



*Field Investigations and Engineering >*

*Litigation and Expert Testimony >*

*Material Selection Evaluations >*

*Failure Analysis >*

*Welding Technologies >*

*Consulting and Testing >*

## company profile

Applied Materials Technologies Inc. (AMTI) is a preeminent multi-disciplined engineering consulting firm. Our staff includes engineers with a wide range of expertise in manufacturing, fabrication, inspection, quality control and accident reconstruction. The expertise of the firm encompasses all types of materials, components, systems, products and engineered structures.

We have established relationships with other engineering firms and professional associates to provide additional analytical testing and support services.

## areas of expertise

Our wide range of expertise allows us to be highly flexible and cost-effective. Our services can range from minimum involvement to major coordinated and comprehensive engineering efforts. AMTI's technical staff and associates have managed or worked on many projects for government agencies, industrial clients, and product liability litigants.

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### areas of expertise include:

- Material Engineering  
(metals, ceramics, plastics and polymers)
- Mechanical Engineering/  
Mechanics
- Electrical Engineering/Electrical
- Marine Engineering
- Marine Surveys
- Marine Accident Investigations
- Naval Architecture
- Welding Engineering



## our services

AMTI and its associated staff provide a variety of technical services. > > >

Field Investigations and Evaluations  
Litigation and Expert Testimony  
Material Selection Evaluations and Failure Analysis  
Welding Technology and Engineering  
Consulting and Testing  
Design and Development  
Code Compliance Inspections

## affiliations & certifications

### professional affiliations

ASM International  
AIChE, American Society of Chemical Engineers  
SPE, Society of Plastic Engineers  
ASTM, The American Society of Testing and Materials  
NFPA, National Fire Protection Association  
ASM International Mt & QCTS Failure Analysis Committee  
American Welding Society  
Iron and Steel Society

### specialization & certification

OSHA Health & Safety training  
Traffic Accident Reconstruction 1 & 2,  
Northwestern University Traffic Institute.  
Fire and Explosion Hazards Course, AIChE  
NFPA National Electrical Code Workshop  
NFPA Life Safety Courses  
Finite Element Modeling, Dynatech Analysis Corporation.  
Vehicle Fires and Explosion Course, Univ. of Wisconsin  
Registered Professional Engineers, PE,  
in Illinois and Wisconsin  
ABYC, American Boating and Yachting Council's  
Marine Gas Engines Course  
AWS Certified Weld Inspector  
Marine Accident Investigation  
Shipyard Competent Person (OSHA)



## field investigations and engineering

- > **Machinery and Plant Inspections:** AMTI performs Industrial Plant Inspections, Engineering Evaluations, Industrial Engineering, Environmental Evaluations, Production and Quality Monitoring, and Damage Assessments.
- > **Marine Inspections:** AMTI has been certified by The Illinois State Fire Marshall to conduct third party inspections of permanently moored facilities for structural integrity, safety and regulatory compliance. Additionally, in-water inspections and testing of marine equipment are performed.
- > **Development of weld procedures and code compliance**  
Design review for fabricated structures and components. On-site inspections of welds for proper procedures, in-service corrosion defects, and failure analysis.
- > **Damage Assessments** associated with fire and explosion, flood and structural collapse.
- > **Corrosion** of structures and machines.

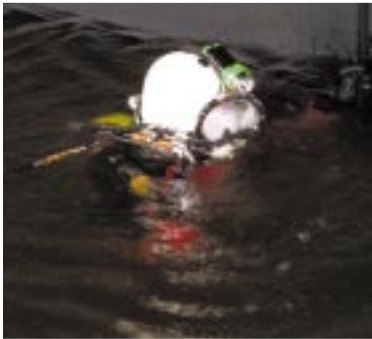


## litigation and expert testimony

- > Product Liability Investigations
- > Fire and Explosion Cause and Origin
- > Accidents Reconstruction
- > Insurance Settlements
- > Litigation Support Investigations
- > Industrial Accident Investigation
- > Patent Trade Secrets Infringement

### **Corrosion of Structures**

Our metallurgical engineers have over 30 years of experience in assessing corrosion damage to structures, machines and other materials



### **Marine Inspections**

AMTI's marine surveyors and certified non-destructive testing technicians can perform all types of internal and external examinations of vessels, floating facilities, and underwater structures.



### **Fire and Explosion Cause and Origin**

AMTI engineers have investigated hundreds of fires and explosions, and successfully determined their cause and origin.



## materials selection evaluations and failure analysis

AMTI provides comprehensive material engineering services. Our expertise encompass metals, ceramics, plastics and polymers. Some of the applications we have been involved with include:

- > Automotive and Truck Components
- > Aircraft Equipment
- > Marine Equipment
- > Foundry/Steel Mills
- > Industrial Machinery Components
- > Pressure Vessels and Storage Tanks
- > Plastics and Polymer Parts, Devices and Components
- > Railroad Components
- > Glass and Ceramic Parts and Products
- > Composite and fiberglass Parts and Products
- > Metal and Plastic Valves, Pipes and Fixtures
- > Large Utility Transformer Failures
- > Electrical and Electronic Components
- > Computer Parts
- > Adhesives and Adhesive Bonding
- > Corrosion of Materials and Components
- > Printed Circuits and Boards
- > Welded, Brazed, Soldered and Bonded Parts
- > Construction Materials
- > Gas Pipes and Pipe Lines
- > Various Types of Fasteners
- > Refrigeration and Heat Exchanger Components
- > HVAC Systems

Material laboratories affiliated with AMTI provide complete services ranging from simple to complex evaluations. Available testing services include:

- > Metallurgical Testing
- > Product Testing
- > Mechanical Testing
- > Environmental Testing
- > Life Cycle Testing
- > Chemical Testing



### << **Failure Analysis of Industrial Machinery Components**

AMTI and their professional engineers have considerable expertise in the failure analysis of complicated machinery.



