Pavan Vaddey, Ph.D.

ASSOCIATE

Dr. Vaddey has over six years of experience in characterization and assessment of portland cement concrete systems, experimental data visualization and interpretation, statistical analyses and modelling. Prior to joining CTLGroup, Dr. Vaddey worked as a research assistant at Oregon State University on a wide range of research projects funded by Oregon DOT, ACI, and industry clients. His work mainly involved performing cementitious material characterization, chloride analyses of concrete systems, corrosion monitoring using electrochemical techniques, evaluating concrete resistance towards various degradation mechanisms, and evaluating the service life of concrete for new and existing structures. His expertise lies in designing concrete mixtures for various field applications, concrete troubleshooting, and providing solutions for enhancing concrete durability.

Academic Credentials

Ph.D. in Civil Engineering
Oregon State University,
USA, 2020

Dual degree (B.Tech and
M.Tech.) in Civil Engineering
Indian Institute of Technology
Madras, India, 2013

Professional Affiliations

American Concrete Institute

American Society of Testing and
Materials

Contact Information

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Representative Project Experience

Optimizing Paving Concrete Mixtures

- Served as a lead staff researcher in developing and testing optimized mixture designs for Oregon DOT research project for improved concrete performance for paving. The optimization involved minimizing the overall cementitious content of a concrete mixture with an objective to minimize shrinkage cracking.
- The investigation involved evaluating a wide variety of locally available aggregate systems. The newly designed concrete mixtures were checked for compliance with existing DOT requirements for fresh and hardened properties and evaluated for service life. The outcomes of these project are being implemented to develop specifications for slip-form paving concrete for pavements in Oregon.

Evaluating Chloride Threshold of Reinforcing Steel

- Designed and developed a test method for engineers and contractors for evaluating corrosion threshold of steel due to chlorides in cementitious systems. This novel method is mainly focused on testing the specimens in a relatively short time, thereby, increasing its practicality. The developed test procedure has been considered by the 222-TG1 task group as one of the potential standardized tests for evaluating critical chloride threshold.

High-strength Steel for Concrete Shear Applications

- Assisted on an Oregon DOT funded project that explored the possibilities of using high strength steels in concrete-concrete shear friction applications over the conventional reinforcing steel. The parameters of interest included steel reinforcement grade, steel reinforcement bar size and spacing, concrete-concrete interface roughness and concrete compressive strength.
- Assisted in fabricating and testing of push-off test specimens, and statistically analyses of the test data for identifying the potential influencing parameters on steel-concrete shear interface strength.

Pavan Vaddey, Ph.D.

Publications

Vaddey, P., Shakouri. M., & Trejo, D. (2020). Predicting Chloride Testing Outcome of Different Cementitious Systems. American Concrete Institute, 117(1), 139-152.

Shakouri. M., Vaddey, P., & Trejo, D. (2019). Effect of Admixed and External Chlorides on Transport of Chlorides in Concrete. American Concrete Institute, 116(5), 119-128.

Trejo, D., Vaddey, P., & Shakouri. M. (2019). Factors Influencing Chloride Test Results of Cementitious Systems. American Concrete Institute, 116(5), 119-128.

Isgor, B., Angst, U., Geiker, M., Halmen, C., Hansson, C., Pacheco, J., Tepke, D., Trejo, D. and Vaddey, P. (2019) "Recommended practice for reporting experimental data produced from studies on corrosion of steel in cementitious systems", RILEM Technical Letters, 4, pp. 22-32. doi: 10.21809/rilemtechlett.2019.90.

Trejo, D., Shakouri. M., Vaddey, P., & Isgor, O. (2018). Development of empirical models for chloride binding of cementitious systems containing admixed chlorides. Construction and Building Materials, 189, 157-169.

Vaddey, P., & Trejo, D. (2018). Influence of concrete mixture proportions on chloride test measurements. Journal of Materials in Civil Engineering, 30(8). 10

Vaddey, P., Shakouri, M., & Trejo, D. (2017). A bayesian approach to assess the influence of coarse aggregate on the chloride test outcome. Proceedings of an International Conference on Advances in Construction Materials and Systems, 4, Chennai, India

Trejo, D., Shakouri, M., and Vaddey, P. (2017). The need for standardizing testing of input variables for reliable service life prediction of reinforced concrete structures. Proceedings of an International Conference on Advances in Construction Materials and Systems, 1, Chennai, India

Rathnarajan, S., Vaddey, P., Pillai, R., Gettu, R., and Santhanam, M. (2017). Modelling carbonation rates in concretes with similar strength and with and without slag. Proceedings of an International Conference on Advances in Construction Materials and Systems, 4, Chennai, India.

Work Experience

CTLGroup, Skokie, Illinois
Associate, June 2020 – Current