



Engineering Applied To Jurisprudence

**MICHAEL KRAVITZ, P.E. CONSULTING ENGINEER**

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### **CURRICULUM VITAE**

#### **LICENSE**

Professional Engineer - New York No. 65274  
Professional Engineer - New Jersey No. 38879

Professional Engineer - New Hampshire No. 7144  
NCEES Council Record No. 28696

#### **PROFESSIONAL ORGANIZATIONS**

National Academy of Forensic Engineers – Fellow – Past President  
American Society of Civil Engineers - Member  
Society of Automotive Engineers – Member

National Society of Professional Engineers - Member  
Institute of Transportation Engineers – Past Member  
American Academy of Forensic Sciences –Past Associate

#### **EDUCATION**

Bachelor of Civil Engineering, City College of NY, 1966  
Graduate Studies, CCNY, Transportation, Foundations and Structures  
Master of Fine Arts, New York University, 1974  
National Academy of Forensic Engineers, continuing education seminars & Accident Analysis & Reconstruction  
NYSDOT Construction Division, Traffic Control Training Seminar  
New York Institute of Photography & School of Visual Arts - Photography

#### **FORENSIC ENGINEERING EXPERIENCE**

##### **VEHICULAR ACCIDENT ANALYSIS & RECONSTRUCTION**

Reconstruct multi-vehicle, car and truck accidents on streets and highways using energy, momentum and laws of motion principals & 2D, 3D computer simulations of vehicular accidents with MADYMO analysis of hybrid dummies; knowledge of Federal, State and City "Manual of Uniform Traffic Control Devices for Streets & Highways" (MUTCD); knowledge of statutes and regulations for "Maintenance and Protection of Traffic" Federal, State & City Departments of Transportation (DOT); American Association of State Highway and Transportation Officials (AASHTO) and other legal/construction procedures for plaintiffs and defendants.

Crash Data Retrieval (CDR) System Technician. The ability to download data from vehicle air bag control modules using the Bosch Crash Data Retrieval (CDR) system.

##### **CONSTRUCTION & SLIP/TRIP/FALL ACCIDENT RECONSTRUCTION**

Investigate construction, slip/trip/fall & other accidents. Knowledge of NYS/NYC building codes, Multiple Dwelling Laws, Housing Maintenance Code, NYC Rules & Regulations, and NYCRR to support findings. Knowledge of Occupational Safety & Health Administration (OSHA) regulations and NYS Labor Laws (Industrial Code Rule 23 [12NYCRR23]).

#### **GENERAL ENGINEERING EXPERIENCE**

##### **DESIGN EXPERIENCE**

Supervised and designed new and rehabilitated highway bridges, highway and street alignments applying American Association of State Highway and Transportation Officials (AASHTO), New York State and New York City Departments of Transportation (NYSDOT & NYCDOT) specifications.

Supervised and designed building columns, beams and girders for a major project, International Arrivals Building, for the New York and New Jersey Port Authority, applying American Institute of Steel Construction (AISC) specifications and New York City Building Codes.

##### **FIELD EXPERIENCE**

Supervised and inspected new construction and rehabilitation construction of highways, streets and bridges for New York State Department of Transportation (NYSDOT), New York City Transit Authority (NYCTA) and other agencies, interpreted and applied construction specifications to methods of construction and safety for workers and the traveling public (Maintenance and Protection of Traffic).

##### **Primary Activity & Specialty Subjects:**

Accident Investigation/Analysis Reconstruction  
Event Data Recorder Downloads & analysis  
Construction Accidents, Hazards and Failures

Streets and Highways  
2D & 3D Computer Accident Analysis  
OSHA & NYS Code Rule 23 Standards

