

Forensic Engineering Background

Ingenium Engineering Services is an engineering & scientific consulting firm specializing in automotive engineering, mechanical engineering and fire cause analysis. Ingenium Engineering Services was founded in 1990 by George Hicks, P.E. after more than a decade of engineering experience working with other consulting firms (Packer Engineering, Joscelyn & Treat, Shackson Associates, Polytechnic) and Chrysler Corporation. Engineering or scientific studies have been conducted for insurance companies, law firms, engineering firms and various vocational rehabilitation groups.

George W. Hicks, P.E. is an ACTAR accredited Traffic Accident Reconstructionist on staff at Ingenium Engineering Services to perform accident reconstruction. Motor vehicle accident reconstruction historically has utilize computer analysis such as HVOSM (main frame version), CRASH and SMAC along with some of the current commercially available versions. Past experience with conducting numerous vehicle crash tests has proved to be an asset with accident reconstruction. Vehicle testing has included trailer towing (improper loading & braking capability), vehicle rollover (J turns, brake & steer), braking (FMVSS 105/135 & compromised systems) and component temperature evaluations (exhaust, engine, underhood). Vehicles tested have included boats, snowmobiles, motorcycles, 3 & 4 wheel ATV's, passenger cars, pickup trucks, full size vans, and heavy duty tractor-trailers.

Engineering after checks have been conducted on vehicles modified for the disabled with adaptive devices (i.e. 'handicapped vans'). These evaluations have been primarily performed in Michigan, Ohio, Indiana and Pennsylvania. Reviewing and revising the various state standards regarding the modification process for adaptive devices has been conducted. Assessments of modified rehabilitation vehicles with equipment problems (mechanical & power hand controls, wheelchair lifts, etc) and post accident inspections (van fires & unintended acceleration/lack of braking with hand controls) have been conducted.

Mechanical engineering studies have been conducted on automotive, farm & construction vehicles, machinery and equipment. Failure analysis of mechanical functions and tool related accidents have also been investigated. Research of literature, patents and technical standards have been conducted on such topics as Roll Over Protection Systems (ROPS), seat belt components and door latches to compile state of art, history of components and rationale for standards.

Fire cause analysis investigations have been conducted on automotive vehicles (cars & trucks), farm tractors, construction equipment and tractor trailers. Fire cause analysis investigations have also been conducted on mechanical products such as appliances (clothes driers, toasters & microwaves, etc), electronic devices (electric keyboard, curling iron) camping stoves and heating furnaces.

Investigations have been conducted for slip, trip & fall incidents. Testing of floor covering coefficient of friction has been conducted. Measurement of the amount of light present, efforts of door opening or closing have been conducted for these types of cases. Along with physical testing, assessment of building codes and industry standards are also conducted.

Professional Engineers

Members in ACFE, ASME, ADED, MATAI, NFPA, NMEDA, SAE

Michigan Society of Professional Engineers & National Society of Professional Engineers