

31 Years of Experience

DR. ROLIN F. BARRETT, JR., P.E.

CONSULTING ENGINEER

BARRETT ENGINEERING

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ACCIDENT RECONSTRUCTION: cars, trucks, buses, commercial vehicles, motorcycles, mopeds, bicycles, back hoes, and self-propelled farm and construction equipment.

FIRES AND EXPLOSIONS – Origin and Cause: electrical fires, lightning, CSST gas lines, bus fires and other vehicle fires, equipment malfunctions, and violations of codes and standards.

Other: **Workers Comp.**, slip-and-fall, trip-and-fall, water leaks, industrial accidents, electrocutions following accidental contact with power lines or various types of equipment, etc.

EDUCATION

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|-------|------------------------|---------------------------------|
| Ph.D. | Mechanical Engineering | North Carolina State University |
| M.S. | Mechanical Engineering | Louisiana Tech University |
| B.S. | Mechanical Engineering | North Carolina State University |
| B.S. | Electrical Engineering | North Carolina State University |

CERTIFICATIONS, COURSES, and SEMINARS

ACTAR Fully Certified - Accreditation Commission for Traffic Accident Reconstruction

Certified Fire and Explosion Investigator (CFEI)

Certified Vehicle Fire Investigator (CVFI)

Certified **Analyst** Crash Data Retrieval System **Black Box** (Event Data Recorder)

Certified **Level 2 Technician** Crash Data Retrieval System **Black Box** (Event Data Recorder)

Inspection and Investigation of Commercial Vehicles Crashes, IPTM

Heavy Vehicle Electronic Control Module Data Use in Crash Reconstruction, IPTM

Injury, Anatomy, Biomechanics and Federal Regulation, SAE

Applied Vehicle Dynamics, SAE

Post-Crash Forensic Mechanical Inspection, IPTM, University of North Florida

Certified to Download and Analyze Caterpillar Truck, Heavy Equipment, and Marine Electronic Data Recorders – **Black Box** (ECM)

Certified to Download and Analyze Detroit Diesel (DDEC) Reports – **Black Box** (ECM)

Bendix Commercial Vehicle Systems – Certified Air Brake Specialist

Investigation of Gas and Electric Appliance Fires

Residential Electricity for Fire Investigators

Investigations of Electrical and Appliance Related Fires, IAAI

Advanced Fire, Arson, and Explosion Investigation, NAFI

Comprehensive Air Brake Systems Training Program in the Operation and Maintenance of Heavy Duty Vehicle Air Brake Systems and Components, Bendix Commercial Vehicle Systems

Highway Vehicle Event Data Recorder Symposium, SAE

Crash Data Retrieval Users Summit – 2015

Crash Data Retrieval System (**Black Box**) Analyst Course, Collision Safety Institute (CSI)

Crash Data Retrieval System (**Black Box**) Technician Course, Collision Safety

Institute Crash Data Retrieval System (**Black Box**), **Level 2 Technician** Course, CSI

Crash Data Retrieval User's (**Black Box**) **Summit** (CSI)

Caterpillar Electronic Technician Engine Control Module Download Course

DDEC Reports (Diagnostic and management reports, including trip activity, speed vs. rpm, engine load vs. rpm, periodic maintenance, daily engine usage, life-to-date summary, hard brake, and last stop record), Detroit Diesel Corp./Freightliner, LLC

HVE -- Human Vehicle Environment, Engineering Dynamics Corporation

Fire, Arson & Explosion Investigation Training Program, NAFI

Computer Fire Modeling, NAFI

Vehicle Fire, Arson, and Explosion Investigation Science and Technology Seminar, NAFI

National Electrical Code Essentials, NFPA

LICENSING

Licensed Professional Engineer -- North Carolina and Florida

National Academy of Forensic Engineers – Member and Board Certified Diplomate of the Council of Engineering Specialty Boards

National Council of Examiners for Engineering and Surveying – Model Law Engineer

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

National Academy of Forensic Engineers

Committee on Accident Reconstruction (2008-2014)

Committee on Incident Evaluation (2008-2011)

National Society of Professional Engineers

National Association of Fire Investigators

International Association of Arson Investigators

American Society of Mechanical Engineers

North Carolina Chapter of the International Association of Arson Investigators

National Association of Professional Accident Reconstruction Specialists

National Fire Protection Association

EMPLOYMENT

2011 – 2014 Teaching Associate Professor, Mechanical and Aerospace Engineering, NCSU

1986 – Barrett Engineering, Raleigh, North Carolina

FEES -- The current charge for consulting services is \$250.00 per hour; the current charge for travel is \$125.00 per hour, plus expenses.

