

# InterCity

TESTING & CONSULTING  
CORPORATION

FORENSIC ENGINEERING CONSULTING  
AND EXPERT TESTIMONY

## InterCity Testing & Consulting Corporation

**ITC** answers the rapidly increasing need for qualified experts to aid in technical and scientific analysis, product evaluation, preparation of cases for trial, as well as court testimony in matters outside the scope of the common knowledge of a jury. As a service to the legal profession, insurance companies, and industry, our experts in most fields of specialization are available to attorneys representing clients in civil and criminal cases. ***ITC is not an expert referral service.*** At **ITC** there is a core staff of experts available for consultation in individual or interdisciplinary specialties, with supporting testing capabilities.

We personally want to introduce **ITC** to you and provide further information about our services and how we can assist you.

**Dr. James Pugh, P.E.**

*President & Director*

**Dr. Jeffrey Ketchman, P.E.**

*Director of Mechanical Engineering*

**Dr. Jesse Bidanset**

*Director of Toxicology*

## **CORPORATE OFFICES:**

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# AREAS OF EXPERTISE

ACCIDENT RECONSTRUCTION  
ACUPUNCTURE  
ACOUSTICS & NOISE CONTROL  
ADVERSE DRUG REACTIONS  
AEROSPACE ENGINEERING  
AGRICULTURAL ENGINEERING  
AIR & WATER POLLUTION  
AMUSEMENT PARK ACCIDENTS  
ANIMATION  
ARBITRATION  
ARCHITECTURE  
ARSON  
ARSON ACCELERANTS  
ASBESTOS ANALYSIS  
AUTOMOTIVE - BRAKES  
AUTOMOTIVE - CRASHWORTHINESS  
AUTOMOTIVE DEFECTS  
AUTOMOTIVE - ELECTRICAL  
AUTOMOTIVE - MECHANICAL  
AUTOMOTIVE SAFETY  
AUTOMOTIVE STABILITY & CONTROL  
AUTOMOTIVE STEERING SYSTEMS  
AUTOMOTIVE SUSPENSION

BALLISTICS  
BATTERY EXPLOSIONS  
BICYCLES/ACCIDENTS  
BIOCHEMISTRY  
BIOENGINEERING  
BIOMECHANICAL ENGINEERING  
BIOMEDICAL INJURY ANALYSIS  
BOATING SAFETY  
BOMB INVESTIGATIONS  
BUILDING CODES/STANDARDS  
BURNS

CAMPING EQUIPMENT  
CARBON MONOXIDE EXPOSURE  
CARPAL TUNNEL SYNDROME  
CHAIRS - STRUCTURAL SAFETY  
CHEMICAL ENGINEERING  
CHEMISTRY  
CIVIL ENGINEERING  
COATING CHEMISTRY  
CODES & STANDARDS  
COMBUSTION  
COMPUTER SIMULATION  
CONSTRUCTION ACCIDENTS  
CONSTRUCTION ENGINEERING  
CONSTRUCTION PROJECTS  
CONSUMER PRODUCTS LIABILITY

COPYRIGHTS  
CORROSION  
COSMETICS  
  
DEFECTIVE DESIGN  
DISPUTE RESOLUTION  
DOCUMENT EXAMINATION  
DROWNINGS  
DRUG REACTIONS  
DYNAMICS

EARTHQUAKE DESIGN &  
ENGINEERING  
ELECTRICAL ENGINEERING  
ELECTRICAL UTILITIES  
ELECTROMECHANICAL EQUIPMENT  
ELECTRONIC EQUIPMENT  
ELEVATOR/ESCALATOR ACCIDENTS  
ENVIRONMENTAL LAW -  
CONSERVATION  
EQUESTRIAN ACCIDENTS  
ERGONOMICS  
ESCALATORS  
EXCAVATORS - TRENCHING  
EXERCISE EQUIPMENT  
EXPLOSIONS  
EXPLOSIVES

FACILITY SAFETY  
FAILURE ANALYSIS  
FEATHERS & DOWN  
FINGERPRINTS  
FIRE - ORIGIN & CAUSE  
FIRE EXTINGUISHERS  
FIRE FORENSICS  
FIRE INVESTIGATION  
FIREARMS  
FIREWORKS  
FLAME EXTINCTION  
FLAME PROPAGATION  
FLAMMABILITY  
FOOD CHEMISTRY  
FOOD ENGINEERING  
FORKLIFT SAFETY & OPERATION  
FORENSIC SCIENCES  
FORESTRY  
FRACTURE ANALYSIS