### << **HVAC Systems**

We inspect heating, ventilation, and air conditioning systems. AMTI employs associates with a broad range of experience with specific industrial HVAC systems.



### << **Marine Construction Quality Assurance**

Our marine surveyors and technical consultants perform quality assurance audits of multi-million dollar marine construction projects.



## welding technologies

AMTI has a wealth of experience and knowledge in the various aspects of welding and joining fabrication. This also includes both non-destructive and destructive examinations and testing of fabricated components and weldments. The staff has extensive industrial experience, comprehensive advanced educational training and are knowledgeable in many related areas of technical specialization. Should a particular problem require an interdisciplinary approach, we can provide access to other specialized professionals. This ability to integrate the necessary engineering disciplines allow us to quickly resolve your welding, joining and examination problems.

Our previous welding and joining investigations include the areas of engineering, design, fabrication, construction and manufacturing of welded, brazed and soldered components. We have successfully investigated welded industrial products, buildings, bridges, pressure vessels and process equipment, storage tanks, LPG/LNG tanks, automotive and truck, farm and construction equipment, pipelines, fossil and nuclear utilities, hydroelectric equipment, aircraft, offshore oil and gas platforms, electronic components, tools and dies, primary metals, sensors and military applications. Our staff can quickly concentrate on the relevant factors of any industrial problem because most of these problems have been addressed in earlier studies.

- > Failure Analysis of welds and other joints
- > Joining Engineering and Design Analysis
- > Joining Procedure Development
- > Conformance to Standards and Codes
- > Solutions for Joining Problems
- > Materials and Consumable Selection
- > Joining Process Selection
- > Non-Destructive Joining Examinations
- > Site Examinations and Audits
- > Destructive Joining Examinations
- > Prototype Development and Testing
- > Joining Process Optimization
- > Patent Infringement & Trade Secrets
- > Joining Quality Programs
- > Fitness for Service/Remnant Life Analysis
- > Advanced Automation Joining Methods
- > Joining Safety and Health Issues
- > Joining Design Confirmation & Testing
- > Construction and Fabrication Expertise
- > Joining Cost Analysis
- > Joining Certifications
- > Client Training

### Site Examination and Audits

We have the ability to be on-site with the expertise to perform quality audits throughout the construction process and subsequent lifecycle.



### Welding

AMTI metallurgical engineers have extensive knowledge in all aspects of welding technologies.



### Failure Analysis of Welds

AMTI engineers have over 20 years of experience in analyzing all types of failures in welds. This includes both non-destructive and destructive examinations and testing of all welds.

AMTI provides comprehensive Industrial Failure Analysis and Quality Assurance consulting. Areas of expertise include Materials, Chemical, Mechanical, and Welding and Joining.

Areas of Industrial Consulting Include:

- > Automobile & Truck Components
- > Aircraft/Marine Equipment
- > Gears/Pinions/Shafts
- > Corrosion/Erosion/Wear
- > Fastener Components
- > Welding/Brazing/Soldering
- > Shock & Electrocutation
- > Metal/Material Bonding
- > Medical Instruments
- > Plumbing & Piping Systems
- > Tooling & Die Casting
- > Hand & Power Tools
- > Boilers, Pressure Vessels, Storage Tanks
- > Ladders/Lifts/Scaffolds
- > Composite Materials
- > Plated/Coated Components
- > Foundry/Steel Mills
- > Sports Equipment
- > Railroad Equipment & Derailments
- > Chains, Sprockets & Wire Ropes
- > Electrical/Electronic Components
- > Heat Treating Evaluations
- > Printed Circuit Boards
- > Pharmaceutical Tanks/Equipment
- > Construction Quality Assurance
- > Molten Metal Handling Equipment
- > Hydraulic Components
- > Fire & Explosions
- > Propane & LPG Tanks
- > Construction/Farm Equipment
- > Petrochemical Equipment
- > Powder Metal Components

Laboratory Services

- > Cause and Origin Investigations
- > FTIR & Thermal Analysis
- > Comprehensive Metallurgical Evaluations
- > Non-Destructive Testing & Evaluation
- > Energy Dispersive X-ray Spectroscopy
- > Optical Microscopy and Fractography
- > Corrosion, Wear & Salt Spray Testing
- > Extensive Mechanical Testing
- > Accident Reconstruction
- > Computer Animation
- > Structural Investigation
- > Exemplar/Product Testing
- > Scanning Electron Microscopy
- > Failure Analysis
- > Complete chemical analysis



### << **Accident Reconstruction**

Our engineers and marine surveyors have investigated hundreds of accidents involving auto, truck, industrial, and marine equipment.

### << **Plumbing and Piping Systems**

We perform various inspections of plumbing and piping systems with expertise and performance measurements and safety

<< monitoring equipment.

### << **Fire and Explosion**

We have the knowledge and experience to assess industrial equipment for potential fire and explosion safety hazards.



**Applied Materials Technologies Inc.**

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