

# ACI MATERIALS JOURNAL

## Paper Index Volume 109, 2012 *January through December 2012*



American Concrete Institute®  
*Advancing concrete knowledge*

### A

**A First-Cut Field Method to Evaluate Limestone Aggregate Durability (109-M54)**—Julienne Ruth Emry, Robert H. Goldstein, and Evan K. Franseen, Sept.-Oct. 2012 ..... 557

**Accelerating Standard Test Method for Assessing Corrosion of Steel in Concrete (109-M40)**—Ceki Halmen and David Trejo, July-Aug. 2012 ..... 421

**Analysis of L-Box Test for Tremie Pipe Concrete (109-M28)**—Habib Alehossein, Karsten Beckhaus, and Martin Larisch, May-June 2012 ..... 303

**Apparent Thermal Coefficient of Expansion of Concrete Building with Restraint (109-M07)**—Magued Iskander, Saumil Parikh, and Walid Aboumoussa, Jan.-Feb. 2012 ..... 63

**Artificial Intelligence Model for Early-Age Autogenous Shrinkage of Concrete (109-M33)**—Moncef L. Nehdi and Ahmed M. Soliman, May-June 2012 ..... 353

### B

**Biaxial Stress due to Shrinkage in Concrete Jackets of Strengthened Columns (109-M31)**—Andreas P. Lampropoulos, Ourania T. Tsoulou, and Stephanos E. Dritsos, May-June 2012 ..... 331

### C

**Cement Chemical Shrinkage as Measure of Hydration Kinetics and Its Relationship with Nonevaporable Water (109-M32)**—Xueyu Pang and Christian Meyer, May-June 2012 ..... 341

**Combined Effect of Aggregate and Mineral Admixtures on Tensile Ductility of Engineered Cementitious Composites (109-M61)**—Mustafa Şahmaran, Hasan E. Yücel, Serhat Demirhan, Mehmet T. Arık, and Victor C. Li, Nov.-Dec. 2012 ..... 627

**Comparing Lightweight Polystyrene Concrete Using Engineered or Waste Materials (109-M11)**—Matthew Trussoni, Carol D. Hays, and Ronald F. Zollo, Jan.-Feb. 2012 ..... 101

**Concrete Carbonation as a Limited Process and Its Relevance to Concrete Cover Thickness (109-M25)**—Lech Czarnecki and Piotr Woyciechowski, May-June 2012 ..... 275

**Concrete Made with Coarse Concrete Aggregate: Influence of Curing on Durability (109-M20)**—Pedro Amorim, Jorge de Brito, and Luís Evangelista, Mar.-Apr. 2012 ..... 195

**Concrete with Used Tire Rubber Aggregates: Mechanical Performance (109-M26)**—Filipe Valadares, Miguel Bravo, and Jorge de Brito, May-June 2012 ..... 283

**Corrosion Mitigation in Reinforced Concrete Beams via Nanoparticle Treatment (109-M60)**—Kunal Kupwade-Patil, Henry E. Cardenas, Kanielle Gordon, and Luke S. Lee, Nov.-Dec. 2012 ..... 617

**Corrosion Performance of Reactive-Enamel Coated Reinforcing Steel (109-M42)**—Charles R. Werner, Jeffery S. Volz, Genda Chen, Richard K. Brow, and Michael L. Koenigstein, July-Aug. 2012..... 441

**Corrosion Prevention of Reinforced Concrete with Microbial Calcite Precipitation (109-M16)**—Varenyam Achal, Abhijit Mukherjee, Shweta Goyal, and M. Sudhakara Reddy, Mar.-Apr. 2012..... 157

**Crack Propagation in Recycled Aggregate Concrete under Uniaxial Compressive Loading (109-M43)**—Jianzhuang Xiao, Wengui Li, Zhihui Sun, and Surendra P. Shah, July-Aug. 2012 .... 451

**Creep Testing of Epoxy-Bonded Reinforcing Bar Couplers (109-M47)**—Griffin Brungraber, Sept.-Oct. 2012 ..... 499

## D

**Development of Frangible Concrete to Reduce Blast-Related Casualties (109-M04)**—Edward F. O’Neil, Weiguo Shen, Hamlin M. Jennings, Jeffrey J. Thomas, and Toney Cummins, Jan.-Feb. 2012....31