GAS LEAKS-EXPLOSIONS  
GASOLINE LEAKS- EXPLOSIONS  
GUNS

# AREAS OF EXPERTISE

HANDWRITING EXAMINATION  
HAZARD ANALYSIS  
HEAD & NECK TRAUMA  
HELMETS - PROTECTIVE & SAFETY  
HIGHWAY SAFETY - ENGINEERING  
HIGHWAY MAINTENANCE  
HOUSEHOLD PRODUCTS  
HUMAN FACTORS  
HVAC  
HYDRAULICS

INDUSTRIAL ACCIDENTS  
INDUSTRIAL ENGINEERING  
INDUSTRIAL HYGIENE  
INDUSTRIAL PROCESS FACILITY  
SAFETY  
INDUSTRIAL SAFETY  
INDUSTRIAL VEHICLES  
INSECT BOMBS - INJURY  
INTELLECTUAL PROPERTY

KINEMATICS  
KINETICS

LABELING  
LADDERS  
LAWN MOWER SAFETY  
LIGHTING SAFETY  
LOGGING  
LP GAS EXPLOSIONS

MACHINE DESIGN  
MACHINE GUARDING  
MARINE ENGINEERING  
MATERIALS HANDLING  
MATERIALS SCIENCE  
MEASUREMENT DEVICES  
MECHANICAL ENGINEERING  
METALLURGY/ FRACTURE SURFACE  
ANALYSIS  
MOTORCYCLES

NOISE CONTROL & ACOUSTICS

OCCUPANT KINEMATICS  
OSHA COMPLIANCE ANALYSIS

PACKAGING  
PAINT & COATING CHEMISTRY  
PARKING LOT SAFETY  
PATENTS  
PEDESTRIAN ACCIDENTS  
PHARMACOLOGY

PIPELINES  
PLAYGROUND ACCIDENTS  
POWER TOOL SAFETY  
POWERPOINT PRESENTATIONS  
PROCESS CONTROL-ENGINEERING  
PROCESS SAFETY  
PRODUCTS LIABILITY  
PROSTHESES & IMPLANTS

RECREATIONAL ACCIDENTS  
REPETITIVE WORKPLACE INJURIES  
ROLLER SKATING RINK ACCIDENTS  
ROADWAY DESIGN/SIGNAGE

SAFETY ALARMS  
SAFETY ENGINEERING  
SAFETY MANAGEMENT  
SAFETY NETS  
SAWS  
SCAFFOLDING  
SCUBA DIVING EQUIPMENT  
SEAT BELT INJURIES  
SEWER SYSTEMS  
SLIPS, TRIPS & FALLS  
SODA BOTTLE EXPLOSIONS  
SPORTS ACCIDENTS  
SPRAY CAN INJURIES  
SPRINKLERS - GARDEN/  
DRAINAGE  
STRUCTURAL ENGINEERING  
SURGICAL EQUIPMENT  
SUTURES  
SWING SAFETY  
SWIMMING POOL ACCIDENTS

TEXTILE ENGINEERING  
TIRE DEFECTS & SAFETY  
TOXICITY - COMBUSTION  
TOXICOLOGY  
TRAFFIC SAFETY/MANAGEMENT  
TRANSPORTATION & HIGHWAY  
ENGINEERING  
TRUCK SAFETY

VACUUM CLEANER ACCIDENTS  
VEHICLE STABILITY & CONTROL  
VIDEO ANIMATIONS  
VOCATIONAL REHABILITATION

WARNINGS & INSTRUCTIONS  
WHEELCHAIR LIFTS  
WINDOW ACCIDENTS

*InterCity Testing & Consulting Corporation offers more than 150 areas of expertise* to the legal profession, insurance companies, business, industry, and other interested parties, representing clients in civil and criminal cases, and intellectual property matters, including patents, copyrights, and product liability cases.

We offer test capabilities and a core staff of experts available for consultation and technical evaluation, in individual or interdisciplinary specialties.

*ITC is not an expert referral service.* With a technical base of more than 200 experts available nationally and internationally, we provide an interdisciplinary approach to problem solving for our clients. **ITC** also offers expertise in identifying the technical needs of a particular case.