Seat Belts  
Building Codes  
Slips, Trips and Falls

### Employment Experience

- 1991** Sole Practitioner of Forensic and Civil Consulting Engineering Practice  
**to** Including: Vehicular Accident Reconstruction; Highway Safety and Defects; Building Codes;  
**Present** Construction Accidents; OSHA Standards including New York State Industrial Code Rule 23 [12NYCRR23]; and Slip, Trip and Fall cases. Practice opened in 1991 consulting for plaintiffs and defendants, and as necessary appearances for court, depositions and arbitrations as an expert witness. Court Experience: Federal, State, County, Arbitration. Geographical Limitations: None
- 1986** Senior Civil Engineer, Salmon Associates, Consulting Engineers.  
**to** 40-27 Crescent Street, Long Island City, New York 11101
- 1990** Administrative Duties: Organize company computer system for various engineering and office applications including AutoCAD, Lotus, accounting, word processing, and other engineering applications required by state and city agencies.  
Senior Civil Engineer: Brighton Beach Lines for the New York City Transit Authority from Avenue J through Ocean Parkway, approximately four miles. In-depth inspection of column bases with recommendations as to the types of repairs needed.  
Senior Civil Engineer: Sub-Consultant to Weidlinger Associates, a structural engineering firm, for the Redevelopment of the JFK International Arrivals Building for the Port Authority of New York and New Jersey. Duties included liaison between primary and sub-consultant; beam, girder, footing and column design for schematic, preliminary and final stages of project. Created and developed spreadsheet templates for the preliminary and final column design along with the base plates and bolts for over three thousand columns. Calculated and developed spreadsheet templates for quantity estimates for the preliminary bidding proposal.  
Senior Civil Engineer: Sub-consultant to Carmen-Dunne, Consulting Engineers, for the replacement of the super structure, (girders), for two bridges along Mosholu Parkway in the Bronx. The redesign and replacement of the bridges, over Webster Avenue and over Metro North, consisted of girders, concrete slab, studs, bearing pads, etc., according to the American Association of State Highway and Transportation Officials (AASHTO) and New York State Department of Transportation (NYSDOT) specifications. Calculated and coordinated the roadway and bridge alignments and grades.  
Chief Inspector: Long Island Expressway under the Long Island Railroad at Woodhaven Boulevard. Supervised safety & construction of the eastbound and westbound collector distributor roads to be constructed under the railroad tracks while maintaining rail traffic. The project expanded the number of traffic lanes in both directions from six to ten.  
Senior Inspector: Long Island Expressway roadway and bridge rehabilitation from exits 52 to 57. The project entailed the jacking of bridges while maintaining traffic, pedestal repair and heat straightening of damaged bridge girders. The roadway repair consisted of replacing sections of concrete pavement and general regrading of shoulders, sidewalk and medians for proper drainage. Checked on the general safety procedures during construction.
- 1971** Independent Motion Picture Producer  
**to** Producing feature films, commercials, industrial and educational films using film and videotape. Acquired general  
**1985** business experience performing the responsibilities of an employer of cast and crew; obeying safety regulations and practices on the set regarding fire protection and hazards; negotiated with unions, clients and other business entities; prepared contracts, budgets, marketing, public relations and other documents needed in business operations.
- 1969** Construction Superintendent/Layout Engineer  
**to** Corinno Civetta Construction Company, 1100 E. 156th Street, Bronx, New York 10474
- 1970** At two project sites; Uris Brothers Company, 1633 Broadway, and Solow Building Company, 9 West 57th Street, New York City. Supervised and coordinated excavation, and construction of concrete foundation footings and walls. Coordinated construction with the architect, engineering consultants and owner's representative. Ordered men, equipment, and materials. Responsible for the safe operation of construction methods and procedures.
- 1966** Civil Engineer/Resident Inspector  
**to** Marvin M. Specter, P.E., L.S., Consulting Engineers  
**1969** 174 Brady Avenue, Hawthorne, New York 10532  
 Supervised construction on the New Rochelle Arterial Highway System including the reconstruction of the Metro North Railroad bridge over Cedar Street, sewers, drainage, sidewalk, roadways. Participated in site development for a variety of other projects including layout, planning, design of drainage, which included surveying, and creation of drawings.
- 1965** Junior Civil Engineer  
**to** New York City Department of Public Works, 40 Worth street, New York, New York 10013
- 1966** Test Borings Inspector for the North River Sewerage Treatment Plant. Examined and classified earth and rock samples from borings.
- 1959** Military Service; NYSANG 101<sup>st</sup> Signal Battalion, Rank Sp4, Message Center, Secret/Crypto Clearance. Honorable Discharge.  
**to** Active Duty for Berlin Crisis (1961-1962)  
**1962**

**PROFESSIONAL PEER REVIEWED PAPERS**

"Small Steel Plates on Highway Pavements", delivered at the National Academy of Forensic Engineers seminar, July, 1991. Published in the Journal of the National Academy of Forensic Engineers, December, 1991. Examines sudden impact loading of vehicle tires on steel plates covering holes on highway pavements.

"Walking Surface Hazards And The Codes", delivered at the National Academy of Forensic Engineers seminar, January 1994. Published in the Journal of the National Academy of Forensic Engineers, June 1994. Researches building codes and handicapped regulations regarding changes in level on sidewalks and cross walks.

"Median Barriers: Are They Needed When They Are Optional?", delivered at the National Academy of Forensic Engineers seminar, January 1998. Published in the Journal of the National Academy of Forensic Engineers, June, 1998. Discusses median barriers, criteria for installation and use.

"The History of the 0.50 SCOF", delivered at the National Academy of Forensic Engineer seminar, July, 1999. Published in the Journal of the National Academy of Forensic Engineers, December 1999. The paper examines the history of the how the 0.50 static coefficient of friction was arrived at along with analysis of the human stride.

"Deposition & Court: Quotes That Altered The Engineering Case", delivered at the National Academy of Forensic Engineers seminar, July, 2000. Published in the Journal of the National Academy of Forensic Engineers, December 2000. The paper examines testimony of plaintiffs, defendants and witnesses where a few words of a statement of fact within a transcript of thousands of words changed the case from an engineering prospective.

"Forensic Engineering Analysis of Building Codes and Staircase Accidents", delivered at the National Academy of Forensic Engineers seminar, January, 2002. Published in the Journal of the National Academy of Forensic Engineers, June 2002. The paper examines the history of building codes in New York City and other major cities in the U.S. Examination of old building codes, tenement house code and multiple dwelling codes, and their application in staircase accidents.

