THE EXPERTS
Robson Forensic

JOSE FEMENIA, P.E.
Marine and Mechanical Engineer

Experienced in the design, operations and repair of marine and industrial power plants and systems supported by over 50 years of teaching undergraduate and graduate level engineering courses ranging from manufacturing processes to machine design to thermal analysis to design project courses.

Manufacturing Processes: Mechanical drawing, machine design, pattern making, casting, machining (grinders, drill presses, lathes, milling machines, shapers, hydraulic and mechanical presses), heat treating, welding and burning, sheet metal forming, aligning and fitting machinery, piping (hydraulics, oil, steam, water). Taught undergraduate courses in machine shop and welding practices and manufacturing processes.

Mechanical Elements and Machines: Produced drawings and made wood patterns using appropriate shrink rulers and wax fillet material. Produced aluminum, brass and cast iron sand castings using gas and induction furnaces. When appropriate repaired visible blowholes with appropriate filler material. Machined raw castings into finished machine parts. Taught undergraduate courses in engineering drawing, machine shop, welding manufacturing processes and machine design.

Mechanical Analysis: Performed analysis of mechanical components including anti-friction and journal bearings, shafts, keys, springs, bolts, welded joints, gears, clutches, brakes and couplings. Taught undergraduate courses in statics, dynamics, strength of materials and machine design.

Power Plant Analysis and Design: Performed thermal and mechanical analysis of marine and industrial diesel, gas turbine and steam power plants fueled by oil, gas, coal, nuclear and wood chips. Plants designed included internal combustion (compression and spark ignition) combined cycle and cogeneration power plants. Taught undergraduate and graduate courses in fluid dynamics, thermodynamics, heat transfer and power plant analysis design including senior design capstone courses.

Power Plant Operations: Instructed undergraduate students in the operation of steam, diesel and gas turbine power plants including at sea instruction aboard the SUNY Maritime College steam powered training ships EMPIRE STATE, IV, V and VI and the U.S. Merchant Marine Academy's diesel-electric powered training vessel KINGS POINTER.

Refrigeration Systems Analysis and Design: Performed thermal analysis, designs and operational reviews of shipboard and shoreside refrigeration systems including R-12 and ammonia systems.

Marine Operations Experience: In excess of five years of sea time on ocean going vessels and over 60 years of boating experience ranging from sailboats to power boats.

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PROFESSIONAL EXPERIENCE

2012 to present — **Robson Forensic, Inc.**
Associate
Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving marine and mechanical engineering and failure analysis.

1965 to present — Marine and Mechanical Engineering Consulting and Research

1995 to 2011 — **United States Merchant Marine Academy**
Professor and Director of Master of Marine Engineering Program 2006-2011
Professor and Engineering Department Head 1995-2007

1964to 1995 — **State University of New York Maritime College**
Professor and Engineering Department Chairman 1974-1995
Instructor to Professor of Engineering 1964-1974

PROFESSIONAL CREDENTIALS

Professional Engineer: New York, Pennsylvania
Third Assistant Engineer, Steam and Motor, USCG, Retired
Chief Engineer, NIULPE, Retired

EDUCATION

Master of Science, Mechanical Engineering, City College, City University of New York, June 1967
Bachelor of Marine Engineering, State University of New York Maritime College, June 1964

PROFESSIONAL MEMBERSHIPS and AFFILIATIONS

Society of Naval Architects and Marine Engineers
Past President (1999-2000)
Society of Marine Port Engineers, New York, NY
Past President (1994-1995)
American Society of Engineering Educators

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CONSULTING

Served as a consultant to numerous maritime and non-maritime firms and organizations including: Olympus Power, RCM Technologies, Robson Forensic, ABS Consulting, Michigan Power Limited Partnership, Enviro Energy Technologies, Inc., Coffin Turbo Pump, Inc., Key Span Energy Systems, Montefiore Medical Center, Sea-Land Services, Braun Engineering Associates, International Marine Carriers, Energy Corporation of America, J.J. Henry Company, Webb Institute of Naval Architecture, United States Merchant Marine Academy, Princeton Educational Testing Service, Robson Forensic and various admiralty law and patent law firms. Marine forensic analyses included commercial and recreational vessels and related systems.

RESEARCH

In addition to unsponsored research covering many maritime and non-maritime areas, served as Principal Investigator or Associate Investigator for sponsoring organizations including: Office of Naval Research, Marine Board, and Sea Grant. Most recent research activities focused on commercial Arctic shipping and marine nuclear propulsion systems for commercial vessels. Serving as a member of SNAME Technical & Research Panel M48, Nuclear Power for Commercial Ship Propulsion, co-chair.