**Distributions of Compressive Strength Obtained from Various Diameter Cores (109-M58)**—Ahmet Ozan Celik, Kadir Kilinc, Mustafa Tuncan, and Ahmet Tuncan, Nov.-Dec. 2012 ..... 597

**Do Current Laboratory Test Methods Accurately Predict Alkali-Silica Reactivity? (109-M37)**—Jason H. Ideker, Anthony F. Bentivegna, Kevin J. Folliard, and Maria C. G. Juenger, July-Aug. 2012..... 395

## E

**Early-Age Creep of Mass Concrete: Effects of Chemical and Mineral Admixtures (109-M52)**—Sergio Botassi dos Santos, Luiz Carlos Pinto da Silva Filho, and João Luiz Calmon, Sept.-Oct. 2012.....537

**Early-Age Shrinkage of Ultra-High-Performance Concrete under Drying/Wetting Cycles and Submerged Conditions (109-M13)**—Ahmed Soliman and Moncef Nehdi, Mar.-Apr. 2012..... 131

**Effect of Beam Size, Casting Method, and Support Conditions on Flexural Behavior of Ultra-High-Performance Fiber-Reinforced Concrete (109-M36)**—Kay Wille and Gustavo J. Parra-Montesinos, May-June 2012..... 379

**Effect of Metakaolin and Silica Fume on Rheology of Self-Consolidating Concrete (109-M64)**—Assem A. A. Hassan, Mohamed Lachemi, and Khandaker M. A. Hossain, Nov.-Dec. 2012..... 657

**Effect of  $\text{Na}_2\text{SiO}_3/\text{NaOH}$  Ratios and NaOH Molarities on Compressive Strength of Fly-Ash-Based Geopolymer (109-M48)**—A. M. Mustafa Al Bakri, H. Kamarudin, M. Bnhussain, A. R. Rafiza, and Y. Zarina, Sept.-Oct. 2012..... 503

**Effect of Phase-Change Materials on Properties of Concrete (109-M08)**—Panis Meshgin and Yunping Xi, Jan.-Feb. 2012 ..... 71

**Effect of Phase-Change Materials on Properties of Concrete (Disc. 109-M08)**—Disc. by Hilarisi Abeyruwan, Nov.-Dec. 2012 ..... 685

**Effect of Transient Creep on Behavior of Reinforced Concrete Beams in a Fire (109-M59)**—Arezki Sadaoui and Amar Khennane, Nov.-Dec. 2012 ..... 607

**Effect of Using Mortar Interface and Overlays on Masonry Behavior by Using Taguchi Method (109-M49)**—Mariam Farouk Ghazy, Sept.-Oct. 2012..... 509

**Effect of Vibration Amplitude on Concrete with Damping Additives (109-M35)**—Adam G. Bowland, Richard E. Weyers, Finley A. Charney, Norman E. Dowling, Thomas M. Murray, and Andrei Rammiceanu, May-June 2012 ..... 371

**Effects of Additives on Properties of Rapid-Setting Controlled Low-Strength Material Mixtures (109-M03)**—Lianxiang Du, Kevin J. Folliard, and Thanos Drimalas, Jan.-Feb. 2012 ..... 21

**Electromagnetic Characteristics of Cement Matrix Materials with Carbon Nanotubes (109-M34)**—I. W. Nam, H. K. Lee, J. B. Sim, and S. M. Choi, May-June 2012..... 363

**Empirical Equations for Mechanical Properties of  $\text{Ca}(\text{OH})_2$ -Based Alkali-Activated Slag Concrete (109-M41)**—Keun-Hyeok Yang and Jin-Kyu Song, July-Aug. 2012..... 431

**Energy-Based Analysis of Nanoindentation Curves for Cementitious Materials (109-M09)**—Kaushal K. Jha, Nakin Suksawang, Debrupa Lahiri, and Arvind Agarwal, Jan.-Feb. 2012 ..... 81

**Evaluation of Elastic Modulus for High-Strength Concrete (109-M29)**—Hugues M. Vogel and Dagmar Svecova, May-June 2012..... 313

