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EDUCATION

- PhD, Civil Engineering, University of Cape Town, 1995
- BS, Civil Engineering, University of Cape Town, 1982

PROFESSIONAL EXPERIENCE

- Research Professor, Civil, Construction and Environmental Engineering, Iowa State University, 2020–present
- Director, National Concrete Pavement Technology Center, Iowa State University, 2015–present
- Research Associate Professor, Civil, Construction and Environmental Engineering, Iowa State University, 2014–2020
- Associate Director, National Concrete Pavement Technology Center, Iowa State University, 2007–2015
- Adjunct Faculty, Civil, Construction and Environmental Engineering, Iowa State University, 2007–2014
- Principal Engineer & Group Manager, Construction Technology Laboratories (CTLGroup), 1997–2007
- Engineer, Cement and Concrete Institute, South Africa, 1992–1997
- Senior Lecturer, University of Cape Town, South Africa, 1990–1991
- Research Officer, University of Witwatersrand, South Africa, 1987–1989
- Engineer, Stewart Scott, NCL - Consulting Engineers, 1983–1987

PRINCIPAL EXPERIENCE

- Research related to materials aspects of concrete technology. Current and recent projects include the following:
 - Performance Engineered Mixtures. A national program to change the way concrete is specified and prepared, FHWA and TPF.
 - Optimizing Concrete Mixtures for Performance and Sustainability. Federal Highway Administration Cooperative Agreement.
 - Investigation of Deterioration of Joints in Concrete Pavements. TPF Pooled Fund and Federal Highway Administration Cooperative Agreement.
 - Tests or Standards to Identify Compatible Combinations of Individually
 - Acceptable Concrete Materials, Federal Highway Administration, (CPTP Task 4), Cooperative Agreement No. DTFH61-03-X-00102.
 - Improved Specifications and Protocols for Acceptance Tests on Processing

- Additions in Cement Manufacturing, National Cooperative Highway Research Program, Project No. 18-11.
- Development of innovative test methods for concrete mixture quality assurance and specifications.
- Development and presentation of training modules about concrete materials for engineers involved in building concrete pavements. Modules are presented around the US and overseas.
- Development of technical publications about concrete paving materials and cementitious systems for FHWA, ISU, and PCA.
- Research and consulting for optimizing concrete durability for pavements and structures. This work includes assessment and application of innovative test methods.
- New product and materials assessment, including non-standard supplementary cementing materials.
- Troubleshooting and problem solving on a variety of construction projects, both in the field and laboratory.
- Materials related specialty consulting to design engineers, owners, contractors, ready mix suppliers, and materials manufacturers.
- Manage the Materials Consulting Group at CTLGroup, a diverse team of thirteen high-level engineers and scientists providing research and consulting services to the concrete construction and cement manufacturing industries.

SELECTED PUBLICATIONS

- Amini, K., Sadati, S., Ceylan, H., and Taylor, P. Effects of Mixture Proportioning, Curing and Finishing on Concrete Surface Hardness. *ACI Materials Journal*, Accepted October 2018.
- Chen, Y-A, Taylor, P., Ceylan, H., Kim, S., and Wang, X. Effect of Structural Design Options on Concrete Overlay Performance. *International Journal of Pavement Research and Technology*, Accepted November 2018.
- Yang, S., Ceylan, H., Gopalakrishnan, K., Kim, S., Taylor, P., and Alhasan, A. 2018. Characterization of environmental loads related concrete pavement deflection behavior using Light Detection and Ranging technology. *International Journal of Pavement Research and Technology*, Vol. 11, pp. 470–480.
- Wang, X., Yurdakul, E., Taylor, P., and Wang, X. An Innovative Approach to Concrete Mixture Proportioning. *ACI Materials Journal*, Accepted April 2018.
- Sassani, A., Ceylan, H., Kim, S., Gopalakrishnan, K., Taylor, P., and Arabzadeh, A. Influence of Mix Design Variables on Engineering Properties of Carbon Fiber-Modified Electrically Conductive Concrete. *Concrete Construction & Building Materials*, Accepted 2017.
- Wang, X., and Taylor, P. C. A Novel Test to Determine the Workability of Slipform Concrete Mixtures. *Magazine of Concrete Research*, Accepted October 2016, Paper 1600234.
- Ceylan, H., Gopalakrishnan, K., Kim, S., Taylor, P. C., Prokudin, M., and Buss, A. 2013. Highway Infrastructure Health Monitoring Using Micro-Electromechanical Sensors and Systems (MEMS). *Journal of Civil Engineering and Management*, Vol. 19, S188-S201.

RESEARCH

- Technology Transfer of Concrete Pavement Technologies FHWA DTFH61-12-RA-00014, \$9,000,000, 2018–2022
- Evaluation of Penetrating Sealers for Concrete, Iowa Highway research Board, \$150,000, 2018–2020

- Performance Engineered Concrete Mixtures, Transportation Pooled Fund TPF 5(368), \$3,000,000, 2017–2021
- Reduced Cementitious Material in Optimized Concrete Mixtures, MN DOT, \$150,000, 2017–2019
- Impacts of Internally Cured Concrete Paving on Contraction Joint Spacing Phase 2, Iowa Highway Research Board, \$260,000, 2018–2020
- Entrained Air Void System for Durable Highway Concrete, NCHRP 18-17, \$550,000, 2015–2019
- Prevention and Restoration of Early Joint Deterioration, Iowa Highway Research Board, \$75,000, 2015–2016
- Concrete Overlay Performance on Iowa’s Roadways, Iowa Highway Research Board, \$190,000, 2015–2019
- Extended Life Concrete Bridge Decks Utilizing Improved Internal Curing to Reduce Cracking, Ohio DOT, \$180,000, 2015–2018