



Engineers, Inc.



**Keith G. Cline**  
joins MDE's staff

Keith G. Cline has joined MDE as a Principal. He is a materials engineer and will be performing failure analysis on metallic and plastic components. Mr. Cline has a diverse professional background that includes laboratory and testing experience as well as manufacturing process development. Mechanical failures, corrosion, component design, fabrication defects, and material defects are examples of forensic investigations in which Mr. Cline's expertise will be useful. He is also a Certified Fire and Explosion Investigator (CFEI).

Mr. Cline comes from The Boeing Company where he worked primarily with riveting in the Mechanical Engineering group of the Materials Technology division. Most recently, Mr. Cline worked on the wing fastening for the 777-300ER; a project that involved the development and implementation of new drilling technology, automated tack fastener removal, and the first application of large diameter rivets. Other projects include the development of repair rivets and fatigue testing of fuselage lap splice and wing structure samples.

Previous to his work at Boeing, Mr. Cline worked for Applied Technical Services in Marietta, Georgia. His responsibilities included failure analysis of metallic and plastic components, mechanical testing, accelerated environmental testing, and developing special test programs. He also performed non-destructive evaluations using radiographic, magnetic particle, and dye penetrant test methods.

Performing both failure analysis and basic material property testing allowed Mr. Cline to develop a deeper understanding of how

these intrinsic properties interact with external variables such as design, service loads, residual stresses, and environmental exposure to produce the broad range of failures that are encountered in real world applications.

Some examples of his evaluations include a bearing failure from a nuclear power plant cooling water pump, stress corrosion cracking of stainless steel chemical processing plant piping, weld failures of boat trailer axles, failure of CPVC sprinkler pipes, and rupture of PVC piping used in a golf course irrigation system. He has also performed consulting services to determine proper material selection and heat-treatment procedures to companies in various industries including aerospace, polymer processing, and transportation.

Mr. Cline received his Bachelors of Engineering degree in Materials Engineering from Auburn University and is registered as a professional engineer in Washington and Alabama.



**Mark G. Nordstrom**  
joins MDE's staff

Mark G. Nordstrom has joined MDE as an associate. He is a registered civil engineer in Washington and California, and will be performing forensic investigation and research involving design and construction practices related to structures, building envelopes, foundations, roadways, drainage and flooding, utilities, and general municipal projects. Mr. Nordstrom has a wide variety of design and field experience, both prior to, and after the mainstream use of computers in the engineering industry.

Since 1995, Mr. Nordstrom has been operating RaptorGraphics, LLC, which he co-founded in 1992. RaptorGraphics first offered illustrative digital media to the legal industry in 1993, one of the first companies in the country to do so. The emphasis of the work has been on technically correct forensic three-dimensional digital modeling and animation, and has led to the innovation of illustrative media ranging from simple graphic boards, to film-quality animation, to precisely reconstructed virtual environments. From the beginning, the backbone of the company has been the ability to research and verify its work at an engineering level. Mr. Nordstrom has performed fieldwork and research throughout the U.S. and Canada, including Alaska and Hawaii. He has also had the opportunity to work with respected attorneys and forensic experts specializing in fire loss, product failure, construction loss, vehicular accidents, personal injury, patent infringement, and more. RaptorGraphics has participated on cases with an aggregate total of over \$350 million in disputed damages. His expertise in this area will assist MDE and their clients in documenting and clarifying our opinions related to complex issues, and to better educate the opposing sides.

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**MDE Engineers, Inc.**

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- Dale C. Mann, Chemist
- Paul J. Moore, P.E.
- Keith G. Cline, P.E.
- Paul J. Josten, Forensic Technician
- Michael V. Schoenecker, Master Mechanic
- Noel Putaansuu, Fire Investigator
- Nils F. Juhlin, PhD, P.E.
- Mark C. Lobo, PhD
- Bryan Martin, Motorcycle Specialist
- Douglas J. Barovsky, P.E.
- Laura L. Kentala, Microbiologist
- Roy G. Baggerly, PhD, P.E.
- Mark G. Nordstrom, P.E.
- J. Lee Durston, Lab Technologist/Graphics

Mr. Nordstrom began his civil engineering experience in the summer of 1984 doing construction surveying and design fieldwork related to highway construction for the Wisconsin DOT. After receiving a bachelor's degree in civil engineering, he worked another six months in the DOT design office doing design work related to highway design. In 1985 he relocated to Colorado. His four years there involved office design and drafting during the winters, and summers of intense construction and project management dictated by the short building season. This experience provided a fundamental exposure to problems that arise during aggressive construction operations, and the potential future consequences of inadequate solutions and poor construction practices.

In 1989, he moved to Tahoe City, CA, and was introduced to computer-based civil design and project management while working in one of the best-equipped design offices in the area. After developing

an interest in structural design and analysis, he formed Nordstrom Design, a sole proprietorship that offered structural analysis, general design, CAD drafting and project management to local architects, engineering firms, and the public. In 1993, Mr. Nordstrom moved to Monroe, WA, and did engineering design related to land development and municipal improvements including residential structural analysis, roadway / parking design, drainage design, utility design, and construction supervision. In 1995, he turned his full attention to illustrative litigation media and forensic research.

Civil engineering is a broad discipline involving structures, underground utilities (water, sewer, storm water, power, and communications), roadways, drainage systems, and other municipal facilities. The design and construction of these systems are subject to both national and local standards that are continually evolving. With two licensed civil engineers on staff, MDE Engineers, Inc. is ready to provide quality, peer reviewed, support for your investigations.



## EVIDENCE STORAGE

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