**ITC** uses a diversified team of experts who are well-known to each other and are nationally recognized in their specialties. *We offer an interdisciplinary core group of technical and engineering experts*, each of whom is well known in his or her particular field. **ITC** consultants have been with **ITC** in most cases for many years. Consequently, **ITC** stands behind and guarantees the background and performance of each expert and each project. Many of **ITC** consultants have participated in the writing of standards and codes, have published technical papers, and currently serve on standards-setting organizations related to their respective specialties.

*ITC and its consultants have been recognized nationally and internationally, and ITC has provided consultants and experts in a wide variety of technical disciplines. Now with more than 200 experts available for consultation nationwide, we can provide complete consulting and expert services to meet the varied technical needs of clients in many areas of expertise.*

## **ACCIDENT RECONSTRUCTION & INJURY ANALYSIS**

Scientific accident reconstruction by nationally recognized experts in the field , involving all types of vehicles (cars, multipurpose vehicles, trucks, tractor-trailers, motorcycles). Analyses are based upon principles of physics and engineering, using state-of-the-art accident reconstruction computer programs and computational methods. Results are typically correlated with a Biomedical/Bio-mechanical injury analysis to clearly determine mechanisms of injury and the causal relationship between the accident dynamics and the resulting injuries. **ITC** also specializes in generating computer-based video animations and simulations for vivid courtroom demonstration of the accident events, including powerpoint presentations.

## **AUTOMOTIVE SAFETY/DEFECT ANALYSIS**

Air Bags, Batteries, Brakes, Crashworthiness, Diagnostics & Trouble-shooting, Electrical/Electronics, Fires, Gas Tanks, Mechanical Safety, Motorcycles, Rollover Stability, Seats and Seat Belts, Steering Systems, Suspension, Tire Defects, Trailers, Trucks, Unwanted Acceleration.

## **AVIATION & MARINE ACCIDENTS & SAFETY**

In-depth investigation of aviation and marine accidents is critical to the successful and accurate evaluation of these incidents. **ITC's** interdisciplinary team of Aviation, Aerospace, Aeronautical, and Marine Engineers, along with highly qualified Pilots and Accident Reconstructionists are fully equipped to investigate aviation or marine accidents or safety defects.

# **CHEMISTRY & LABORATORY SERVICES**

ITC can provide laboratory testing capability for investigating product defects, reconstructing accidents, failure analysis, toxicology, and similar forensic engineering problems. Included in ITC's laboratory and investigative capabilities are the following: Air and Water Pollution, Asbestos Analysis, Biochemistry, Biology, Biomechanical Engineering Analysis, Carbon Monoxide Exposure, Chemical and Metallurgical Analysis, Chemical Engineering, Cosmetics, Drain Cleaners, Drug Analysis, Drug Reactions, Flammability Testing, Food Chemistry, Forensic Science, Glass and Metal Fracture Analysis, Helmet Failure Analysis, Household Chemicals Testing, Hydrogen Sulfide Exposure, Insect Bomb Exposure and Explosions, Labeling, Mechanical and Structural Testing, Metallurgy, Paint and Coatings Analysis, Plastics Testing, Prosthesis Failure Analysis, Recreational Equipment Testing, Spray Can Injuries, Tire Testing, Toxicology, Warnings and Cautions, and Instructions. Our laboratories are fully equipped for microscopic analysis and mechanical testing.

## **COMPUTER SERVICES**

State-of-the-art computer programs are available for accident reconstruction and evaluation of structural-mechanical systems, including the latest techniques in computer graphics and video animations, and other graphics.

## **CONSTRUCTION**

When scaffolding collapses, a roof caves in, or construction equipment malfunctions, enormous human and/or monetary losses may result. Many parties including architects, contractors, product and equipment suppliers, insurance companies, and governmental authorities may have an



interest in determining the cause. ITC's expert team of architects, civil engineers, contractors, code specialists, mechanical, geotechnical, safety, and structural engineers are immediately available to assist in all aspects of construction accident investigation and safety. These include: Accidents, Arbitration, Architecture, Building Codes and Standards, Building Design, Civil Engineering, Contractor Liability, Contracts and Contract Administration, Cranes, Defects, Dispute Resolution, Engineering, Fork Lifts, HVAC, Ladders, Loaders, Parking Lot Safety, Real Estate Transactions, Safety Engineering, Scaffolding, Slip and Fall, Structural Engineering, Swimming Pool Accidents, and Zoning.

