

DR. C. J. ABRAHAM
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EDUCATION & CERTIFICATIONS

- **P. E. - Licensed Professional (Safety Engineer, CA)**
- **P.E. - Licensed Professional Engineer (State of Mississippi)**
- **CPC, CChE - Certified Professional Chemist & Chem. Engineer (National Inst. of Chemists & Chemical Engineers)**
- **FRSC, CChem - Chartered Chemist and Fellow (Royal Institute of Chemistry, London, England)**
- **LFAIC-Life Fellow, The American Institute of Chemists**
- **DEE, IH-Board Certified Environmental Engineer in the specialty of Industrial Hygiene, American Academy of Environmental Engineers**
- **FTI, Ctext-Fellow, The Textile Institute (Manchester, England)**
- **BCEE - Board Certified Environmental Engineer**
- **BCFE - Board Certified Forensic Examiner**
- **Certified - Arson Detection by the Federal Bureau of Alcohol, Tobacco and Firearms (U.S. Dept. of the Treasury)**
- **Certified - Chemical Engineer, Senior Member: #0118-003-3, The American Institute of Chemical Engineers**
- **Certified by The Steel Erectors Association of America in Connector Safety (OSHA Subpart R 1926.761(c)(2)) and Fall Hazards Safety (OSHA Subpart R 1926.761(b)); Safe Erection of Open Web Steel Joist and Joist Girders and Handling Structural Steel.**
- **Certified - Warnings & Instructions Specialist (University of Wisconsin-Madison, College of Engineering-1988)**
- **Certified in Motorcycle & Motor Scooter Safety and Operation**
- **Fellow - American College of Forensic Examiners**
- **Permanent Certification, University of the State of New York - Chem., Physics, Math, Gen. Science**
- **Board Certified Forensic Examiner in Chemistry and Chemical Engineering (American Board of Forensic Examiners)**
- **Board Certified Forensic Examiner in Safety Engineering and Design (American Board of Forensic Examiners)**
- **Board Certified Forensic Examiner in Fires and Explosions (American Board of Forensic Examiners)**
- **Board Certified Forensic Examiner in Industrial Hygiene (American Board of Forensic Examiners)**
- **Board Certified Forensic Examiner in Sports Safety (American Board of Forensic Examiners)**
- **Senior Classification Systems Safety Society**
- **Fellow of the Board—American Board of Forensic Examiners**
- **Diplomate in Forensic Engineering—American Board of Forensic Engineering and Technology (Lifetime)**
- **Professional Member - American Society of Safety Engineers**
- **Senior Grade - Systems Safety Society**
- **MS, PhD, DSc, JD**

AREAS OF EXPERTISE (Technical)

- Experience in new product development, manufacturing, packaging, standards, warnings and instructions.
- Extensive experience in the identification, elimination and control of hazards to people and property. This includes the development, establishment, manufacturing, construction, assembly, testing, operation, training and procedures including manuals, environmental engineering and industrial hygiene, warnings & instructions for consumer and industrial products.
- Authority in the fields of products liability, OSHA, Labor Law (Industrial Code), architectural safety, safety engineering and construction accidents.
- Contributing author to the **PRODUCT DEFECT HANDBOOK**.
- Lectured and taught at various universities in the United States and Europe.
- Published and presented papers in the areas of fires, explosions (gas, bottle, battery), plastics, toxic torts, flammable fabrics, safety engineering and design, sports safety, household and industrial product safety, industrial equipment, warnings and instructions for both industrial and consumer products.
- Patentee of many products, including protective headgear (face mask used in football - licensed to Riddell), enhancement of energy absorption for protective headgear and equipment, safety shields for batteries, insulation materials used on missiles, household products, and non-toxic insect repellents worldwide. Copyright Registrations in the areas of battery warnings and instructions, toxic materials, household products and insect repellents.
- Experienced in golf cart accidents, operation and design.
- Experienced in amusement park activities and water park activities, operation and safety.
- Experienced in head injury, brain injury and head trauma cases.
- Experienced in helmet testing and evaluation, head protection and analysis in all types of cases.
- Experienced in animal and human health products, new product development, EPA, product data specifications, testing and analysis.
- Experienced in architectural analysis (residential and commercial) including concrete slab composite structures for sidewalks, parking and streets including asphalt.
- Over 40 years of experience with EU Directives, ISO, ASTM, ANSI, NEMA, NFPA, UL, OSHA for a large variety of products, including but not limited to recreational facilities, toys, playgrounds, personal household products, textiles, etc.;
- Diplomate-American Board of Forensic Examiners in Safety & Safety Engineering.
- Member (former) of the Advisory Board -World Congress on Industrial, Technical, and High Performance Textiles (Great Britain);
- Member (former) of the Advisory Board - American Board of Engineering and Technology (USA).
- Member, Architectural Review Board, Village of Great Neck, Great Neck, NY (1995-2009)
- Member-ISO/TC 181/SC: Safety / Manufacture of Toys. Safety testing, technical regulations, quality control, packaging, testing, packaging, warnings and instructions.
- Member of the ASTM, (1964-present).
- Over 110 publications and presentations.
- Patentee of products produced and used throughout the world (over 38).
- Consulted to ABC and CBS News, Eyewitness News (ABC), USA Today and the Discovery Channel.
- Consulted to the Department of Agriculture (Bureau of Mines).
- Consulted to the National Highway Traffic Safety Administration (NHTSA).
- Consulted to the Department of Labor (OSHA).
- Consulted to construction companies in the area of safety for their employees applying OSHA and ANSI standards for high elevations.
- Consultant to NIOSH (National Institute for O

