Kirk Vance, PE, PhD, CXLT | Principal Engineer

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Professional Summary:

Mr. Vance is a licensed Civil Engineer with more than 20 years of experience in the design, performance evaluation, and failure analysis of various types of structures. Mr. Vance has a doctorate in Civil Engineering with a focus on structures and materials. His doctorate studies included extensive research and investigation on the design and performance of concrete. He has performed over 300 residential and commercial structural inspections including failures associated with long term deterioration, settlement, wind, snow, hurricanes, and vehicular impacts. During his career he has designed, inspected, rated, and analyzed more than 50 highway bridges for various clients including private parties and state, local, and federal transportation agencies. He has worked in forensics for over nine years with experience evaluating various types of failures and construction defects.

Kirk Vance's expertise includes:

- Residential and commercial structural inspection and failure analysis and damage assessment.
- Roof inspection and failure analysis.
- Determination of required repair and rehabilitation procedures.
- Residential and commercial code and standard review.
- Building envelope assessments.
- Inspection, rating, analysis and design of bridge structures

Licenses and Certifications:

Professional Engineer (Additional states available upon application):

Professional Engineer, Pennsylvania, PE076546

Professional Engineer, Washington, 54103

Professional Engineer, Oregon, 91837PE

Certified Tribometrist, CXLT

Professional Engineer, Idaho, P-17081

Professional Engineer, Montana, 49318

Professional Engineer, Florida, 84771

Professional Engineer, Texas, 128288

Project Experience:

The sample projects here outline a small sampling of the types of projects and losses Mr. Kirk Vance regularly investigates. For further information or additional examples, please contact EFI Global.

Project Experience (Continued):

Portland, Oregon
Tree Impact on Residential Structure
Inspection and analysis of existing roof structure due to a tree fall impact. Designed and specified required repairs.

Seattle, Washington
Failure of Exterior Insulation and Finish System on commercial structure
Inspection of the failure of an exterior cladding system on a multiple story commercial structure to determine the cause and extent of damage.

Kent, Washington
Structural repair of fire damaged structure

Inspection of residential structure damaged by fire and determination of the necessary repairs as required by the building code

Boise, Idaho
Structural repair of roof structure damaged by snow loading
Inspection of residential structure reported to have been damaged by significant snow loads. The cause of the damage and necessary repairs were determined.

Miami, Florida
Catastrophe Scene Investigation, Hurricane Irma
Inspection of various residential and commercial structures for wind and flood damages associated with Hurricane Irma. Inspections included damage to various types of roof systems, including rolled modified bitumen, asphalt shingle, and clay and concrete tile. The cause and duration of damage was determined and the required repairs were specified.

Houston, Texas
Catastrophe Scene Investigation, Hurricane Harvey
Inspection of various residential and commercial structures for wind and flood damages associated with Hurricane Irma. Inspections included damage to various types of roof systems, including rolled modified bitumen, TPO, asphalt shingle, and concrete tile. The cause and duration of damage was determined and the required repairs were specified.

Expert Witness Testimony: Court Qualifications/Depositions/Testimony (Prior Five Years):

Mr. Vance has extensive experience testifying as an expert witness in mediation, arbitration, depositions, and trials and has been accepted as an expert witness in numerous jurisdictions.

**List of Expert Witness Testimony Experience is Available Upon Request*

Professional Experience:

Unified Investigation and Sciences/EFI Global, Principal Forensic Engineer (current title), 2016 - present
University of California, Los Angeles, Post-Doctoral Scholar, 2014-2015
Arizona State University, Research/Teaching Assistant, 2011 – 2014
GAI Consultants, Inc., Lead Bridge Engineer 2001 – 2011

Formal Education:

PhD, Civil Engineering (Structures and Materials), Arizona State University, Tempe, Arizona, 2014
BS, Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, 2001

Courses Instructed/Guest Lecturer:

Instructor – Numerical Methods for Engineers
Teaching Assistant – Civil Engineering Statics
Teaching Assistant – Reinforced Concrete Design
Teaching Assistant – Civil Engineering Materials
Guest Lecturer – Civil Engineering Materials

Publications:

Vance, Kirk. "Direct Carbonation of Ca (OH) 2 Using Liquid and Supercritical CO2: Implications for Carbon-Neutral Cementation" Industrial and Engineering Chemistry Research. 2015.

Vance, Kirk. "The rheology of cementitious suspensions: A closer look at experimental parameters and property determination using common rheological models". Cement and Concrete Composites. 2015.

Vance, Kirk. "Microstructural and 29 Si MAS NMR Spectroscopic Evaluations of Alkali Cationic Effects on Fly Ash Activation". Cement and Concrete Composites. 2015.

Vance, Kirk. "Water Vapor Sorption in Cementitious Materials: Measurement, Modeling and Interpretation". Transport in Porous Media. 2014.

Vance, Kirk. "Electrically Driven Chloride Ion Transport in Blended Binder Concretes: Insights from Experiments and Numerical Simulations". Cement and Concrete Research. 2014.

Vance, Kirk. "Hydration and Strength Development in Ternary Portland Cement Blends Containing Limestone and Fly Ash or Metakaolin". Cement and Concrete Composites. 2013.

Vance, Kirk. "Rheological Properties of Ternary Binders Containing Portland Cement, Limestone, and Metakaolin or Fly Ash". Cement and Concrete Research. 2013.

Vance, Kirk. "Rheological Methods for Cementitious Suspensions: the Yield Stress and Rheological Models". Oral presentation, American Concrete Institute. October, 2013.

Vance, Kirk. "Early Age Characterization of Ternary Blends Containing Limestone Powder". Oral presentation, American Concrete Institute. March, 2012.

Publications (continued):

Vance, Kirk. "Hydration and Strength Development in Ternary Portland Cement Blends Containing Limestone and Fly Ash or Metakaolin". Cement and Concrete Composites. 2013.

Vance, Kirk. "The Rheological Properties of Ternary Binders Containing Portland Cement, Limestone, and Metakaolin or Fly Ash". Cement and Concrete Research. 2013.

Vance, Kirk. "Erosion of Limestone Building Surfaces Caused by Wind-driven Rain: 1. Field Measurements". Atmospheric Environment. 2004.