HONORS

Alumni Hall of Fame, Department of Mechanical and Aerospace Engineering, North Carolina State University, 2013. *"The MAE Hall of Fame was established to inspire our current students and to celebrate accomplishments of those extraordinary graduates who have used their education to excel in a profession, career, or service."*

NCSU Commencement Speaker:

NCSU, Department of Mechanical and Aerospace Engineering, Fall Diploma Award Ceremony, Talley Student Center, Raleigh, NC, December 18, 2009

NCSU, Department of Mechanical and Aerospace Engineering, Fall Diploma Award Ceremony, Talley Student Center, Raleigh, NC, December 14, 2012

PUBLICATIONS and PATENTS

Prototype Design and Fabrication, Dr. Rolin F. Barrett, Jr., and Dr. Eric C. Klang, NCSU, Raleigh, NC, 2007

"On Track for Learning" -- Participated in this program and a lesson recording produced with North Carolina State University and the North Carolina 4-H Foundation to develop a science curriculum for middle school students.

"The History of Armor," NC State Engineer, Rolin F. Barrett, Jr., Spring, 1992

"The Scanning Electron Microscope," NC State Engineer, Rolin F. Barrett, Jr., Winter 1991-1992

U. S. Patent No. 5,788,178 - **The Guided Bullet**

A bullet that includes an on-board laser guidance system for altering and directing the flight of the bullet along a trajectory to a target identified by a laser projecting onto the target.

U. S. Patent No. 6,715,399 - **Firearm Bolt Assembly**

Moveable bolt assembly disposed adjacent the barrel. An energy-absorbing mechanism carried by the bolt assembly, reducing both weight and recoil.

Patent Pending – **Emergency Seatbelt Release**

An emergency seatbelt release, located remotely from the seatbelt mechanism, but within reach of an occupant using the seatbelt, and capable of causing the seatbelt locking mechanism to disengage.

Patent Pending – **Drag Sled Friction Tester**

Device for accident reconstruction which enables the accurate determination of friction between tire, shoe, or item of interest and roadway, walkway, or other surface.

Patent Pending - **Gun Sight**

An alternate arrangement for sights. Specifically, a powered luminescent ring surrounding the sight, which may be turned on selectively.

Patent Pending - **Electronic Aid for the Visually Impaired**

Hand-held device using reflected laser beams to detect objects in the approaching landscape to assist a visually impaired person in successfully navigating an area.

SCUBA CERTIFICATIONS

Master Diver

Diver Stress and Rescue
Search and Recovery
Night and Limited Visibility Diving
Enriched Air Nitrox Level 2
Navigation
Perfect Buoyancy
Boat Diving
Wreck Diving
React Right (FA, CPR, AED, O2)

MISCELLANEOUS COURSES AND SEMINARS

Global Positioning Systems Course, Trimble, Inc.
Scanning Electron Microscope Course and Laboratory, NCSU
Nikon AIMS Users Course
Water Safety Instructor, Small Craft Instructor, Senior Lifesaving – American Red Cross

TEACHING, RESEARCH, AND ENGINEERING EDUCATION SUPPORT

Teaching Associate Professor – Automotive Engineering, NCSU

Speaker -- Airbag Control Modules in Collision Investigation – South Carolina Criminal Justice Academy 2014 Traffic Safety Officer's Conference

Speaker -- Vehicle Fire Collision Investigation – South Carolina Criminal Justice Academy 2014 Traffic Safety Officer's Conference

Chairman - NCSU, Committee for Program Review and Assessment, Including Curricula, ABET, and Graduate Program

Member – NCSU, External Advisory Board, Department of Mechanical and Aerospace Engineering – since 2008

Designed and conducted research -- NCSU, Raleigh, NC,
related to high and low speed impact response of composite structures, quasi-static loading of composite structures, and examination of failure mechanisms in composite structures subjected to impacts and quasi-static loading

Taught Dynamic Systems Analysis Laboratory -- Louisiana Tech Univ., Ruston, LA

“The Role of the Expert Witness” – Grambling State University, Grambling, LA

Judge – Senior Design Competition MAE 416, NCSU

K-12 Outreach -- Working with public and private school educators to present information about engineering, motivating students to excel in math and science.