

Ash Kotwal

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Texas State University MSEC 7101 / 7102

It's not just what we make. It's what we make possible.

Urban land in the United States is projected to double by 2030. Many of the structures and pavements built in the expanding urban environment will be constructed with concrete. As a leading supplier of building materials, Martin Marietta provides the products to build the world around you.

A variety of topics will be discussed in this seminar, including my experiences in the MSEC program and the Martin Marietta management associate program. The presentation will also provide an introduction to concrete materials science, production, and applications.

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EDUCATION

Doctor of Philosophy - Materials Science, Engineering and Commercialization, 2015. Texas State University, San Marcos, Texas. Dissertation: *Characterization, Physical Properties and Commercial Viability of Blended Cements with High Volume Interground Limestone*. GPA: 4.0

Master of Science - Industrial Technology (Construction), 2012. Texas State University, San Marcos, Texas. Thesis: *Alkaline Activation of Ambient Cured Geopolymer Mortar and Concrete Based on Class C Fly Ash*. GPA: 4.0

Bachelor of Science - Engineering Technology (Construction), 2008. University of West Florida, Pensacola, Florida. GPA: 3.98

WORK EXPERIENCE

Martin Marietta, Dallas, Texas. *Management Associate*, January 2016 - Present. Applied lean manufacturing practices to improve the value stream of aggregate, cement and concrete production by reducing down time, optimizing processes and lowering operating costs.

Texas State University, San Marcos, Texas. *Doctoral Research Assistant*, January 2011 - December 2015. Led research teams to publish and present the results of studies related to materials science, construction, concrete, transportation and sustainability. Supervisor for senior-level concrete lab course. Adjunct instructor for junior-level mechanical, electrical and plumbing systems course.

SioTeX Corporation, San Marcos, Texas. *Cofounder / Vice President of Manufacturing*, January 2014 - August 2015. Responsible for manufacturing and demonstrating the commercial viability of performance materials within a multidisciplinary team. Recipient of the Environmental Protection Agency *People, Prosperity and Planet Award*.

Bill Smith Electric, Cantonment, Florida. *Project Manager / Estimator*, December 2006 - December 2010. Estimated and managed over 50 commercial electrical construction projects, totaling more than \$10 million.

Energy Systems, Pensacola, Florida. *HVAC Technician Assistant*, November 2005 - August 2006. Installed and repaired residential and commercial heating, ventilating and air conditioning systems.

CERTIFICATIONS

American Concrete Institute - Concrete Field Testing Technician Grade I
National Ready Mixed Concrete Association - Concrete Technologist Level II
Construction Specifications Institute - Construction Documents Technologist

FELLOWSHIPS AND SCHOLARSHIPS

American Concrete Institute Baker Student Fellowship
Texas State University College of Science and Engineering Dorothy Coker Research Fellowship
Texas State University Graduate College Doctoral Research Support Fellowship
Texas State University Graduate College Summer Incentive Scholarship
Texas State University Graduate College Scholarship
National Ranger Memorial Foundation Scholarship

AWARDS

American Society for Testing and Materials International Emerging Professional Award
Greater San Marcos Partnership Second Annual Burdick Award Finalist
American Chemical Society Green Chemistry Institute Business Plan Competition Grand Prize
Rice Business Plan Competition Texas HALO Fund Investment Prize
Rice Business Plan Competition First Place Shark Tank Challenge Round
Rice Business Plan Competition Runner-Up CASIS ISS National Lab Space Flight Prize
Bobcat Entrepreneur Boot Camp I First Place Business Planning Competition
Bobcat Entrepreneur Boot Camp II First Place Elevator Pitch Competition
Bobcat Entrepreneur Boot Camp II Runner-Up Team Presentation Competition
Texas State University Department of Engineering Technology Academic Excellence Award
Texas State University Department of Engineering Technology Leadership Award
Texas State University Department of Engineering Technology Research Award
Texas State University Department of Engineering Technology Service Award
University of West Florida College of Professional Studies Outstanding Undergraduate Student Award

AFFILIATIONS

National Ready Mixed Concrete Association
Texas Aggregates and Concrete Association
American Society for Testing and Materials
American Concrete Institute
American Chemical Society

HONOR SOCIETIES

Alpha Chi National College Honor Scholarship Society
Mu Alpha Theta (Math Honor Society)
Phi Kappa Phi Honor Society
National Honor Society
National Beta Club