- **Occupational Safety and Health) (peer review research proposals for research and new OSHA safety standards).**
- **Consultant on Warnings & Instructions to the Unified Abrasives Manufacturer's Association.**
- **Consultant to Microsoft-Kinesiology Studies, Human Movements and Muscle Activity Impacts, Warnings and Instructions**
- **Consulted to a number of chain stores in the area of safety in retail stores.**
- **Consulted to Wave Loch, Inc. (manufacturer of the Flow Rider)**
- **Consulted to Hudson Bay stores, Canada in risk assessment and human factors.**
- **Consulted to Home Depot in risk assessment and human factors.**
- **Consulted to Big Lots Stores, Inc. on display safety.**
- **Consulted to the American Textile Company (warnings & instructions).**
- **Consulted to Estwing Manufacturing Co. (warnings and instructions).**
- **Consulted to the Long Island Railroad;**
- **Consulted to the New York Transit;**
- **Consulted to the Queensborough Bridge Authority;**
- **Consultant to the estates of the deceased in the Kaprun fire disaster case (Austria);**
- **Consulted to The Guidance Group (creator of educational toys);**
- **Consultant to Intamin AG (Switzerland-roller coasters);**
- **Consulted to Family Dollar Stores (safety of products);**
- **Consulted to Northern Lights (mfg. of fitness equipment – safety engineering & design)**
- **Consulted to Sherwin Williams;**
- **Consulted to Walter Kidde (fire extinguishers);**
- **Consulted to Kohl's Department Stores (retail displays and safety);**
- **Consulted to The Thompson's Company-Water Seal Product;**
- **Consulted to The London Hotel, NYC, ADA (American Disability Act) evaluation;**
- **Consulted to Reliable Bakery (Brooklyn) - Safety & OSHA;**
- **Consulted to Lobster, Inc. on safety and warnings (High speed tennis machine);**
- **Consulted to various municipalities on park, recreation safety and swimming pools;**
- **Consultant to Win Win Printing, Inc. – OSHA compliance and employee training;**
- **Consulted to Hamaco Industries Corporation. A Japanese manufacturer of material handling equipment such as mechanical and electric lift tables. Preparation of warnings and instructions for lifts and creations of warnings and instructions for service and user manuals.**
- **Consulted to Attorney General's Office for the State of New York, Louisiana, Iowa and others;**
- **Consulted to the US Department of Justice, Eastern District of New York;**
- **Tested and evaluated every type of protective sports headgear for collision, contact and all recreational activities;**
- **Consulted to CBS Evening News, Tampa, Florida on July 23, 2013 relating to the safety and cause of the accident resulting in the death of a rider on the rollercoaster at Six Flags Amusement Park;**
- **Consultation to ABC News, New York on 8-15-2013. Serpent Roller Coaster ride accident involving 5 year old in Coney Island on 8-14-2013;**
- **Consulted to CBS TV News, New York on 10-15-2013. Analysis of the safety protocol related to retail stores and stacking shelves with merchandise. (televised 10-31-13, 11 p.m.)**
- **Consulted to Tylo Helo (Tylö AB), the largest sauna (dry and steam) company in the world.**
- **Consulted to Transpo Industries, Inc.**
- **Consulted to Landscape Forms, Inc.**
- **Consulted to Tuff Stuff Fitness Equipment, Inc.**
- **Consulted to City of San Diego, CA (Playground safety)**
- **Consulted to EBRU TV: Fresh Outlook, May 17, 2014, Soma, Turkey (Mine Explosion in Turkey)**

