

**Mark R. Cannon, P.E.**  
**Augspurger Komm Engineering, Inc.**  
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## **EDUCATION**

Master of Science, Advanced Safety Engineering and Management, UAB, 2015  
Bachelor of Science, Mechanical Engineering, Arizona State University, 1979

## **EXPERIENCE**

Mark Cannon has over 25 years' experience in forensic engineering and investigates a wide variety of mechanical and safety issues, including workplace injuries involving machinery, machinery failures and consumer product failures. His prior experience includes seventeen years as an engineer in the areas of research, design and manufacturing. Mr. Cannon has testified in multiple state and federal venues.

## **PROFESSIONAL REGISTRATION**

State of Arizona, Mechanical Engineer, #23282  
Commonwealth of Pennsylvania, Mechanical Engineer, #PE057286E  
State of Nevada, Mechanical Engineer, #021064  
State of California, Mechanical Engineer, #M37179  
State of Texas, Mechanical Engineer, #120767  
Certified Fire and Explosion Investigator, NAFI Reg. No. 13966-7402

## **EXPERIENCE HISTORY**

2009 - Augspurger Komm Engineering, Inc., Senior Consulting Engineer  
2006 - 2009 Unified Investigations & Sciences, Inc., Forensic Engineering Consultant  
1996 - 2006 ARCCA, Inc., Senior Engineer  
1995 - 1996 Intesys Technologies, Senior Manufacturing Engineer  
1993 - 1995 Aquapore Moisture Systems, Engineering & Maintenance Manager  
1993 Chamberlain Group, Consultant  
1988 - 1993 Orbital Sciences Corporation, Senior Mechanical Engineer  
1982 - 1988 Simula Inc., Project Engineer  
1979 - 1982 American Telephone & Telegraph, Product and Development Engineer

## **PROFESSIONAL AFFILIATIONS**

American Society of Mechanical Engineers  
American Society of Safety Professionals

## **PATENTS**

Energy-Absorbing Leg Assembly for Aircraft Passenger Seats, US Patent 04911381

## **CONTINUING EDUCATION**

UCSD OSHA Training Institute "Fall Protection" (OSHA 3110), San Diego, CA, 2011  
Elevator and Escalator Design and Inspection – American Society of Mechanical Engineers, 2010  
Investigation of Appliance Fires – Fire Findings LLC, 2008  
Forensic Fire Scene Reconstruction – International Association of Arson Investigators, 2007  
LL.M. in Trial Advocacy, Volunteer Expert - Temple University, 2004

Motor Vehicle Accident Reconstruction - Society of Automotive Engineers, 2001  
Statistical Process Control in Extrusion - Society of Plastics Engineers, 1994  
Computer Aided Design on Anvil 5000 System - Simula, Incorporated, 1986  
Array Processing Language - I.P. Sharpe Associates, 1985  
Crash Survival Investigators School - Robertson Research, Incorporated, 1984  
Statistics in Manufacturing - American Telephone & Telegraph, 1982  
Microprocessors in Controls Applications - American Telephone & Telegraph, 1980  
Rheology of Plastics and Extrusion Principles - American Telephone & Telegraph, 1979

## **PUBLICATIONS**

*Structural Efficacy of Residential Structures for Fall Protection Systems*, Journal of the American Society of Safety Engineers, May 2015

*Evaluation of Detection Systems for Large Mobile Equipment*, American Academy of Forensic Sciences, February 2014

*Assessment of Timely Lockup of Web-Sensing Restraint Retractors*, SAE Technical Paper 2002-01-1548, Society of Automotive Engineers' General Aviation Technology Conference and Exhibition, Wichita, Kansas, April 2002

*Occupant Crash Protection Handbook for Tactical Ground Vehicles (Light, Medium & Heavy)*, Department of the Army, November 2000

*The Unit Maintenance Aircraft Recovery Kit*, USAAVSCOM TR-87-D20, US Army Aviation Applied Technology Directorate, Fort Eustis, VA, April 1988

*Crash Dynamics Program Transport Seat Performance and Cost/Benefit Study*, DOT/FAA/CT-85/36, Federal Aviation Administration Technical Center, Atlantic City Airport, NJ, December 1986

*Discussion of Transport Passenger Seat Performance Characteristics*, SAE Technical Paper 881378, presented at Society of Automotive Engineer's Aerotech 1988 Conference, Anaheim, CA, October 1988

*Seat Experiments Results - Full-Scale Transport Aircraft Controlled Impact Demonstration*, DOT/FAA/CT-85/25, FAA Technical Center, Atlantic City Airport, NJ, December 1985

*Seat Experiments for the Full-Scale Transport Aircraft Controlled Impact Demonstration*, DOT/FAA/CT-84/10, Federal Aviation Administration Technical Center, Atlantic City Airport, NJ, March 1985

*Concepts for Improving Passenger Seats for Large Transport Aircraft*, presented at the Sixteenth Seminar, International Society of Air Safety Investigators, Phoenix, AZ, September 1985

*Improving the Survivability of Transport Aircraft Seating Systems*, presented at the International Aircraft Cabin Safety Symposium, University of Southern California, Los Angeles, CA, February 1985

## **PRESENTATIONS**

*Gravity: The One Law No One Can't Break* American Society of Safety Professionals, Professional Development Conference, June 27, 2022

*Fall Protection in Residential Construction – Still Talking About It!* American Society of Safety Professionals, Professional Development Conference, June 5, 2018

