

Ray DiPiero | Forensic Engineer, P.E.

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Professional Summary:

Mr. DiPiero obtained his Bachelor of Engineering Degree in Mechanical Engineering from the State University of New York at Stony Brook. He is a registered Professional Engineer in several states and holds a NCEES Record. His experience includes cause and origin investigations for the insurance and legal industry and has extensive experience evaluating mechanical systems and equipment in residential and commercial buildings. Mr. DiPiero is a New York State Department of Labor Certified Safety Consultant (CSC) and NYS Licensed Mold Assessor. He has performed numerous investigations of workplace/construction accidents and water intrusion events.

Mr. DiPiero has conducted investigations for the insurance and legal industry in which he evaluated mechanical systems and equipment, such as: HVAC equipment, boilers/water heaters, plumbing systems, elevators, escalators, conveyors, and fire protection systems to identify design and construction defects in commercial, industrial, and residential applications. He has performed assessments of building systems and equipment which have been damaged from perils such as explosion, fire, flood, wind, hail, hurricane, lightning, mold, and water intrusion. He works with claims professionals, subrogation specialists and attorneys to reduce risks and minimize client exposure and provide expert witness testimony.

In addition, Mr. DiPiero performed maintenance evaluations, testing and code inspections of building systems and equipment including: elevators, escalators, HVAC equipment, boilers, fire protection systems, hoists, conveyors, and aircraft loading bridges for the Port Authority of New York and New Jersey. He performed modernization studies, forensic engineering and accident investigations and provided court testimony as an expert witness for the Port Authority of NY & NJ Law Department.

Licenses and Certifications:

Registered Professional Engineer, State of North Carolina, License No. 047797

Registered Professional Engineer, State of Florida, License No. 85600

Registered Professional Engineer, State of New York, License No. 077564

Registered Professional Engineer, State of New Jersey, License No. 24GE05463200

Registered Professional Engineer, State of Connecticut, License No. 33291

Certified Safety Consultant, New York State Department of Labor (ICR 59-CSC), No. WS-373

Licensed Mold Assessor, New York State Department of Labor, No. MA01515

Project Experience:

EFI Global/Unified Investigations, NY Forensic Investigation

Investigated the cause and origin of a boiler explosion in a residential dwelling for an insurance carrier. The waterside of the oil-fired hot water boiler failed catastrophically due to overpressure. Mr. DiPiero's investigation revealed that the boiler failure was the result of improper maintenance, in that the low-water cutoff device and safety relief valve failed to operate when the boiler pressure rose due to a low water condition.

H2M Architects + Engineers, Melville Forensic Investigation

Investigated the cause and origin of a failed HVAC cooling tower at a commercial office building. The cooling tower was less than a year old and had developed severe corrosion and failure of the tubes. Mr. DiPiero's investigation revealed that the cause of the tube failure was galvanic corrosion due to dissimilar metals. Mr. DiPiero concluded that the steel tubes corroded from contact with copper pipe flanges as a result of improper construction and installation methods.

H2M Architects + Engineers, Melville, NY Forensic Investigation

Investigated the reported foul odor emanating from the HVAC ducts in a large pharmaceutical plant. Determined that the odor was emanating from the steam pipe insulation for the steam generators located on the roof. The glue used on the pipe insulation, which were recently installed on the copper steam pipes, was burning from the extreme heat. Mr. DiPiero concluded that the odors were being drawn into the building by the adjacent rooftop HVAC units.

H2M Architects + Engineers, Melville, NY Forensic Investigation

Investigated the cause of plumbing leaks in a residential home in which PEX water supply piping was installed. Mr. DiPiero's investigation revealed that the PEX fittings were leaking due to corrosion and that the fittings were defective and part of a class action lawsuit. His engineering report was submitted to the attorneys for verification and inclusion in the class settlement.