PROFESSIONAL EXPERIENCE (Sports & Recreation)

- **Diplomate-American Board of Forensic Examiners in Sports and Recreational Safety**
- **Former Director of Sports, Recreation & the Athletics Division of a national consulting firm for twenty-eight years.**
- **Experienced in the identification, elimination, and control of hazards in recreation facilities, parks and school environments.**
- **Directly involved with sports & recreation safety standards, safety and design analysis of protective equipment, consumer products, warnings and instructions.**
- **Member of the Executive Committee and consultant in the area of engineering and human factors to the Hockey -Equipment Certification Council (HECC) (1980-1998)**
- **U.S. Delegate-International Standards Organization (ISO) (1988-1998)**
- **Member Safety & Protective Equipment Committee (SPEC) of USA Hockey (1996-2008)**
- **Member of the ASTM, (1964-present).**
- **Inventor of the Bio-Lite football facemask licensed to Riddell**
- **Inventor of the ForceField FF Headband (www.forcefieldheadbands.com)**
- **USPTA-certified tennis instructor (United States Professional Tennis Association)**
- **Creator of warnings and instructions for many sports products**
- **Consulted to municipalities on park & recreation facilities, and Set Makers, Inc., the manufacturer of recreation facilities for Burger King and McDonald's restaurants.**
- **Consulted to Lobster, Inc. on safety and warnings (High speed tennis machine)**
- **Consulted to various municipalities on park, recreation safety and swimming pools**
- **Tested and evaluated every type of protective sports headgear for collision, contact and all recreational activities;**
- **Consultant to Microsoft-Kinesiology Studies, Human Movements and Muscle Activity Impacts, Warnings and Instructions**
- **Consulted to Wave Loch, Inc. (manufacturer of the Flow Rider)**
- **Consultant to Intamin AG (Switzerland-roller coasters);**
- **Consulted to Northern Lights (mfg. of fitness equipment – safety engineering & design)**
- **Consulted to ABC and CBS on Amusement Park accidents**
- **Consulted on safety of activities on amusement parks including water parks (Splish Splash, Suffolk County, NY, Coney Island, Six Flags and Disney World)**
- **Consulted on cruise lines with safety of their recreational activities and exercise equipment**
- **Consulted to Chuck E Cheese on the safety of their amusement facility**
- **Consulted to ABC affiliates, KGTV News, in West Palm Beach, Florida and San Diego, California on the Safety of Playgrounds and Playground Activities**
<http://www.10news.com/news/investigations/safety-consultant-finds-various-problems-at-san-diego-public-parks> and <http://www.10news.com/news/investigations/10news-report-spurs-changes-at-san-diego-public-parks>
- **Consulted on cases involving amusement parks, roller coasters, tennis pitching machines, exercise machines, recreational facilities for McDonalds and Burger King, lazar facilities, residential playgrounds, safety in indoor and outdoor basketball courts, bleacher safety, natural versus synthetic surfaces, headgear for sports, baseball base design, golf carts, ice hockey facilities, cruise line recreational activities (i.e. wave runners, track and exercise equipment), and many others.**
- **Abraham, C. J. and Abraham, S. R., Sub-concussive Head Impacts in Soccer and a Method for Significantly Reducing and Dissipating Those Forces, presented at the ASTM International Symposium on the Mechanism of Concussion in Sports, November 13, 2012, Atlanta, Georgia**
- **Consultation to ABC News, New York on 8-15-2013. Serpent Roller Coaster ride accident involving 5 year old in Coney Island on 8-14-2013**
- **Consulted to City of San Diego, CA (Playground safety)**

