Mark Finnell, P.E.

Laboratory Technical Engineer

Mark Finnell is an experienced concrete materials engineer with an extensive background in fresh concrete testing, hardened concrete testing, and concrete mixture design development. This background includes, but is not limited to, the Super Air Meter (SAM), the Box Test, concrete resistivity, concrete freeze-thaw testing, ACI 211 mixture design procedure and Tarantula Curve mixture design. Additionally, he has expertise in identifying concrete distresses like alkali-silica reaction (ASR), freeze-thaw, salt scaling and concrete buckling. At CTLGroup, he oversees our quality system and manages concrete and mortar laboratory projects. Prior to joining CTLGroup, Mr. Finnell consulted for a state agency. His activities at the agency include implementing and educating current and new concrete tests, engaging in research projects, employing new concrete mixture design methodologies, and performing field evaluations on distressed concrete.

Representative Experience

Laboratory Experience

- Worked in a research laboratory performing fresh concrete testing and performing destructive and non-destructive tests on hardened concrete.
    - Slump testing (ASTM C143)
    - Super Air Meter testing (AASHTO T395)
    - Compressive strength testing (ASTM C39)
    - Splitting tensile testing (ASTM C496)
    - Concrete Freeze-thaw testing (ASTM C666: Procedure A)
    - Salt Scaling testing (ASTM C672)
    - Resistivity Testing (AASHTO T358 and ASTM C1876)
    - ASR Testing (ASTM C1260 and C1567)
    - Coarse and Fine Aggregate Density and Absorption (ASTM C127 and C128)
    - Fine and Coarse Aggregate Gradations Analysis (ASTM C136)
    - Shrinkage Testing (ASTM C157)
- Assisted researchers analyzing coal fly ash using SEM.
- Developed a novel method to consolidate concrete in a standard Type B Air Test Bowl to reduce test variability.

Field Investigations

- Performed investigations on concrete pavements impacted by ASR in Wausau, WI and Schofield, WI.
- Assisted a research team in determining causes for concrete pavement buckling on Wisconsin highways.
- Identified freeze-thaw damage and salt scaling afflicting concrete pavements and concrete bridge decks in Wisconsin.
- Participated in a team of associates determining the cause of curb heads shearing on Wisconsin highway facilities.

Academic Credentials

Bachelor of Science in Civil Engineering, Oklahoma State University, 2018

Master of Science in Civil Engineering, Oklahoma State University, 2020

Licensure & Certifications

Professional Engineer: IL

Affiliations

American Concrete Institute

Contact Information

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Mark Finnnell, P.E.

Laboratory Technical Engineer

Presentations

M. Finnell, PEM and Air Content, American Concrete Institute – Wisconsin Chapter Meeting, Delafield, Wisconsin, March 2023

Publications

Sokhansefat, G., Moradian, M., Finnell, M., Behravan, A., Ley, M. T., Lucero, C., & Weiss, J. (2020). Using X-ray computed tomography to investigate mortar subjected to freeze-thaw cycles. Cement and Concrete Composites, 108, 103520.

Reichelt, S., Kilger, A., Finnell, M., Ley, T., Cook, D., Hall, H., ... & Weiss, J. (2022). Evaluation of Current WI Mixes Using Performance Engineered Mixture Testing Protocols (No. 0092-17-07).

Industry Experience

2 Years as a Concrete Laboratory Technician

- Undergraduate Research Assistant at the Bert-Cooper Engineering Laboratory in Oklahoma State University – Stillwater (2016 to 2018)

2 Years as a Civil Engineering Masters Student

- Graduate Research Assistant at Oklahoma State University – Stillwater
- Researching novel methods to consolidate concrete to reduce testing variability (2018 - 2020)

4 Years Engineering Experience

- Concrete Materials Engineer with Behnke Materials Engineering. Consulted for the Wisconsin Department of Transportation (2020 to 2024)
- Laboratory Technical Engineer (Started July 2024)