



**D E S I G N
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ROBERT K. TAYLOR, M.S., P.E.

Professional Specialization

Design, design analysis, risk analysis, and failure analysis of structures, industrial equipment, mechanical equipment, and systems. Design and failure analysis of structures, equipment, and machinery related to ships, boats and offshore platforms. Naval architecture and marine engineering design and failure analysis. Prediction of environmental loads and response to marine vehicles. Accident reconstruction, failure analysis, risk analysis related to marine casualties including stability analysis, ship motions, progressive flooding analysis, fire cause and origin. Field and laboratory testing of systems and equipment. Structural analysis and fracture mechanics involving ship hull structures, cranes, equipment, and mechanical systems. Human factors as related to accident analysis, guardings, and warnings. Occupant kinematics related to crashworthiness. Testing and design evaluation of recreational boats, consumer products, and mechanical systems.

Professional Background

B.S.E. (Naval Architecture and Marine Engineering), University of Michigan
M.S. (Mechanical Engineering), University of California, Berkeley

Principal Engineer,

Design Research Engineering

Principal Engineer,

Failure Analysis Associates

Naval Architect,

Naval Sea Systems Command

Registered Professional Mechanical Engineer, Michigan #47051
Registered Professional Mechanical Engineer, California #23284
Certified Fire and Explosion Investigator (CFEI) #22314-12947

Quarterdeck Honor Society, University of Michigan
Fellow, Society of Naval Architects and Marine Engineers
Member, Human Factors and Ergonomics Society
Member, American Boat and Yacht Council
Member, National Association of Fire Investigators, International (NAFI)

Technical Publications

- “Water Intrusion Injuries: Occupant Kinematics and Pressure Exposure during Rearward Falls from a Personal Watercraft” SAE International 2023 Article ID:09-11-01-0007 with Eric S. Winkel, Katie B. Zakutansky, Matthew Schirmann, Kevin Breen.
- “Linear Elastic Fracture Mechanics Applied on Ships” National Technical University of Athens School of Naval Architecture & Marine Engineering – Shipbuilding Technology Laboratory. Vassilios Papazoglou – A Volume in his Honor - Athens 2016
- “Assessment of Compressive Thoracolumbar Injury Potential and Influence of Seat Cushions on Vertical Impact Loading of a Seated Occupant” SAE International 2015-01-9151 with Eric S. Winkel and Daniel E. Toomey. January 2015.
- “Fracture Mechanics Applications on Sea-going Vessels” Keynote Presentation at the International Conference on Fracture, Ottawa, Canada, July 12-17, 2009 (with J.E. Kokarakis Ph.D.)
- “Computer Model Used to Predict Occupant Ejection Kinematics in the Marine Environment” 2008 TASS Americas MADYMO Users Meeting, Detroit MI April 16, 2008 (with Chris VanEe Ph.D.)
- “Hydrodynamic Interaction analysis in Marine Accidents,” International Symposium on Maritime Safety, Security and Environmental Protection, Athens, Greece, September 20-21, 2007 (with J. E. Kokarakis, Ph.D.).

Robert K. Taylor, M.S., P.E.

