“If I have seen further...  
It has been by standing on the shoulders of giants.”

Isaac Newton
O’Donnell Consulting Engineers, Inc. provides clients with world-wide design and analysis services and solutions.

We rely on an experienced, creative team of mechanical and materials engineers to solve tough problems and provide comprehensive technical support.

Our experience spans a wide range of industries and includes a long list of unique and complex challenges in fabrication, fatigue, corrosion, fracture, vibration and failure analysis.

We take on each project with a multi-disciplinary approach that has set us apart from our competitors for over 40 years.

O’DONNELL ANALYSIS

HUBBLE TELESCOPE

O’Donnell Consulting Engineers, Inc. evaluated the nature of vibratory conditions in the framework supporting the Hubble Space Telescope. Combined analyses and tests showed that conditions were due to second order shortening of the transverse bracing members. The vibration problems were then easily solved using lateral restraints on the transverse members.
COMPANY OVERVIEW

O’Donnell Consulting Engineers, Inc. has earned a worldwide reputation for engineering excellence. Our range of mechanical design, analysis, materials and fabrication expertise and technical problem solving services has established a successful track record and built a high level of trust with some of the world’s most respected companies and organizations.

Our staff collaborates with exceptional U.S. and international associates, and relies on a strong internal technical staff. This foundation of people and capability enables us to leverage technical expertise to take on challenging technical problems.

O’Donnell Consulting Engineers, Inc. was founded in 1970 as O’Donnell & Associates to meet the mechanical design and analysis needs of industry. In providing design, materials, fabrication, inspection, and mechanical troubleshooting services, we developed technology to extend the safe life of mechanical components.

For over four decades, O’Donnell Consulting Engineers, Inc. has taken on complex technical and engineering challenges, including new product development, design upgrades, problem resolution and expert witness services. Our depth of experience has evolved to encompass materials science, and state-of-the-art technology in fatigue, fracture and elevated temperature design.

ENGINEERING & TECHNICAL DISCIPLINES

O’Donnell Consulting Engineers, Inc. has a deep breadth of experience in a wide range of industry sectors, including:

- STRUCTURAL
- MANUFACTURING
- POWER PLANTS
- MECHANICAL
- FORENSIC
- METALLURGICAL
- AEROSPACE
- CHEMICAL
- MARINE
- ELECTRICAL
- MATERIALS
- MATERIALS HANDLING
- CONSTRUCTION
- MINING
- NUCLEAR
- ENVIRONMENTAL
- FABRICATION
- PETROCHEMICAL
- PETROLEUM
- PRODUCT DEVELOPMENT
- QUALITY ASSURANCE

Technical Excellence....
Innovative Solutions
O’DONNELL ANALYSIS

ENGINEERING & TECHNICAL DISCIPLINES
O’Donnell Consulting Engineers, Inc. has a rich breadth of experience in a wide range of industry sectors, including:
Aerospace • Chemical • Civil / Structural • Electronics • Environmental • Fabrication Forensic • Fossil Power / Power Plants • Manufacturing • Marine • Mechanical Medical / Biomedical • Metallurgical • Mining • Nuclear • Petrochemical • Petroleum • Steel

CAPABILITIES

Engineering
Finite Element Analysis
Mechanical Design, Analysis & Troubleshooting
Structural Analysis
Fatigue & Design Life Evaluations
Elevated Temperature Design & Analysis
Design Optimization
Dynamic Load Analysis
Fluid Mechanics
Heat Transfer / Thermal Analysis
Mechanical Testing
Vibration & Shock Testing & Analysis
Weld Engineering

Failure Analysis / Expert Witness
Failure Analysis
Fatigue & Fracture Evaluations
Metallurgy & Materials Testing
Fire / Explosion Investigations
Design Evaluations
Fabrication Process Technology
Mechanical Testing
Patent Litigation Services
Expert Witness Consulting & Testimony

Materials Science
Physical & Chemical Properties
Metals, Refractories, Laminates
Metallurgical Services
Corrosion Services
Surface Treatment Technology
Cladding & Coatings
Corrosion Evaluations

Power Plant Consulting
Preventative Maintenance
Inspections & Evaluations
Pressure Vessel Design & Analysis
Vibration Suppression
Boiler Life Evaluations
Corrosion Fatigue
Piping Systems Design & Analysis

Technical Due Diligence
Site Evaluations
Quality Assurance
Fitness-For-Service Evaluations
Codes & Standards Compliance
Risk Analysis
O’DONNELL ANALYSIS

POWER PLANT ENGINEERING
O’Donnell Consulting Engineers, Inc. has performed design and analysis services and managed refurbishments in more than 40 power plants worldwide.

EXPERT WITNESS SERVICES & FORENSIC ENGINEERING
Our broad range of technical expertise and years of experience has increasingly led to work in the forensic and legal arenas. As experts in a number of related disciplines, O’Donnell engineers are often consulted for comprehensive engineering investigations, failure and forensic analysis, including product liability, mechanical and structural failures, fires and explosions.

In taking on forensic engineering projects, we thoroughly examine the physical evidence, analyze drawings, material specifications, and supporting documentation, and review all operational issues. Finite element analyses are often used to evaluate materials and fabrication/ construction defects, and to quantify the precise root cause of failure. Our failure analyses often includes metallurgical examinations and materials tests.

- chemical and mechanical analyses
- metallographic examinations
- materials characterization & testing

Based on our findings, we issue comprehensive expert reports – our conclusions and testimony are based on quantified results that are easily understood by Judges and Juries.

We work closely with litigation teams to prepare professional exhibits, graphics, and animations that effectively demonstrate analysis results and conclusions. Our litigation experience is balanced between plaintiff and defense cases. We have worked with legal, insurance, and industrial firms, and have successful litigation experience in State, Federal, and International Courts.

FORENSIC APPLICATIONS
O’Donnell Consulting Engineers, Inc. provides forensic engineering services for clients in numerous sectors, including:

- Power Plants
- Consumer Products
- Industrial Facilities
- Chemical
- Marine
- Fabrication
- Petrochemical
- Materials Handling
- Transportation: Air, Ground, Rail
- Aerospace
- Manufacturing
- Civil/Construction
We are frequently asked how we have been SO SUCCESSFUL in creatively solving difficult engineering and materials problems.

I believe the key has been OUR ABILITY to combine interdisciplinary talent, comprehensive engineering capabilities, and exposure to diverse industries and challenges.

- Bill O’Donnell, PH.D., P.E.
President