COLLEGE LEVEL TEACHING EXPERIENCE

Thermal Sciences (Fluid Dynamics, Thermodynamics, Heat Transfer)
Hydraulic and Fluid System
Strength of Materials
Machine Design (Bearing, Fasteners, Gears, Lubrication, Shafting, Springs, Welding, Etc.)
Marine Engineering Design (Boilers, Turbines, Steam Cycles, Internal Combustion Engines, Gas Turbines)
Power Plant Analysis, Design and Operations (Conventional Steam, Diesel, Gas Turbine, Nuclear, Combined Cycles and Co-generation)

MAJOR DESIGN EXPERIENCE

Eucalyptus Tree Waste Burning Power Plant design for a Brazilian Plantation. Plant is a 200 kW steam plant designed to supply the plantation sawmill with power and export extra power to local village.

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Montefiore Medical Center 5.3 mWCo-generation Plant, 1990. Three duel fuel Fairbanks-Morse opposed piston engines exhausting into a modified Babcock& Wilcox FM boiler and using the high temperature (250° F) cooling water to motivate a 125 ton chiller and using the low temperature cooling water for hospital hot water heating. Served as the lead preliminary designer.

Coca Cola Bottling Plant Repowering, Maspeth, NY, 1995. Replacing six 100 hp motor driven ammonia compressors with two 300 hp Caterpillar spark ignition natural gas engines driving two ammonia compressors and utilizing the waste heat for hot water heating. Served as preliminary and detailed designer.

Combined Cycle Ship Propulsion Plants, one per year, 2002 through 2011.The plants were mainly based on the General Electric LM2500 aircraft derivative gas turbine. Served as the senior design course instructor leading marine engineering students in the thermodynamic cycle analysis, the detailed heat recovery unit design, the detailed steam turbine stage design as well as the detailed condenser, feed-water heaters and the turbine lubricating oil cooler designs.

Participated in the design of shipboard medium and slow speed diesel as well as steam power plant designs ranging up to 120,000 shp.

PUBLICATIONS and PRESENTATIONS

Authored numerous publications in the areas of marine engineering and education, including refereed journals and transactions and contributor to technical text and reference books. Principal recent publications and presentations:

Is The Time Right For Nuclear Powered Commercial Vessels? SNAME Met Section Meeting, January 16, 2012

Academy's Master of Science in Marine Engineering Program Commences its Sixth Year, Kings Pointer, USMMA Alumni Association, Fall 2011

Nuclear Powered Commercial Ships----The Time Has Come, Presented at the American Nuclear Society Annual Meeting, November 2010

Co-Chair and Panelist, SNAME Climate Change Symposium, Technical Measures and Operational Measures to Increase Energy Efficiency Session, Baltimore, February 2010

Arctic Transportation and Nuclear Power the Nearly Perfect Marriage of Two Technologies, Arctic Shipping Conference, St. John's, Newfoundland, Canada, October, 2009

The Viability and Advantages of Trans-Arctic Shipping Using Nuclear Power, SNAME New York Metropolitan Section, September 2008

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The Viability and Advantages of Trans-Arctic Shipping Using Nuclear Power, Noncommercial Partnership of the Coordination of Northern Sea Route Usages Conference, Saint Petersburg, Russia, February, 2008

The Viability of Trans-Arctic Nuclear Shipping, Breaking the Ice Conference, Akureyri, Iceland, March 2007

Preliminary Design of a Nuclear-Electric Fast Naval Auxiliary Capable of Serving as an Electrical Generating Plant for the National Grid, Dec. 2006.

The Siberian Arctic Ocean Highway: Redefining the World's Trading Patterns, ICETECH 2006, Banff, Canada, July 2006

Keynote National Maritime Day Address, New London, CT, May 2006

USMMA Master of Marine Engineering Program, Kings Pointer, USMMA Alumni Association, Spring 2005

Nuclear Ships Can Help Meet U.S. Electrical Needs, Naval Proceedings, August 2004

Status of Marine Engineering Education in the United States, Long Island Chapter of the Navy League, February 2004

Maritime Fuel Conservation, National Maritime Research Center, Kings Point, NY 1977

Alternate Energy Sources for Marine Power Plants, National Maritime Research Center, Kings Point, NY 1975

TEXTBOOKS

Marine Engineering, SNAME, 2020
- Chapter 2, Thermodynamics, Combustion and Heat Engineering, Authored
- Chapter 11, Reciprocating Engines, Coauthored
- Chapter 13, Marine Boilers, Revised and updated
- Chapter 15, Steam Turbines, Revised and Updated

Introduction to Practical Marine Engineering, SNAME 2002, Contributing Author

Marine Engineering, SNAME, 1992, Contributing Author

AWARDS and HONORS

Fulbright Scholarship Recommendation, The Institute of International Exchange of Scholars recommendation for Teaching and Research at the Centro Universarito de la Defense/Naval Academy, Spain in 2020

U.S. Merchant Marine Academy, Professor Emeritus, 2014

SNAME, Fellow, 1998

SNAME, Webb Medal for Contributions to Marine Engineering Education, 1997

SAME, Bliss Medal for contributions to Military Engineering Education, 1989

SUNYMCAA, Man of the Year, 1981