6735 NW 36th Street
Suite 325
Miami, FL 33166

KEVIN R. BYERS, P.E.
SR. STAFF CONSULTANT

krbyers@engsys.com

Kevin Byers is experienced in the field of naval architecture and mechanical engineering. A licensed professional engineer in seven states, his background includes ship design, acquisition and modernization, with particular focus on marine systems and ship structure, outfitting, and stability. In the defense sector, past clients include Navy, Coast Guard, and Army ship acquisition programs, as well as shipyards and defense contractors across the country. As a Naval Architect, Mr. Byers led multi-discipline project teams for Navy combatants and auxiliaries as well as Coast Guard cutters. In the commercial design sector, past clients include cruise lines, classification societies, and international ship design firms.

Prior to joining ESi, Mr. Byers conducted marine and mechanical forensic investigations. Marine engineering investigations spanned several platform types, ranging from recreational boats and yachts to fishing vessels, workboats, and cruise ships. He also conducted loss assessments and failure cause and origin investigations for mechanical building systems, including HVAC, refrigeration, fire sprinkler and domestic water systems. These investigations have ranged from analysis of building system design with respect to code adherence and system performance, to laboratory inspection and analysis of failed components.

Areas of Specialization

Naval Architecture
Marine Engineering – Mechanical
Mechanical System Design
Failure Analysis and Investigation
Engineering Design & Product Liability

Education

M.S., Systems Engineering, Virginia Polytechnic Institute & State University, 2014

Graduate Certificate, Naval Engineering, Virginia Polytechnic Institute & State University, 2014

B.S., Ocean Engineering, Virginia Polytechnic Institute & State University, 2010

Licensed Professional Engineer (P.E.)

State of Florida	License No. PE91385
State of Virginia	License No. 0402056972
State of Georgia	License No. PE047017
State of South Carolina	License No. PE047017
State of Alabama	License No. 40154-E
State of California	License No. M 40755
State of Washington	License No. 21025403

Professional Affiliations/Honors

Fort Lauderdale Mariner's Club - member

Positions Held

Engineering Systems Inc., Miami, FL

Senior Staff Consultant, 2024 – Present

Envista Forensics, Miami, Florida

Project Engineer, 2021-2024

BMT Designers and Planners, Miami, Florida

Senior Naval Architect, 2020 –2021

Royal Caribbean Group, Miami, Florida

Technical Manager, 2019- 2020

Gibbs & Cox, Inc., Arlington, Virginia

Senior Naval Architect, 2017 – 2019
Naval Architect II, 2014 – 2017

Naval Surface Warfare Center Carderock Division, Bethesda, Maryland

Naval Architect, 2013 – 2014

Naval Acquisition Development Program Carderock Division, Bethesda, Maryland

Junior Naval Architect, 2010 – 2013

Continued Education

"Forensic Engineering: Learning from Failures." Course Provider: edX / Delft University of Technology, 2021.

"Basics on Forensic Engineering Part I-V." Course Provider: PDHonline.com, 2021.

"Penetration Mechanics." Course Provider: Southwest Research Institute, 2012.

"Weapons Effects & Ship/Submarine Survivability." Course Provider: Massachusetts Institute of Technology Professional Summer Program, 2011.

Publications

K. Byers , "BOT-3000 Tribometer Application in Marine Vessel Slips, Trips and Falls," The Gavel, 2022.

K. Byers, K. Hoedlmoser. "Cruising in the US: The Return to Service," The Marine Insurer, 2022.

M. Newborn, **K. Byers.**, M. Pelo, E. Schmid, S. Wright, "Design Report - Medium Surface Combatant," Virginia Polytechnic Institute and State University, 2010.

K. Byers, M. Gilmour, G. Koch, T. O'Brien, "Concept Design of an Arctic Patrol Vessel," Naval Surface Warfare Center Carderock Division, 2009.

Presentations

K. Byers, M. Venturella, "Hull, Machinery, and Cargo Claims: Investigating Commercial Brown Water Vessels," Envista Forensics Webinar to Marine Insurance Professionals, June 24, 2022.