PROFESSIONAL ASSOCIATIONS

- National Society of Professional Engineers
- New York State Society of Professional Engineers
- Queens Chapter, Society of Professional Engineers
- American Academy of Environmental Engineers, Diplomate
- American Industrial Hygiene Association (Full Membership)
- Royal Society of Chemistry (London), Fellow
- The Textile Institute, Fellow (Manchester, England)
- National Fire Protection Association
- Society of Civil Engineers
- Human Factors and Ergonomics Society
- American Society of Safety Engineers (Professional Member)
- Systems Safety Society - Senior Grade
- Standards Engineering Society
- American National Standards Institute (ANSI)
- American Society of Mechanical Engineers (9073529)
- Society of Automotive Engineers
- American Chemical Society (over 50 years)
- The American Institute of Chemical Engineers (Senior Member)
- Society of Plastics Engineers
- American Association of Textile Chemists and Colorists (AATCC)
- American Board of Forensic Examiners
- Human Factors and Ergonomics Society
- United States Professional Tennis Association (certified tennis instructor)
- International Code Council
- American Society for Testing and Materials: ASTM (1964- to present)
 - C-8 Refractories;
 - C-14 Glass & Glass Products;
 - C-01 Cement
 - D-1 Paint, Varnish, Lacquer & Related Products;
 - D-9 Electrical Insulating Materials;
 - D-12 Soaps & Other Detergents;
 - D-13 Textiles;
 - D-13.52 Flammability
 - D-14 Adhesives;
 - D-19 Water;
 - D-20 Plastics;
 - D-21 Polishes;
 - D-26 Halogenated Organic Solvents;
 - D-30 High Modulus Fibers and their Composites;
 - E-5 Fire Tests of Materials and Construction;
 - E-7 Non-destructive Testing;
 - E-15 Analysis & Testing of Industrial Chemicals;
 - E-17 Skid Resistance;
 - E-20 Temperature Measurement, Chemicals;
 - E-27 Hazard Potential of Chemicals;
 - E-30 Forensic Sciences; E-34 Occupational Health & Safety Aspects of Materials, Physical & Biological Agents;
 - E-28 Mechanical Testing;
 - F-8 Sports Equipment & Facilities;

F-9 Tires;
F-13 Safety & Traction of Footwear;
F-15 Consumer Product Safety;
F-23 Protective Clothing;
F-27 Snow Skiing
F-08 on Sports Equipment and Facilities
F08 Main Committee
F08-10 Bicycles
F08-11 In-Line Skating
F08-12 Wrestling and Gymnastics
F08-13 Fencing Equipment
F08-15 Ice Hockey
F08-16 Archery Products
F08-17 Trampolines and Related Equipment
F08-18 Golf Clubs and Shafts
F08-19 Bicycle Accessories
F08-21 Climbing and Mountaineering
F08.22 Camping Equipment;
F08-23 Tennis Courts and Running Tracks
F08-24 Paintball and Equipment
F08-25 Residential Basketball Equipment
F08-26 Baseball and Softball
F08-30 Fitness Products
F08-51 Medical Aspects and Biomechanics
F08-52 Playing Surfaces and Facilities
F08-52.1 Task Group Playground Surfacing
F08-53 Headgear and Helmets
F08-54 Athletic Footwear
F08-55 Body Padding
F08-56 Facilities-Baseball and Softball
F08-57 Eye Safety for Sports
F08-61 Ice Hockey Rinks
F08-63 Playground Surfacing Systems
F08-64 Natural Playing Surfaces
F08-65 Artificial Turf Systems
F24 on Amusement Rides and Devices
F24-10 Test Methods
F24-20 Specifications and Terminology
F24-24 Design and Manufacture
F24-30 Maintenance and Inspection
F24-40 Operations
F24-60 Special Rides & Attractions
F15 Consumer Products
F15- Aquatic Play Equipment
F15-29 Public Playground Equipment
F15-36 Soft Contained Play Equipment
F15-44 Play Equipment for Children Under Two

Additional qualifications in the area of recreation, recreation facilities, recreational products and recreational/sports protective/exercise equipment

- a. Licensed P. E. and Certified Safety Engineer**
- b. Licensed Professional Engineer with a specialty in Safety Engineering and Design**