## **CRIMINALISTICS & SPECIALIZED FORENSIC SCIENCE SERVICES**

These include: Arson, Ballistics, Bombs, Bullet-Proof Vests, Criminalistics, Document Evaluation, Driving While Intoxicated (DWI), Drugs, Explosions, Explosives, Fingerprints, Firearms, Fire Forensics, Narcotics, Pathology, Pharmacology, Polygraph, Private Investigation, Tapes and Recordings, Toxicology.

## **ENGINEERING & PRODUCT LIABILITY**

ITC provides in-depth engineering analysis in accident reconstruction and investigation of defects in consumer products, vehicles, and industrial machinery by a staff of specialists, including licensed Professional Engineers and doctorate level engineers. ITC offers assistance and consulting in many areas where expert testimony may be required. Services include, but are not limited to, the following: Aerospace, Biomechanical, Chemical, Civil, Construction, Electrical, Environmental, Highway, Industrial, Marine, Mechanical, Process Control, Safety, Structural, Textile, and Transportation.

## **EXPLOSIONS & EXPLOSIVES**

Personal injury, death, and extensive property damage are all too often the result of explosions. **ITC** has assembled an inter-disciplinary team of combustion, explosion, ordinance, ballistics, and fireworks experts to assist in the evaluation of all types of explosions, not limited to Arson, Accelerants, Battery Explosions, Bomb Investigations, Bullet-Proof Vests, Dust Explosions, Explosives, Firearms, Fire Extinguishers, Fireworks, LP Gas Explosions, Explosions of vessels, and Spray Can Explosions.

## **FIRE INVESTIGATION & FLAMMABILITY OF CLOTHING & FURNISHINGS**

Consultation, testing, and expert testimony is available for fabric and clothing fires in both the home and the work place. **ITC's** experts are intimately familiar with the fire performance and state-of-the-art of many household furnishings, such as draperies, floor coverings, bedding, upholstered furniture, wall coverings, and similar furnishings. They have testified effectively in major multiple fire death and injury litigation and are intimately familiar with all aspects of flammability and safety. In addition, **ITC** has assembled a team of experts and consultants in other fire-related disciplines, such as fire investigation, cause and origin, fire endurance, combustion, fire growth and development, fire modeling, and combustion toxicity. **ITC's** team of fire experts is available through consultation to assist attorneys in understanding the technical complexities of fire and flammability-related litigation and to provide expert testimony if required. Areas include: Adhesives, Arson, Bedding Fires, Burns, Camping Equipment, Carbon Monoxide Exposure, Carpets, Clothing and Fabrics, Combustion, Combustion Toxicity, Curtains and Drapes, Electrical, Fire

Forensics, Fire Investigation, Fire Safety, Flame Propagation and Extinction, Furniture Fires, Insulation, Interior Finish, Mattresses, Plastics, Polyurethane Foam, Wall Covering, and Work Clothing.

## **HAZARD & SAFETY ANALYSIS**

Accident Reconstruction, Construction Accidents, Defective Design Analysis, Explosion, Facility Safety, Failure Analysis, Fault Tree Analysis, Fire Safety, Hazard Analysis, Highway Safety, Industrial Safety, Labels, Lighting, Machine Guarding, OSHA Compliance, Recreational Safety, Safety Engineering, Safety Management, Slips and Falls, Traffic Safety, Warnings, and Instructions.

## **INJURY ANALYSIS & MEDICAL DEVICES**

ITC specializes in establishing the causal relationship between accidents and the resulting injuries. ITC's experts consult in the broad areas of accident reconstruction including injury analysis in virtually all areas of personal injury (including sports injuries, and injuries associated with the use of safety devices, automobiles, heavy equipment, hand tools, power tools, slips and falls, etc.), metallurgical analyses of all sorts (including failure analysis of metallic parts and structures), analysis of materials failures (plastics, ceramics, and composites), failures of medical devices (both implants and associated medical equipment including lasers, pacemakers, and the like), and ergonomics and human factors (including warnings and instructions). Areas include Biomedical Engineering, Biomedical Injury Analysis, Carpal Tunnel Syndrome, Cosmetics, Fracture Analysis, Helmet Safety, Medical Implants, Prostheses, Recreational Accidents, Seat Belt Injuries, and Sutures.

