

WILLIAM KANE, PH.D., P.E.

Vice President



Summary

Bill Kane joined the Philadelphia Forensics practice at Thornton Tomasetti in 2021, bringing 15 years of experience in failure analysis and prevention. He is a recognized expert in materials and mechanical engineering with concentrations in metallurgy, strength and performance of materials, and environmental degradation. Bill has consulted on a wide range of issues, including medical devices and implants, utility and infrastructure components, consumer products, welding, buildings and structures, construction equipment, piping, industrial and pharmaceutical production equipment, railcars, and automotive components. He has experience in fracture mechanics, microscopy, mechanical testing, corrosion and materials selection. Bill has taught at the University of Pennsylvania and Drexel University, and has presented extensively in his field, as well as contributed to multiple publications.

Areas of Technical Expertise

- Root Cause Failure Analysis
- Environmental Degradation of Materials
- Materials Science and Engineering

Education

- Ph.D., Materials Science & Engineering, 2005, University of Pennsylvania
- M.S., Materials Science & Engineering, 2003, University of Pennsylvania
- B.S., Materials Science & Engineering, 2001, University of Pennsylvania

Registrations

- Licensed Professional Engineer in DE, MD, NJ, NY, PA and VA
- Certified Welding Inspector (CWI), American Welding Society
- Certified ASNT ACCP Level II, American Society for Nondestructive Testing

Professional Activities

- Member, ASM International
- Member, American Welding Society
- Member, ASTM International
- Board Member, Physical Sciences Technical Advisory Committee, Ben Franklin Technology Partners (BFTP)
- Lecturer, University of Pennsylvania, 2009-2018
- Adjunct Faculty, Drexel University, 2010-2012

Select Project Experience

Root Cause Failure Analysis

Philadelphia Criminal Justice Center Elevator Failure, Philadelphia, PA.* Mechanical and metallurgical investigation to determine the cause of an elevator accident.

Gearmotor Shaft Failure, Philadelphia, PA. Metallurgical analysis of fractured gearmotor shaft from a pump at a pharmaceutical facility to determine the cause of the fracture.

Cervical Plate System Failure Analysis, Philadelphia, PA.* Metallurgical analysis of fractured screws from a medical device to determine the cause of the fracture.

Electrical Bus Connector Failures, Delta, PA. Investigation of weld failures on 4-inch diameter aluminum conductor connectors at a nuclear generating station.

Temple University Façade Investigation, Philadelphia, PA. Investigation to determine the cause of delamination and failure in composite stone façade panels.

Retractable Stadium Roof Weld Inspections, NY. Field inspections of structural welds on the roof of a stadium to evaluate existing conditions and cracking.

Environmental Degradation of Materials

Pharmaceutical Water Storage Tank Failure, Philadelphia, PA.* Metallurgical investigation to determine the cause and extent of cracking in a 22,000-gallon distilled water storage tank.

Lumber Pressure Treating Vessel, Pageland, SC. Investigation of baffle wall weld design, fabrication, and in-service degradation that led to the failure of a 33,000-gallon autoclave.

Materials Science & Engineering

MRI Suite Floor Replacement, Egg Harbor Twp, NJ. Materials evaluation of an existing composite hospital floor and design of a replacement.

*Denotes work performed with previous employer.

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Surgery Center Device Assessment, Lancaster, PA. Inspection and evaluation of damaged medical devices and supplies to determine existing conditions and usability.

Boiler Fitness-for-Service Assessment, Philadelphia, PA.* Investigation to determine the cause of cracking and remaining structural integrity of a steam boiler superheater header.

Sworn Testimony

Trial Experience

Nelson v. United States, U.S. District Court for the Eastern District of Pennsylvania, 2022.

Wright v. Residence Inn Philadelphia, et al,* Court of Common Pleas, Philadelphia County. 2017.

Osmun v. Pat's King of Steaks, et al,* Court of Common Pleas, Philadelphia County. 2017.

Steinman v. Spinal Concepts, Inc.,* U.S. District Court, Western District of NY. 2013.

State Farm Fire & Casualty Co. v. Carroll Water Systems, Inc., et al,* In the District Court of MD for Carroll County. 2012.

Deposition Experience

Sheff v. Crown Equipment, et al, U.S. District Court for the Western District of VA. 2024.

Viscovich v. Fendi S.R.L., et al, U.S. District Court for the Southern District of NY. 2021.

GATX Corp. v. Georgia Power Co.,* U.S. District Court for the Northern District of GA. 2021.

Malone v. Elsbury Jr., et al,* In the Circuit Court of Harrison County, WV. 2020.

Sherrick v. Sunrise Med., et al,* Court of Common Pleas, Franklin County, OH. 2020.

Moxham, et al v. M&J Overhead Door LLC, et al,* Superior Court Judicial District of Danbury. 2019.

Lopez v. Ryder Truck Rental, Inc., et al,* Superior Court of NJ, Essex County. 2018.

Evans, et al v. Globus Med., Inc., et al,* In the Circuit Court of Baltimore County, MD. 2016.

IPSCO Tubulars, Inc. v. Ajax Tocco Magnethermic Corp.,* U.S. District Court for the Eastern District of AR. 2013.

Select Papers, Lectures and Publications

"It's 2024: Do You Know What's Going on under Your Sidewalk: Subgrade Column Corrosion in Mid-Rise Steel Office Buildings," ASCE 10th Congress on Forensic Engineering, 2024 (co-author)

"Preservation & Preparation of Fracture Specimens," ASM Handbook, Vol. 12, Fractography, ASM Int'l, 2024 (author)

"Tibial Tray Fracture in a Modern Prosthesis with Retrieval Analysis," Arthroplast Today 2018; 4:143-147 (co-author)

"Retrieval and Clinical Analysis of Distraction-Based Dual Growing Rod Constructs for Early-Onset Scoliosis," The Spine Journal 2017, 17(10): 1506-1518 (co-author)

"Preserving Evidence in a Product Liability Case: Focus on Medical Devices," American Bar Association Litigation Group, Expert Witnesses Committee Article, February 21, 2017 (co-author)

"Mechanical Properties and Their Measurement," ASM International Metallurgy for the Non-Metallurgist course, Coatesville, PA, November 2014 (author)

"Failure Analysis for Medical Device Engineers," ASM International, Materials Park, OH, August 2014 (author)

"Collapse of Jet Center Hangars Under Snow Load," 2014 Structures Congress, American Society of Civil Engineers, Boston, MA, April 2014 (co-author)

"Method of Characterizing Fretting and Corrosion at the Various Taper Connections of Retrieved Modular Components from Metal-on-Metal Total Hip Arthroplasty. ASTM STP1560: Metal-On-Metal Total Hip Replacement Devices," ASTM International, 2013 (co-author)

"Brittle Intergranular Fracture of a Ni-Based Superalloy at High Temperatures by Dynamic Embrittlement," Materials Science and Engineering A 2004; 387-389:409-413, December 15, 2004 (co-author)

"MSE 495/496 – Senior Design," University of Pennsylvania, 2012-2018 (lecturer)

"MSE 555 – Environmental Degradation of Materials," University of Pennsylvania, 2012-2016 (lecturer)

"Failure Analysis for Medical Device Engineers," ASM International, 2017 (lecturer)

"Fretting and Corrosion at the Taper Connections of Retrieved Modular Components from Metal-on-Metal Total Hip Arthroplasty," Talk 13, Symposium on Metal-on-Metal Total Hip Replacement Devices, Phoenix, AZ, May 8, 2012 (co-presenter)

CONTACT

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