**Experimental Study on Dynamic Axial Tensile Mechanical Properties of Concrete and Its Components (109-M50)**—Shengxing Wu, Yao Wang, Dejian Shen, and Jikai Zhou, Sept.-Oct. 2012.... 517

## F

**Factors Affecting Bond between New and Old Concrete (Disc. 108-M48)**—Disc. by Akhilesh K. Pandey, May-June 2012 ..... 389

**Fatigue Analysis of Plain and Fiber-Reinforced Self-Consolidating Concrete (109-M56)**—S. Goel, S. P. Singh, and P. Singh, Sept.-Oct. 2012..... 573

**Fracture Surface-Based Toughness Modeling of Cement-Based Materials (109-M05)**—Anne B. (Abell) Nichols and David A. Lange, Jan.-Feb. 2012 ..... 41

**Fresh, Mechanical, Transport, and Durability Properties of Self-Consolidating Rubberized Concrete (109-M39)**—Okan Karahan, Erdoğan Özbay, Khandaker M. A. Hossain, Mohamed Lachemi, and Cengiz D. Atış, July-Aug. 2012..... 413

## H

**Heat Generation of Curing Fly Ash Concrete at Different  $w/cm$  (Disc. 108-M33)**—Disc. by J. M. Torrenti, Mar.-Apr. 2012 ..... 245

**High Temperature Mechanical Properties of High-Strength Fly Ash Concrete with and without Fibers (109-M65)**—Wasim Khalid and Venkatesh Kodur, Nov.-Dec. 2012 ..... 665

**High Temperature Resistance of Alkali-Activated Slag- and Portland Cement-Based Reactive Powder Concrete (109-M44)**—Serdar Aydin and Bülent Baradan, July-Aug. 2012 ..... 463

**Hydraulic Pressure Cracking in Rail Seats of Concrete Crosses (109-M62)**—John C. Zeman, J. Riley Edwards, David A. Lange, and Christopher P. L. Barkan, Nov.-Dec. 2012..... 639

**Impact Behavior of Textile and Hybrid Cement-Based Composites (Disc. 108-M25)**—Disc. by Hossam El-Din M. Sallam, Mar.-Apr. 2012..... 244

**Influence of Environment on Durability of Fly Ash Cement Mortars (109-M63)**—J. Marcos Ortega, Isidro Sánchez, Carlos Antón, Guillermo de Vera, and Miguel A. Climent, Nov.-Dec. 2012 ..... 647

**Influence of Specimen Size and Fiber Content on Mechanical Properties of Ultra-High-Performance Fiber-Reinforced Concrete (109-M66)**—Sadegh Kazemi and Adam S. Lubell, Nov.-Dec. 2012 ..... 675

**Inverse Analysis Method for Concrete Shrinkage Prediction from Short-Term Tests (109-M27)**—Mohammad Shekarchi, Farnam Ghasemzadeh, and Siavash Sajedi, May-June 2012.... 293

**Investigation of Properties of Engineered Cementitious Composites Incorporating High Volumes of Fly Ash and Metakaolin (109-M55)**—E. Özbay, O. Karahan, M. Lachemi, K. M. A. Hossain, and C. Duran Atış, Sept.-Oct. 2012 ..... 565

**L**

**Long-Term Behavior of Cracked Steel Fiber-Reinforced Concrete Beams under Sustained Loading (109-M22)**—Raúl L. Zerbino and Bryan E. Barragán, Mar.-Apr. 2012..... 215

**Low-Cycle Fatigue of Oil Well Cements in Compression (109-M19)**—Xueyu Pang, Robert Darbe, Kris Ravi, and Christian Meyer, Mar.-Apr. 2012 ..... 185

**M**

**Mechanical Characterization of Concrete Roof Tiles (109-M02)**—María Isabel Sánchez de Rojas, Félix P. Marín, and Ana María Martín, Jan.-Feb. 2012..... 11

**Mechanical Properties and Durability of Ultra-High-Performance Concrete (109-M18)**—Cornelia Magureanu, Ioan Sosa, Camelia Negruțiu, and Bogdan Heghes, Mar.-Apr. 2012..... 177