K. Byers, M. Venturella, "The Surge in Containership Fires: Risks, Technology, and Investigations" Envista Forensics Webinar to Marine Insurance Professionals, March 25, 2022.

K. Byers, A. Bennett,, "3-D Forensic Imaging and Drone Use in Marine Claims," Envista Forensics Webinar to Marine Insurance Professionals, November 5, 2021.

K. Byers, M. Venturella, "Hull and Machinery Claims: Risks of Aging Fleets," Envista Forensics Webinar to Marine Insurance Professionals, October 22, 2021.

K. Byers, "Diminishing Stability in an Ageing Fleet," The Marine Insurer Nordics Conference, May 5, 2021.

Selected Project Experience

Commercial Marine

Investigated cause and origin of propulsion system failure aboard international fisheries vessel, which resulted in allision and significant damage to two fishing vessels. The scope of investigation included accident reconstruction based on interview of captain and chief engineer, and review of GPS data. Determined seawater coolant loss due to erosion accelerated corrosion resulted in high temperature alarm on electric generator and loss of all power to fisheries vessel during maneuvering in port. The investigation concluded with a damage survey of fishing vessels and estimate of cost to repair.

Investigated wooden yacht which sank in slip, resulting in total loss. The scope of work included modeling and damaged stability analysis using General Hydrostatics (GHS) software, followed by inspection and testing of seacocks, thru-hulls, and hull structure to validate the model and determine cause and origin of flooding.

Investigation of recreational boat seat failures. Multiple investigations related to the mechanical or material failure of hinged helm and passenger seats on recreational boats. Scope included joint inspections of seat functionality for product liability, and damage due to improper repair and corrosion.

Led team of engineers responsible for technical design of the Royal Caribbean cruise liner *Liberty of the Seas,* as well as classification approvals for ship modernization efforts. Responsibilities included review of redline drawings and class approvals, as well as coordination of engineering firm with construction teams.

U.S. Navy and Coast Guard

Led Naval Architecture team as hull systems engineer responsible for requirements definition, feasibility studies, and evaluation of Industry-led concepts for Military Sealift Command's Auxiliary Sealift Ship.

Conducted technical review of ship design and construction drawings for United States Coast Guard (USCG) Fast Response Cutter. Performed special studies at direction of Ship Design Manager including investigation of engine exhaust gas ingestion into Deckhouse, and finite element analysis of vessel to support procurement of a mobile boat lift.

Responsible for Intact and Damage Stability Analyses, Weights Engineering, and Outfitting Arrangements of Lockheed Martin's FFG(X) (fast frigate) Conceptual Design Proposal, and Bollinger Shipyard's USCG Offshore Patrol Cutter Preliminary and Contract Design drawings.

Testing and evaluation of implodable structures' response to and survivability from underwater explosions. Conducted test series for amphibious vehicle structural response to buried mine explosions. Conducted verification and validation of computer simulations of both underwater and buried mine explosions.

Building Systems

Investigated failure of Y-strainer in domestic water system, which resulted in significant water loss in a luxury condominium building. Scope of work included joint site and laboratory inspections, followed by a report of findings. Analysis confirmed a manufacturing or installation defect from dissimilar metal contact, resulting in galvanic corrosion.

Investigated failure of a fire sprinkler that had discharged in the absence of a known fire event. Fusible link was recovered at the loss site and underwent laboratory analysis revealing accelerated material creep within the active portion of the link (solder); this was ultimately determined to be the root cause of the failure. Conducted additional sprinkler head testing in accordance with NFPA 13 standards to ensure sprinklers conformed to specification.

Investigated damage to copper tubing within chiller unit in condominium building. Investigation included internal inspection that revealed debris and scaling within the chiller; this was followed by borescoping of all tubes to determine extent of damage and viability of repair. Investigation of installed system revealed that a required Y-strainer had not been installed upstream of the chilled water return, allowing debris to cause irreparable damage to the new chiller.