

## Blake Carlton | Mechanical Forensic Engineer, PE, CXLT

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### Professional Summary:

Mr. Carlton has six years of experience analyzing mechanical component failure for machines and plumbing equipment. Investigations he has led include appliance failures, corrosion damage, mechanical fires, failed electrical components, material defects, plumbing failures with knowledge in plumbing code.

System failure scenarios he has diagnosed include:

- Flooding caused by appliance failures: refrigerators, water heaters, clothes and dish washers
- Overloading of load bearing or plumbing fastener connections
- Material degradation caused by corrosion or environmental stress cracking
- HVAC and industrial machinery failures
- Slip trip and fall surface analysis and slip resistance testing
- Fatigue failure due to cyclical stresses or temperature fluctuation
- Electrical component failure: continuity and electrical resistance testing
- Crack propagation caused by material defects

### Licenses and Certifications:

Professional Engineer,

- Texas Board of Professional Engineers, License #131172
- Louisiana Professional Engineering & Land Surveying Board, License #43213

CXLT, Tribometer Slip Resistance Testing Certified

### Project Experience:

Water Well Drilling Rig Fire, San Antonio, Texas  
Forensic Mechanical – Vehicle/Industrial Equipment Failure  
Fire origin and source determination for drill rig fire that occurred during drilling operations

Water Heater Failure, Houston, TX  
Forensic Mechanical – Plumbing/Material Failure  
Multiple investigations of tank and tankless water heaters resulting in flooding residences.  
Determine origin and cause with respect to plumbing code

Washing Machine Failure, Houston, TX  
Forensic Mechanical – Plumbing/Material Failure  
Multiple investigations diagnosing source of overflowing washers

Assembly Tooling Shear Failure, Houston, TX  
Forensic Mechanical – Equipment Failure/Material Analysis  
Heavy metallic tool sheared and became a projectile. Conducted material strength testing to determine maximum load capabilities, system stresses, and operational factor of safety. Confirmed component failure source utilizing finite element analysis.

Assembly Tooling Tensile Failure, Houston, TX  
Forensic Mechanical – Equipment Failure/Material Analysis  
Calculated fastener failure sources including direct bolt shear, shear tear-out, bearing, and tension. Determined fasteners were underrated for application due to excessive tensile forces.

Component Mating Failure Root Cause Analysis, Houston, TX  
Forensic Mechanical – Equipment Failure  
Tolerance stack-up study on multi-component dimensional tolerances. Concluded material coatings led to assembly interference.

### Professional Experience:

EFI Global, Forensic Mechanical Engineer, 2018 - 2019  
Technip FMC, Mechanical Engineer III, 2016 - 2018  
FMC Technologies, Rotational Engineer, 2013 - 2016  
Caterpillar, Technical Marketing Consultant, 2012 - 2012  
JP Kenny, Mechanical Engineer, 2011 - 2011

### Specialized Education:

- CXLT Slip Resistance Testing Certification, Excel Tribometers, 2019
- ASME 6A 17D Design for subsea components, olrengineering/John H. Fowler, 2014
- International Association of Arson Investigators (IAAI) – CFITrainer.net
  - Investigating Motor Vehicle Fires, 2018
  - Motor Vehicles: The Engine and the Ignition, Electrical, and Fuel Systems, 2018
  - Motor Vehicles: Transmission, Exhaust, Brake, and Accessory Systems, 2018

### Education:

Bachelor of Science, Mechanical Engineering, Texas A&M University, College Station, TX, 2013

### Affiliations:

American Society of Mechanical Engineers

Texas Board of Professional Engineers



**Courses Instructed/ Guest Lecturer:**

Texas A&M University MEEN 381: Technical Report Writing and Professional Presenting

**Honors and Awards:**

Deans Honor Roll, Texas A&M University, Fall 2012 & Spring 2013  
Eagle Scout, Boy Scouts of America, 2009