**Mechanical Properties of Self-Consolidating Concrete Using Conventional Concrete Models (109-M57)**—Angel Vilanova, Jaime Fernández-Gómez, and Galit Agranati Landsberger, Nov.-Dec. 2012 ..... 587

**Modeling Hydration of Cementitious Systems (109-M23)**—Kyle A. Riding, Jonathan L. Poole, Kevin J. Foliard, Maria C. G. Juenger, and Anton K. Schindler, Mar.-Apr. 2012 ..... 225

**Monotonic and Cyclic Behavior of High-Strength Concrete with Polypropylene Fibers at High Temperature (109-M30)**—Eddie Siu-Shu Lam, Bo Wu, Qun Liu, and Ivy Fung-Yuen Ho, May-June 2012..... 323

**O**

**Optimized Gel Pat Test for Detection of Alkali-Reactive Aggregates (109-M38)**—Victor Lanza and Pilar Alaejos, July-Aug. 2012..... 403

**Oxygen and Chloride Permeability of Alkali-Activated Natural Pozzolan Concrete (109-M06)**—Dali Bondar, Cyril J. Lynsdale, Neil B. Milestone, and Nemat Hassani, Jan.-Feb. 2012..... 53

**Oxygen Transport and Corrosion of Steel in Concrete under Varying Concrete Cover, w/c, and Moisture (109-M01)**—Raja Rizwan Hussain, Tetsuya Ishida, and Muhammad Wasim, Jan.-Feb. 2012..... 3

**P**

**Particle Packing-Based Material Design Methodology for Pervious Concretes (109-M21)**—Milani S. Sumanasooriya, Omkar Deo, and Narayanan Neithalath, Mar.-Apr. 2012 ..... 205

**Performance of Portland/Silica Fume Cement Concrete Produced with Recycled Concrete Aggregate (109-M10)**—Mukesh Limbachiya, Mohammed Seddik Meddah, and Youssef Ouchagour, Jan.-Feb. 2012 ..... 91

**Potential Recycling of Bottom and Fly Ashes in Acoustic Mortars and Concretes (109-M51)**—Carlos Leiva, Luis F. Vilches, Celia Arenas, Silvia Delgado, and Constantino Fernández-Pereira, Sept.-Oct. 2012 ..... 529

**Proposed Flexural Test Method and Associated Inverse Analysis for Ultra-High-Performance Fiber-Reinforced Concrete (109-M53)**—Florent Baby, Benjamin Graybeal, Pierre Marchand, and François Toutlemonde, Sept.-Oct. 2012 ..... 545

**Pullout Behavior of High-Strength Steel Fibers Embedded in Ultra-High-Performance Concrete (109-M46)**—Kay Wille and Antoine E. Naaman, July-Aug. 2012 ..... 479

**R**

**Rebound Hammer, Pulse Velocity, and Core Tests in Self-Consolidating Concrete (109-M24)**—Lina Rojas-Henao, Jaime Fernández-Gómez, and Juan Carlos López-Agüí, Mar.-Apr. 2012 ..... 235

**Relative Compressive Strength of Concretes under Elevated Temperatures (109-M17)**—Erdogan Özbay and Mohamed Lachemi, Mar.-Apr. 2012 ..... 165

**S**

**Setting Time Measurement Using Ultrasonic Wave Reflection (109-M12)**—Chul-Woo Chung, Prannoy Suraneni, John S. Popovics, and Leslie J. Struble, Jan.-Feb. 2012 ..... 109

**Surface Wave Velocity-Stress Relationship in Uniaxially Loaded Concrete (109-M14)**—Parisa Shokouhi, Andreas Zoëga, Herbert Wiggenhauser, and Gregor Fischer, Mar.-Apr. 2012 ..... 141

**U**

**Use of Relatively High Fe<sub>2</sub>O<sub>3</sub> Steel Slag as Coarse Aggregate in Concrete (109-M45)**—Hisham Qasrawi, July-Aug. 2012 ..... 471

**V**

**Vertical Distribution of Sediments in Pervious Concrete Pavement Systems (109-M15)**—Luis A. Mata and Michael L. Leming, Mar.-Apr. 2012 ..... 149