- “Steady Hydrodynamic Analysis of Planing Surfaces,” *Journal of Ship Research*, SNAME, December 2002 (with B. Savander Ph.D. and S. Scorpio Ph.D.).
- “Impact Loads Experienced by the Cervical Spine During High-Speed Water Entry,” *International Conference on The Biomechanics of Impact (IRCOBI)*, Montpellier, France, September 20-22, 2000 (with R. Robbins, P.M. Fuller, B.R. Savander, Ph.D.).
- “Hyatt Failure from the Perspective of a Forensic Engineer,” *Forensic Engineering, Proceedings of the Second Congress*, San Juan, Puerto Rico, May 2000 (with P. D. Moncarz, Ph.D.).
- “Engineering Process Failure – Hyatt Walkway Collapse,” *Journal of Performance of Constructed Facilities*, ASCE, May 2000, Vol. 14, No. 2 (with P. D. Moncarz, Ph.D.).
- “Neck Loading Due to Head Immersion in Water at High Speeds,” *International IRCOBI Conference on the Biomechanics of Impact (IRCOBI)*, Hannover, Germany, September 24-26, 1997 (with R. Robbins and P. M. Fuller).
- “Occupant Kinematics Analysis of Passenger Ejections in Boating Accidents,” *Small Craft Marine Engineering, Resistance, and Propulsion Symposium*, University of Michigan, Ann Arbor, May 1996 (with J. E. Kokarakis Ph.D.).
- “Fatigue Strength Assessment of Large Tankers and Ore/Oil Carriers,” *Technology, Law and Insurance*, January 1996 (with J. E. Kokarakis Ph.D.).
- “Fatigue Strength Assessment of Large Tankers and Ore/Oil Carriers,” *International Symposium on Safety, Economy, and Reliability in Marine Engineering and Construction*, Hong Kong, China, September 1994 (with J. E. Kokarakis Ph.D.).
- “Fracture Mechanics Based Evaluation of the Cause and Repair of a Ship Bulkhead Cracking,” *International Symposium of Safety, Economy, and Reliability in Marine Engineering and Construction* Hong Kong, China, September 1994 (with J. E. Kokarakis Ph.D.).
- “Fatigue Crack Problems in Large Oil Tankers,” *Society of Naval Architects and Marine Engineers, Northern California Section*, January 1994 (with J. E. Kokarakis Ph.D., C. H. Wells, and R. A. Sire).
- “A Probabilistic Structure Life Prediction System for Container Ship Repair and Inspection,” *International Colloquium on Aging of Materials and Methods for the Assessment and Extension of Lifetimes of Engineering Plant*, Cape Town, South Africa, April 1991 (with J. E. Kokarakis Ph.D., C. H. Wells, and R. A. Sire).
- “Investigation of a Container Crane Boom Collapse During Sea Voyage,” *Society of Naval Architects and Marine Engineers, Northern California Section*, March 1991 (with J. E. Kokarakis Ph.D., S. E. Day, and S. K. Tyagi).
- “A Comparative Analysis of Industrial Lift Truck (Forklift) Accidents,” *American Society of Mechanical Engineers Winter Annual Meeting*, Dallas, Texas, November 1990 (with R. L. McCarthy Ph.D. et al.).
- “Theoretical and Experimental Investigations of Blistered Fiberglass Boats,” *Proceedings, 3rd International conference on Marine applications of Composite Materials*, March 1990, Melbourne, Florida (with J. E. Kokarakis Ph.D.).
- “Structural Integrity Evaluation of Blistered Fiberglass boats,” *International Conference on Structural Failure, Product Liability and Technical Insurance, Structural Failure II Session*, July 1989, Vienna, Austria (with J. E. Kokarakis Ph.D.).
- “Marriage of Disciplines Provides Answers to Complex Problems,” *International Conference on Structural Failure, Product Liability, and Technical Insurance, Structural Failure II Session*, July 1989, Vienna, Austria (with J. E. Kokarakis Ph.D.).
- “Stability of Damaged Platforms in Waves,” *Proceedings, 4th International Conference on Behavior of Offshore Structures*, July 1985, Delft, Netherlands (with P. D. Moncarz Ph.D., J. R. Paulling Ph.D., and J. M. Thomas Ph.D.).
- “Seat Belts: Effectiveness of Mandatory Use Requirements: *International Congress and Exposition*, Detroit, Michigan, February 1984 (with R. L. McCarthy Ph.D, S. B. Sanford, and R. C. Lange).
- “Failure Analysis Methodology,” *Society of American Military Engineers, Northern California Section*, February 1983 (with J. N. Robinson Ph.D.).
- “Catastrophic Events: Actual Risk Versus Societal Impact,” *Proceedings, Annual Reliability and Maintainability Symposium*, January 1982 (with R. L. McCarthy Ph.D. and J. P. Finnegan).
- “Warnings on Consumer Products: Objective Criteria for Their Use,” *Proceedings, 26th Annual Meeting of the Human Factors Society*, Seattle, Washington, October 1982 (with R. L. McCarthy Ph.D., J. N. Robinson Ph.D., and J. P. Finnegan).