- c. **Diplomate in Sports and Recreation Safety (Over 42 years of consulting experience in the areas of safety on sports and recreation**
- d. **Formerly the founder and Associate Director of the Sports and Recreation Safety Division of a national consulting company for twenty-eight years (Inter-City Testing & Consulting Corporation)**
- e. **Member of the ASTM from 1964 to the present time involved directly in creating safety standards for residential and commercial (public) playgrounds.**
- f. **Certified in warnings and instructions-created warnings and instructions for many products**
- g. **Consulted to municipalities throughout the United States and Canada in safety in their parks and playgrounds (Boston, MA; Brockton, MA; New York City; Brooklyn; Nassau County and London, Canada to name a few)**
- h. **Presented seminars to the graduating class of mechanical engineers at Columbia University School of Mechanical Engineering covering subjects relating to safety and design of playground activities and exercise equipment**
- i. **Consulted to ABC and CBS on amusement park accidents**
- j. **Consulted to WPTV, Channel 5, Florida on the safety of public recreational facilities for children**
- k. **Consulted on the safety of activities at amusement parks including water parks (Splish Splash in Suffolk County, Coney Island, Six Flags, Chuck E Cheese and Disney World)**
- l. **Consulted on cruise lines with reference to safety of their recreational activities and exercise equipment**
- m. **Consulted to Wave Runners (Wave Loch Inc.)**
- n. **Consulted on tennis pitching machines (Lobster Inc.)**
- o. **Consulted on McDonald's and Burger King's children's play area**
- p. **Member of the ASTM committee on the safety of paintball facilities**
- q. **Member of the Executive Committee and consultant in the area of engineering and human factors to the Hockey -Equipment Certification Council (HECC) (1980-1998)**
- r. **U.S. Delegate-International Standards Organization (ISO) (1988-1998)**
- s. **Member Safety & Protective Equipment Committee (SPEC) of USA Hockey (1996-2008)**
- t. **Inventor of the Bio-Lite football facemask licensed to Riddell**
- u. **Inventor of the ForceField FF Headband www.forcefieldheadbands.com)**
- v. **Creator of warnings and instructions for many sports products**
- w. **Consulted to Intamin AG (Switzerland - rollercoasters)**
- x. **Consulted to Northern Lights (manufacturer of fitness equipment)**
- y. **Consulted to MicroSoft - Kinesiology Studies, Human Movements and Muscle Impacts, Warnings and Instructions**
- z. **Consulted on cruise ships with reference to the safety of their activity areas for passengers.**
- aa. **Consulted on news programs on the safety of public playgrounds**
- bb. **Consulted for Chuck E Cheese with reference to the safety of the activities in their activity center.**
- cc. **Presentations made throughout the United States and Europe on sport injuries to both children and adults.**

dd. I was the founder and CEO of Inter-City Testing & Consulting Corp., a national company from 1970 to 1998. In that capacity I directed the consulting, testing, reconstruction and evaluation of a variety of sports and recreation facility cases. Among the cases I consulted on and evaluated were a large number of fitness equipment accidents.

Dr. C. J. Abraham's experience in the areas of fires and explosions

- a) **Kaprun fire disaster case in Austria**
- b) **Coal barbeque starter**
- c) **Cigarette lighters**
- d) **Paint thinners**
- e) **Flammable sprays**
- f) **Hair sprays**
- g) **Hair treatment**
- h) **Flammable fabrics**
- i) **Automobile battery explosions**
- j) **Gasoline fires and explosions**
- k) **Dust explosions**
- l) **Spontaneous combustion cases**
- m) **Gas tank explosions**
- n) **Propane tank- truck supply fires**
- o) **Vapor explosions from varnishes, paints, floor finishers**
- p) **Total release sprays**
- q) **55 gallon drums/cutting them in 1/2 explosions filled with explosive vapor**
- r) **Exploding automobile tires with isopropane/butane emergency-temporary fill**
- s) **Aerosols - flash back**
- t) **Paints**
- u) **Dept. of Agriculture Bureau of Mines**
- v) **Spontaneous combustion**
- w) **Exploding automobile batteries**
- x) **Fireworks**
- y) **Fireworks manufacturing facility**
- z) **Gasoline tanks explosions**
- aa) **Gasoline containers**
- bb) **Propane tank explosions (pool heater and household use)**
- cc) **Chemical tanker explosions**
- dd) **Power plant explosions**
- ee) **Ship explosions**
- ff) **House explosion due to natural gas leaking from supply pipes from street to basement**
- gg) **Static electricity discharge- fires and explosions**
- hh) **High voltage discharge**
- ii) **Household product fires**
- jj) **Natural gas leaks- fires and explosions**
- kk) **Trailer home fires and explosions**
- ll) **Deflagration of plastic containers containing flammable liquids**