## **METALLURGY & MATERIALS SCIENCE**

Injuries caused by the failure of metal parts, tires, and breakage of glass are a common cause for the filing of legal actions. In addition, failure due to corrosion, failure of plastic devices and parts, and defects in paints and coatings often result in significant insurance claims. **ITC's** materials science experts, mechanical and structural engineers, and chemists are uniquely equipped, by experience and education, to investigate and determine the causes of these incidents and failures. Clients are then advised of the appropriate remedial actions, or the technical merits of their claim. Areas include: Automotive Defects, Air and Water Pollution, Arson Accelerants, Asbestos Analysis, Structural Safety, Ceramics, Coating Chemistry, Corrosion, Cosmetics, Explosives, Fire Forensics, Fireworks, Flammability, Glass Fracture, Ladders, Metal Fracture, Metallurgy, Paints, Plastics, Prostheses, Scaffolding, and Tires.

## **RECREATIONAL & SPORTS ACCIDENTS**

**ITC's** extensive experience encompasses virtually every conceivable sport or recreation activity and in school settings at all education levels including nursery, elementary, secondary, and college. **ITC's** experience extends to both amateur and professional sports and includes activities engaged in on an individual or group basis. Equally important is **ITC's** staff of sports and recreational specialists. Areas include Amusement Parks, Baseball, Bicycling, Boating, Camping Equipment, Diving Boards, Equestrian Activities, Football, Gymnastics, Helmet Safety, Hockey, Injury Analysis, Motorcycling, Roller Blading and Skating, Scuba Diving, Skiing, Snowmobiling, Sports Shoes and Equipment, Supervision, Swimming, Water Polo, Waterslides.

## **TOOLS & MACHINERY**

Over the years **ITC** engineers and staff have evaluated thousands of accidents caused by defects in tools and machinery. Injuries caused during the use of power tools, improper machine guarding, failure of agricultural equipment, accidents involving forklifts and loaders, and injuries caused by elevators and escalators are a sampling of typical incidents that have been investigated and evaluated by **ITC** engineers. Areas of expertise include Accident Reconstruction, Apparel Manufacturing Equipment, Automotive, Baking Equipment, Defective Design, Elevators, Escalators, Filter Housings and Media, Firearms, Forklifts and Loaders, Highway Equipment, Hydraulic Systems, Industrial Accidents, Industrial Vehicles, Ladders, Lawn Mowers, Lighting Fixtures, Logging Equipment, Machine Design and Guarding, Metallurgy, Metal Working Tools, Oil Field Equipment and Pipelines, Power Tools, Safety Engineering, Vacuum Cleaners, Washing Machines, Window Accidents, Woodworking Tools, Vehicles - all types.

## **TRANSPORTATION & HIGHWAY SAFETY**

This includes Aircraft, Automobiles, Engineering, Highway Design and Defects, Industrial Vehicles, Logging, Marine, Mass Transit, Motorcycles, Pedestrian, Railroad, Traffic Signals and Lighting, and Trucks.

## **WARNINGS & INSTRUCTIONS HAZARD COMMUNICATIONS**

**ITC** has created and pioneered the most innovative concept of evaluating the suitability and communicative effectiveness of warning labels and instructional materials from a psycho-linguistic perspective. A comprehensive analysis is made of a warning label to determine what specific cognitive demands it places on the understanding, interpretation and retention of information by the reader or user. This activity is directed by internationally-recognized reading, language, and communications specialists, who work with a team of medical and/or technical specialists to critically assess the accuracy, completeness, and readability of warning labels and instructions. In addition, warnings and instructions can be prepared for any industry or product, and end user testing can be conducted, including ergonomic evaluations.

## **BLUEPRINTING OF CASES**

The breadth and depth of experience possessed by **ITC** consultants allows **ITC** to offer detailed services in the blueprinting of cases, including recommendation of the team of experts with the specific areas of expertise to strategically put the case in its best light, specification of testing and demonstrations, specification of exhibits including video animations and powerpoint presentations, construction of scale models to use at trial, and continuing on through detailed feedback during trial.

# QUALIFIED EXPERTS NATIONWIDE

Please visit our Website  
[www.InterCityTesting.com](http://www.InterCityTesting.com)  
for information on each of our experts  
to give you an indication of the depth of  
coverage provided by **ITC**.

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