"Anatomy of a Forensic Engineering Case", delivered at the National Academy of Forensic Engineers seminar, January 2003. Published in the Journal of the National Academy of Forensic Engineers, June 2003. The paper examines three domains of the writer's practice that include Building Codes, Street Construction, and Vehicular Accident Reconstruction, and more importantly the definitions of words within the building code as defined by the opposing attorney.

"Forensic Engineering Analysis of Pedestrian Carry and Throw Distance", by Joel Hicks & Michael Kravitz, P.E., presented at the National Academy of Forensic Engineers, July, 2003. The paper examines how the carry, throw and tumble distance is related to the speed of the vehicle.

"Forensic Engineering Analysis of Dynamic Wheel Tire Impact Ejection of Manhole Covers", by Jon O. Jacobson, Ph.D., P.E. and Michael Kravitz, P.E., presented at the National Academy of Forensic Engineers, July 2008. The paper examines how rocking manhole covers can be ejected from their casting. The paper also examines the high stresses that are created which can cause cracks in the manhole covers.

"Forensic Engineering Analysis of Head Impact from a Falling Picture Frame", by Michael Kravitz PE. Presented at the National Academy of Forensic Engineers, July 2011. The paper examines the forces applied to the head of a person sitting when a heavy picture frame falls off of the wall and rotates, striking a person sitting.

"Forensic Engineering Analysis of Motorcycle Tires In Longitudinal Ruts Less Than 10 Degrees", by Michael Kravitz PE. Presented at the National Academy of Forensic Engineers January, 2012. The paper examines the effect of motorcycle tires striking the edge of a rut or curb at a flat angle and the forces and torques generated at the handlebars. Riders cannot recover from the instability created and go down. (The paper has yet to be published.)

"Forensic Engineering Analysis of Dynamic Forces Created by Pedestrians Impacting Plate Glass at Different Speeds", by Michael Kravitz PE. Presented at the National Academy of Forensic Engineers, July 2014. The paper examines the structural integrity and breaking strength of non-safety glass under impact loading due to pedestrians striking the glass panel at various walking speeds.

"Forensic Engineering Analysis of Vehicle-Pedestrian Impact Using EDR Data and Reconstruction Software", by Michael Kravitz, P.E. Presented at the National Academy of Forensic Engineers, July, 2015. The paper analyzes a pedestrian impact with a 2012 vehicle in a criminal matter. The author was retained by the defense to determine the pedestrian's position — either in the roadway or on the sidewalk. The paper contains videos created using accident reconstruction software, PC-Crash and Virtual Crash.

**NAFE Education Committee, Special Seminars & Continuing Education**

July 1990 Vehicular Accident Reconstruction.	January 1992 Case Preparation & Communication.
January 1993 Managing a FE Practice.	July 1994 FE: Evidence, Reports, Exhibits
July 1995 FE: Frye, Depositions, Ethics, Business.	July 1996 Forensic Engineering: Case Histories
February 1998 FE: Peer Review, Methodologies, Exhibits.	January 2005 Daubert Challengers & Scientific Methods
February 1999 FE: BioMechanics, BioMedical, Human Factors	February 2001 Vehicular Accident Reconstruction for P.E.'s
May 2002 McHenry Software, 2D Simulation Model of Accident Collisions (SMAC) Computer Program Seminar.	January 2006 Use/Non-Use of Standards, Ethical Electronic Presentation
January 2007 PC-Crash Seminar; for 2-D and 3-D Simulation computer program for Vehicle Accidents.	March 2007 Crash Data Retrieval (CDR) seminar for Vetronix Crash Data Retrieval (CDR) system and analysis.
September, 2007 SAE Seminar "Highway Vehicle Event Data Recorder Symposium" at NTSB Academy.	January 2008, Crash Data Retrieval (CDR) seminar for Bosch upgrade for Ford, GM & Chrysler vehicles.
August 2008 PC-Crash Seminar for 2-D and 3-D Simulation computer program vehicle accident reconstruction.	October 2008 McHenry Software, 2D Simulation Model of Accident Collisions (SMAC) Computer Program Seminar.
July 2009 Co-Chairman NAFE Advanced Accident Reconstruction for Forensic Engineers. Speaker Criminal Case Study.	July 2010 Co-Chairman NAFE Advanced Accident Reconstruction for Forensic Engineers. Speaker Motorcycle Tire/Rut Effect.
July 2011 Co-Chairman NAFE Advanced Accident Reconstruction for Forensic Engineers. .	July 2012 Co-Chairman NAFE Advanced Accident Reconstruction for Forensic Engineers.
July 2013 Co-Chairman NAFE Advanced Accident Reconstruction for Forensic Engineers.	

NAFE Regular Semiannual Seminars: Papers given by members of the Academy for peer review publication in the Journal of the National Academy of Forensic Engineers. (January & July) from 1990 through the present. Other attendance for lectures and demonstration.