

Richard H. Toland, Ph.D., P.E.

A practicing engineer with over 35 years experience: a consulting structural engineer, engineering manager and project manager in the engineering/construction industry, an R&D engineer and project engineer in the aerospace industry, a research engineer and program manager at a US DOE national lab and, an educator, researcher and industry consultant in academia.

PROFESSIONAL ENGINEER: Utah • Pennsylvania

EDUCATION: Bachelor of Civil Engineering, The University of Delaware
Masters of Civil Engineering, The University of Delaware
Doctor of Philosophy, The University of Delaware

PROFESSIONAL BACKGROUND

2003-Present – Fleisher Forensics – Ambler, Pennsylvania.

Structural Engineer and Project Manager responsible for evaluation and inspection of claims and incidents involving structures, failure analysis, buildings failures, project management, construction, safety; practices, codes and standards.

2002-2005 – Palmetto Management & Engineering - Wilmington, Delaware

Senior Project Manager responsible for the engineering, procurement and construction support of international projects in the United States and The Peoples Republic of China for a major US firm based in Wilmington, Delaware.

1999-2002 – Day and Zimmermann, International, Inc. - Newark, Delaware

Senior Project Manager responsible for the engineering, procurement and construction support of international projects in Brazil and The Peoples Republic of China for a major US firm based in Wilmington, Delaware.

1978-1999 – United Engineers & Constructors/Raytheon Engineers & Constructors - Philadelphia, Pennsylvania.

Held positions of increasing responsibility as a Consulting Engineer, Staff Group Manager, Project Manager, Chief Engineer, Eastern Region Manager of Engineering and VP-Engineering of Raytheon Infrastructure.

As the Manager of Engineering, responsible for the technical quality of all engineering products produced in five offices employing 2500 technical personnel. Directed personnel development, development and implementation of practices and procedures for project design and, technical oversight of all engineering work. Industries served included pharmaceutical, chemical, power, metals, air separation, infrastructure and the US Department of Energy.

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As a practicing engineer, engaged as a consultant in areas of special expertise including seismic engineering, design and analysis of structures, vibration control, impact dynamics, design for thermal effects on structures and materials, failure analysis of structures and materials and, materials selection studies for severe environment applications.

**1976-1978 – The Lawrence Livermore National Laboratory - Livermore, California
(1975 and 1979, consultant)**

Held positions as a Mechanical Engineer, Program Manager and Manager of the Materials Test and Evaluation Laboratory. The technical focus of research and program work was the application of advanced composite materials to aerospace, energy and defense programs. Research areas included high performance pressure vessels, flywheel energy storage systems and the long-term life characteristics of advanced composite material systems and pressure vessels. Program sponsors included NASA and ERDA/DOE.

**1972-1976 – Drexel University - Philadelphia, PA
(1979-1992, Adjunct Professor)**

Held the position of Assistant Professor of Mechanics with teaching and research responsibilities. Taught undergraduate and graduate level courses in structural engineering, engineering mechanics and mechanics of advanced composite materials. Conducted funded research for the US Army Ballistics Research Laboratory and the Container Corporation of America. Research subjects included projectile/target impact interaction and the strength and behavior of composite materials subject to impact loads. Provided consulting services to Hercules Incorporated, Lawrence Livermore National Laboratory, Effects Technology, Inc, U.S. Army Ballistics Research Laboratory and Container Corporation of America.

1969-1972 – Hercules Incorporated - Cumberland, Maryland and Magna, Utah

Held positions as Sr. Development Engineer and Staff Scientist. The technical focus of research and engineering development was the application of advanced composite materials to rocket components, satellites, aircraft and commercial uses. Conducted research on failure modes and failure criteria for composite systems. Participated in programs for the US Navy, Air Force and NASA.

Summer 1966 – The National Bureau of Standards - Washington, D.C.

1964-1965 – The Delaware State Highway Department - Dover, Delaware

PROFESSIONAL ORGANIZATIONS

Sigma Xi, Scientific Society of North America
Chi Epsilon, Civil Engineering Honor Society
ASME, American Society of Mechanical Engineers

ASCE, American Society of Civil Engineers
The Engineers' Club of Philadelphia
ACI, American Concrete Institute, Former Member
ASTM, American Society of Testing and Materials, Former Member
The Foundation for Architecture, Former Member

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PAPERS AND PRESENTATIONS

Published and/or presented 36 papers. Subjects include reliability of structural systems, strength and failure characteristics of composite materials, design with composite materials, impact dynamics, ultimate strength capacity of nuclear plant structures.

REGULATORY, CODES AND STANDARDS INVOLVEMENT

Served as member of American Concrete Institute Committee 349 – Code requirements for Nuclear Safety Related Concrete Structures, including Working Group 2 – Design and Working Group 5 – Special Provisions for Impulsive and Impactive Effects.

Served as member of American Society of Civil Engineers subcommittee for the Dynamic Analysis of Nuclear Structures

Served as member of American Society of Civil Engineers subcommittee charged with the peer review of US DOE Standard 1020 for the design of DOE nuclear plant structures to resist loads due to extreme natural phenomena

Served as member of the American Society for Testing and Materials – working group within Committee C15 for Design Guidelines for Brick and Mortar Chimney Liners

Made formal presentations to the US Nuclear Regulatory Commission (NRC), Brookhaven National Laboratory and the Advisory Committee on Reactor Safeguards on the capability of nuclear plant structures to withstand extreme loads beyond their design basis.

Provided expert witness testimony before the Atomic Safety and Licensing Board on nuclear containment capability for core melt accidents

Served as structural expert for the NRC and Sandia National Laboratory for NUREG 1150, Reactor Risks Reference Document

Served as technical resource for a National Academy of Science audit of the seismic resistance of the US DOE Savannah River Plant

Served as member of the Industry Degraded Core Rulemaking (IDCOR) Task 10 on nuclear containment structural capability

Performed work in compliance with 10CFR50 for nuclear plant design, US DOE 5480 series for Environmental, Safety and Health provisions for DOE nuclear plants, OSHA's 1910.119 for Process Safety Management requirements.