The Port Authority of NY & NJ, New York Forensic Investigation

Performed an engineering investigation of the Vehicle Security Delta Barrier Systems installed at the New York and New Jersey airports. Determined that the hydraulic barrier systems were accidentally activating, causing injury and property damage, due to the combination of a design defect and human error. Mr. DiPiero's investigation and comprehensive report resulted in an upgrade to all barrier systems at the three major New York City airports.

The Port Authority of NY & NJ, New York Fatality Investigation

Investigated a fatality of a restaurant employee at the Port Authority Bus Terminal involving a dumbwaiter. Mr. DiPiero's investigation revealed that the dumbwaiter fatally crushed the worker due to a bypassed code-required safety device.

The Port Authority of NY & NJ, New York Forensic Investigation

Investigated an escalator accident at JFK International Airport in which a patron was severely injured when an escalator step collapsed, crushing her legs. Mr. DiPiero's investigation resulted in safety upgrades to all Port Authority of NY & NJ escalators with similar design. Mr. DiPiero formulated and managed the safety upgrade program for the Port Authority.

Professional Experience:

EFI Global, Inc./ Unified Investigations and Sciences, Forensic Engineer, August 2017 - Present

H2M Architects + Engineers, Forensic Engineer, April 2015 to August 2017

LWG Forensic Consulting Services, Forensic Engineer, October 2014 to April 2015

The Port Authority of New York & New Jersey: Supervising Principal Engineer, 2001 to 2015; Senior Mechanical Engineer, 1990 to 2001; Staff Maintenance Engineer, 1982 to 1990

Specialized Education:

New York State Mold Assessment 32-Hour Course, 2018

Forensic Analysis of Gas Systems, SunCam, Inc., 2018

Forensic Engineering - Mechanical Failure Analysis, SunCam, Inc., 2018

Elevator Traction for Field Personnel, Elevator World, Inc., 2018

Rectification, Elevator World, Inc., 2018

A17/B44 Type B Safety Stopping, Elevator World, Inc., 2018

Traction Elevators, Elevator World, Inc. 2018

Energy Efficiency, ASHRAE, 2018

Forensic Investigations, Unified Investigations & Sciences, 2017

Residential Electrical Systems, IAAI/CFI Trainer, 2017

Discovery in Civil Cases, IAAI/CFI Trainer, 2017

Investigating Natural Gas Systems, IAAI/CFI Trainer, 2017

Ethics and the Fire Investigator, IAAI/CFI Trainer, 2017

Fire Investigator Scene Safety, IAAI/CFI Trainer, 2017

Evidence Examination, IAAI/CFI Trainer, 2017

Documenting the Event, IAAI/CFI Trainer, 2017

Insurance and the Fire Investigation, IAAI/CFI Trainer, 2017

Fire Protection Systems, IAAI/CFI Trainer, 2017

Effective Investigation and Testimony, IAAI/CFI Trainer, 2017

Fundamentals of Interviewing, IAAI/CFI Trainer, 2017

Fundamentals of Residential Building Construction, IAAI/CFI Trainer, 2017

Arc Mapping Basics, IAAI/CFI Trainer, 2017

Manager/Leadership Development Program, Port Authority of NY/NJ, 2012

FEMA Incident Command System Training ICS-300, 2011
FEMA Jurisdictional Crisis Incident Management, Texas A&M University, 2011
NFPA 70E Electrical Arc Flash Training, Port Authority of NY/NJ, 2010
OSHA Part 1926 – Construction Safety & Health, Port Authority of NY/NJ, 2010
MTA, LIRR, AMTRAK, PATH Track Safety, Port Authority of NY/NJ, 2010
OSHA 7505 – Accident Investigations, Rutgers University, 2008

Education:

Bachelor of Engineering Degree in Mechanical Engineering, State University of New York at Stony Brook, Stony Brook, New York 11794, 1982

Affiliations:

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
American Society of Safety Engineers (ASSE)

Honors and Awards:

World Trade Center Exceptional Service Award, Port Authority of NY & NJ, 1993