
1864  Properties of Concrete Containing Construction and Demolition Wastes and Fly Ash / S.F.U. Ahmed
1871  Engineering Properties of Copper Slag–Fly Ash–Dolime Mix and Its Utilization in the Base Course of Flexible Pavements / J.T. Shahu, S. Patel, and A. Senapati
1880  Stress-Strain-Strength Behavior of Lime-Stabilized Soils during Accelerated Curing / N.M. Toohey, M.A. Mooney, and R.G. Bearce
1887  Evaluation of Warm Mix Asphalt Mixtures Containing Reclaimed Asphalt Pavement through Mechanical Performance Tests and an Acoustic Emission Approach / Brian Hill, Behzad Behnia, William G. Buttler, and Henrique Reis
1898  Evaluation of Remediation Techniques for Circular Holes in the Webs of Wood I-Joists / Tiberiu Polocoser, Thomas H. Miller, and Rakesh Gupta
1910  Masonry Confinement Using Steel Cords / Antonio Borri, Giulio Castori, and Marco Corradi
1920  Resilient Moduli Response of Recycled Construction and Demolition Materials in Pavement Subbase Applications / A. Arulrajah, J. Piratheepan, M.M. Disfani, and M.W. Bo
1929  Influence of Cyclic Humidity on Carbonation of Concrete / Chun-Tao Chen and Chia-Wei Ho
1936  Effects of an Asphalt Rubber Membrane Interlayer on Pavement Reflective Cracking Performance / Yu Chen, George Lopp, and Reynaldo Roque
1941  Effects of Reactive Magnesia on Microstructure and Frost Durability of Portland Cement-Based Binders / Andrzej Cwirzen and Karin Habermehl-Cwirzen
1951  HPC Composites Formulated to Counteract Early ASR Expansion / Galal Fares and M. Iqbal Khan
TECHNICAL NOTES
1959  Theoretical Analyses and Experimental Research on a Cement Concrete Dielectric Model / Meili Meng and Fuming Wang
1964  Laboratory Evaluation of Deformations of Steel-Reinforced High-Density Polyethylene Pipes under Static Loads / Deep Kumar Khatri, Jie Han, Robert L. Parsons, Bryan Young, James J. Brennan, and Ryan Corey
1970  Interface Behavior of Woven Geotextile with Rounded and Angular Particle Sand / Anubhav and P.K. Basudhar
1975  Laboratory Investigation of Different Standards of Phase Separation in Crumb Rubber Modified Asphalt Binders / Hakseo Kim and Soon-Jae Lee
1979  Torsional Shear Tests on Laminated Veneer Lumber Using a Universal-Type Test Machine / Zhuo Yang, Peggi L. Clouston, and Alexander C. Schreyer
1984  Impact Resistance of Polyurea-Coated High-Performance Cementitious Composites / Hyungjoo Choi, Houssam A. Toutanji, John A. Gilbert, and David J. Alldredge
1990  Utilization of Steel Slag Powder as a Combined Admixture with Ground Granulated Blast-Furnace Slag in Cement Based Materials / Xiaolu Guo and Huisheng Shi

DISCUSSIONS AND CLOSURES
1994  Discussion of "Effect of SCC Mixture Composition on Thixotropy and Formwork Pressure" by A. F. Omran, K. H. Khayat, and Y. M. Elaguab / Mark L. Talesnick

Oprac. BPK