*Expert Testing in Litigation*, State Bar of Arizona, Southern Region, June 23, 2017

*OSHA, Don't Tell Me What To Do*, American Society of Safety Engineers, Professional Development Conference, June 21, 2017

*Making the Fall Protection System Fit the Workplace*, American Society of Safety Engineers Professional Development, Conference, July 27, 2016

*Aircraft Seat Design Evolution and Forensics*, Embry-Riddle Aeronautical University, November 12, 2015

*Design of Aircraft Seats and Fall Protection Systems*, American Society of Safety Engineers, November 7, 2014

*Evaluation of Detection Systems for Large Mobile Equipment*, American Academy of Forensic Sciences, February 21, 2014

*Discussion of JLG Upper Lift Cylinder Pin Failures*, American Association for Justice, July 30, 2012

*Cost Effective Use of Consultants and Experts*, National Association of Subrogation Professionals, October 17, 2011

*Fall Protection Strategies in Residential Construction*, Industrial Commission of Arizona, September 26, 2011

*Forensic Engineering*, Arizona State University, November 23, 2010

*Hail Damage to Tile Roofing*, Nationwide Insurance, October 9, 2010

*Water Loss Investigations*, Property and Casualty Adjusters Seminar, April 16, 2009

## **PROJECT HISTORY**

### Unified Investigations & Sciences, Inc. and ARCCA, Inc.

Cause and effect analyses related to consumer and industrial accidents involving machine guarding, equipment operation, structural design, failure mechanisms, and defective conditions. Motor vehicle accident investigation and reconstruction.

### Intesys Technologies

Provided engineering support for high-speed automated assembly and injection molding company.

Developed process to ultrasonically weld and pressure-test surgical pack for Alcon Laboratories.

Designed assembly tooling and UV silicone curing fixture for automatic transmission controller for Delphi Packard Electric.

Reversed-engineered components of high-speed blade inserter and developed technician training package to facilitate repairs and reduce downtime.

Developed tooling fixtures to manufacture electronic module for Saturn automobile.

### Aquapore Moisture Systems

Designed and installed customized processing equipment, wrote instructions and trained operators at a high-volume lawn and garden products manufacturing company.

Developed laser hole-drilling machine, manual hose coiler, web cutter and quality assurance test equipment to manufacture extruded sprinkler hose.

Installed and proved-in sprinkler hose manufacturing equipment, developed manufacturing procedures and trained technicians and operators. Specified and supervised construction of production facility to house new manufacturing equipment. Surveyed and selected injection molding houses to fabricate plastic components.

Procured and supervised installation, start-up and training for manufacturing facility of Gardena<sup>®</sup> products which included sonic and spin welders, spring coiler and pad printers. Developed optical comparator to facilitate quality control of extrusions

#### Chamberlain Group

Performed analyses of manufacturing problems and designed test equipment at high volume garage door opener manufacturer.

Performed evaluation of specifications, manufacturing, assembly and quality assurance processes within factory to eliminate garage door opener failures.

Designed and fabricated equipment to test garage door opener transmitters in environmental chamber.

Design and fabricated equipment to measure stall torque on electric motors.

#### Orbital Sciences Corporation

Provided structural analysis support for design of Pegasus launch vehicle.

Developed and performed test procedures for evaluating aerodynamic loads on rocket sections and explosive release testing of deployable nose sections for Ballistic Missile Office projects.

Developed 10-ft and 17-ft parabolic antenna system to track and receive data from polar-orbiting and geosynchronous satellites for Department of Defense.

Installed antenna systems at facilities in Chandler, Austin, and Denver. Created assembly procedures and trained Air Force personnel.

Designed mobile launch van for meteorological sounding rockets for Spaceport Florida Authority. Transported equipment to Mexico and launched during solar eclipse.

Developed production facility for water-activated batteries. Performed start-up of equipment including pill press, inking machine, dust collector and assembly jigs. Wrote procedures and trained operators.

Provided design and cost-reduction support for manufacturing and assembly of meteorological radiosondes and vacuum-thermoformed Mylar balloons.

#### Simula, Inc.

Responsible for seat experiments aboard four-engine commercial aircraft crash-tested at Edwards Air Force Base. Performed structural analyses, design and qualification tests on prototype seats. Liaison to FAA, NASA and JPL for installation, instrumentation, and documentation of seats and test dummies. Analyzed posttest instrumentation and photographic data. Presented analyses results to FAA and NASA.

Member of team comprised of FAA, U.S. Army and NTSB personnel that analyzed passenger injury and seat performance in commercial airline crashes and reported results to FAA, resulting in promulgation of stronger passenger seats.

Member of industry committee that developed dynamic testing requirements for transport seats.

Headed joint effort with SICMA Aero Seat to develop and market energy-absorbing commercial airline seat. Performed structural design and dynamic qualification tests. Presented technical performance data to engineers at Boeing Aircraft Co., McDonnell Douglas and FAA.

Designed and fabricated prototype sling kit for aerial lifting downed U.S. Army helicopters. Successfully passed flight tests.

Developed and fabricated seats for MBB BO-108 and VH-60 helicopters.

#### American Telephone & Telegraph

Responsible for the design, installation, prove-in, and operator training of equipment used in the cable jacketing process. Equipment included plastic conveying systems, winders, presses and turntables. Investigated field failures of cable seals and performed in-plant studies and trained operators to reduce defects. Worked with Bell Laboratories in performing evaluations of prototype fiber-optic sheathing materials.