RESEARCH PROJECTS

1. **Kotwal AR**, Kim YJ, Torres AS, Schemmel JJ (2014). *Concrete Based on Portland Limestone Cement with Limestone Content Greater Than 15%*. Funded through Capitol Aggregates Research Grant. San Antonio, Texas: Zachry Construction Corporation.
2. Kim YJ, Lee SJ, Hu J, **Kotwal AR**, Dickey JW (2013). *Synthesis of Geosynthetic Reinforced Steep Slopes*. Funded through TxDOT RTI #0-6792. Austin, Texas: Texas Department of Transportation.
3. Won MC, Senadheera SS, Fowler DW, Hu J, **Kotwal AR** (2012). *Optimizing Concrete Pavement Type Selection Based on Aggregate Availability*. Funded through TxDOT RTI #0-6681. Austin, Texas: Texas Department of Transportation.
4. You BH, Kim YJ, Song IH, **Kotwal AR** (2012). *Investigation of Acoustic Characteristics of a Car Cabin for the Development of Nonwoven Fabrics as a Car Interior Material Phase II*. Funded through KOTMI Research Grant. Gyeongsan, Gyeongbuk: Korea Textile Machinery Research Institute.
5. Hu J, Kim YJ, Lee SJ, **Kotwal AR** (2011). *Synthesis of Cost Effectiveness of Extradosed Bridges*. Funded through TxDOT RTI #0-6729. Austin, Texas: Texas Department of Transportation.
6. Lee SJ, Hu J, Gaedicke C, Kim YJ, Broughton BJ, **Kotwal AR** (2011). *Synthesis of Microsurfacing Successes and Failures*. Funded through TxDOT RTI #0-6668. Austin, Texas: Texas Department of Transportation.
7. Kim YJ, Lee SJ, Hu J, **Kotwal AR** (2011). *Review of Quality System Manual for Precast/Prestressed Concrete: PCI Level II*. Funded through Pittsburgh Flexicore Research Grant. Pittsburgh, Pennsylvania: Pittsburgh Flexicore Company.

REFEREED JOURNAL ARTICLES

1. **Kotwal AR**, Kim YJ, Hu J, Sriraman V (2014). *Characterization and Early Age Physical Properties of Ambient Cured Geopolymer Mortar Based on Class C Fly Ash*. International Journal of Concrete Structures and Materials, Vol 9, No 1, pp 35-43.
2. Kim YJ, You BH, Sriraman V, **Kotwal AR** (2014). *Confined Concrete with Variable Crack Angle - Part I: Analytical Model*. Magazine of Concrete Research, Vol 66, No 21, pp 1075-1083.
3. Kim YJ, Sriraman V, **Kotwal AR**, You BH (2014). *Confined Concrete with Variable Crack Angle - Part II: Shear Friction Model*. Magazine of Concrete Research, Vol 66, No 19, pp 967-974.
4. Kim YJ, **Kotwal AR**, Kim H, Lee SJ (2014). *Stiffness Prediction of Recycled Aged CRM Binders Using an Artificial Neural Network*. International Journal of Pavement Research and Technology, Vol 7, No 1, pp 9-17.
5. **Kotwal AR**, Lee SJ, Kim YJ (2013). *Traffic Signal Systems: A Review of Current Technology in the United States*. Science and Technology, Vol 3, No 1, pp 33-41.
6. Lee SJ, Kim YJ, **Kotwal AR**, Jeong KD (2013). *Modeling Rutting Properties of Rubberized Asphalt Concrete Mixtures*. Journal of Advanced Construction Materials, Vol 17, pp 59-68.

REFEREED CONFERENCE PROCEEDINGS AND PRESENTATIONS

1. **Kotwal AR**, Winters AT, Schemmel JJ (2015). *An Investigation of Blended Cements with High Volume Interground Limestone*. National Ready Mixed Concrete Association International Concrete Sustainability Conference, Miami, Florida.
2. Hu J, Humphries ED, **Kotwal AR** (2015). *Optimizing Concrete Pavement Type Selection Based on Life Cycle Cost Analysis*. National Ready Mixed Concrete Association International Concrete Sustainability Conference, Miami, Florida.
3. **Kotwal AR**, Kim YJ (2012). *Partially Confined Concrete: Value Engineering and Performance Analysis*. Precast/Prestressed Concrete Institute Convention and National Bridge Conference, Nashville, Tennessee.
4. **Kotwal AR**, Kim YJ, Hu J (2012). *Recycled Carpet Fiber Reinforced Concrete with Recycled Concrete Aggregate*. National Ready Mixed Concrete Association International Concrete Sustainability Conference, Seattle, Washington.