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# TRANTECH

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## Curriculum Vitae

**Timothy A. Moebes, B.A.Sc., P.E.**

Professional Engineer

## Qualifications

Mr. Moebes studied for five years in the Faculty of Applied Science at the University of British Columbia. The degree of Bachelor of Applied Science in Mechanical Engineering was conferred with honors in May 1984.

The Province of British Columbia licensed Mr. Moebes as a Professional Engineer in 1987. Since 1992, Mr. Moebes has been licensed by the State of Washington to practice Professional Engineering. Mr. Moebes is a current member of the Society of Automotive Engineers (S.A.E.), the American Society of Mechanical Engineers (A.S.M.E.), the Southwestern Association of Technical Accident Investigators (S.A.T.A.I.), the Washington Association of Technical Accident Investigators (W.A.T.A.I.), and the National Association of Professional Accident Reconstruction Specialists (N.A.P.A.R.S.). Mr. Moebes was elected to serve as President of W.A.T.A.I. from 2000 to 2002. Mr. Moebes is a former member of the Forensic Accident Reconstructionists of Oregon (F.A.R.O.)

## Experience

In his professional career, Mr. Moebes has specialized in aspects of motor-vehicle collision analysis.

From 1985 to 1991, Mr. Moebes worked as a project engineer for MacInnis Bigg Associates, a Vancouver, British Columbia, consulting mechanical engineering firm active in technical investigations involving motor vehicle collisions. He first worked as an Engineer-in-Training supporting the principals of the firm until he was licensed as a Professional Engineer in the Province of British Columbia in 1987 and able to work independently. Mr. Moebes provided professional engineering services to the insurance and legal communities, police departments and government agencies. He also worked on research projects through Trantech, which at that time was an affiliated company.

In February 1991, Mr. Moebes joined Trantech on a full-time basis. Trantech is a consulting mechanical engineering firm based in Washington State that specializes in motor vehicle collision analysis. Trantech has also offered training in collision reconstruction and developed and marketed its ARSoftware computer software programs to law enforcement and collision consultants. Mr. Moebes is currently President of Trantech.

Mr. Moebes has been personally involved in over two thousand projects involving various aspects of collision reconstruction. Collisions involving passenger cars, light trucks, motorcycles, bicycles, pedestrians, and commercial vehicles are typical of the cases Mr. Moebes has been asked to evaluate.

Engineering work performed by Mr. Moebes has included:

- Vehicle speed and trajectory analysis.
- Damage matching between vehicles.
- Assessment of collision severity.
- Analysis of the potential for the vehicle operator to have avoided collision.
- Interpretation of information from vehicle event data recorders.
- Investigation of mechanical failures.
- Analysis of occupant motion and impact.
- Analysis of seat belt use and effectiveness.
- Inspection of vehicle light filaments to determine whether they were on at impact.

During his career, Mr. Moebes has worked on a variety of special projects for Trantech.

One study required the investigation of commercial vehicle suspension and handling characteristics for a study establishing the accuracy and reliability of weigh scales.

Mr. Moebes worked on a Trantech study of braking performance of “bobtailed” tractors (that is, without trailers) with or without front brakes. The Insurance Corporation of British Columbia sponsored this study.

Mr. Moebes was involved in a study that compared different methods of measuring vehicle deceleration during emergency braking. The study was a joint effort of Trantech and the Bellevue Police Department.

Trantech, through ARSoftware, developed commercial computer software for the reconstruction of automobile and truck collisions. One of the programs, WinCRASH, calculates the pre-impact speeds of two colliding vehicles based on a trajectory model, correlation between vehicle crush deformation and collision velocity change, and the principle of conservation of linear momentum. Mr. Moebes co-authored the advanced Technical Reference Manual to accompany WinCRASH.

In addition to attending technical conferences on a regular basis, Mr. Moebes has been invited to lecture on a variety of topics related to collision analysis. In August 2001, he was invited to speak at the Fourth International Conference on Accident Investigation, Reconstruction, Interpretation and the Law.

Mr. Moebes has also prepared two short courses entitled “The Investigation of Child Restraint and Seat Belt Injuries” and “Occupant Kinematics and Injury Mechanics in Vehicle Crashes” for the Institute of Police Technology and Management (I.P.T.M.) at the University of North Florida. These courses addressed occupant kinematics and aspects of the biomechanics of impact. Course participants included police officers and consultants with law enforcement, engineering, and medical backgrounds.

Mr. Moebes has been qualified to offer expert testimony as a professional mechanical engineer with collision analysis expertise in the Superior and District Courts of the State of Washington, in the Supreme Court of the Province of British Columbia, in Superior Courts of Arizona, and in US Federal Court.

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