



DR NICHOLAS DOHERTY
MEng, PhD

Senior Mechanical Engineer

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Nick is a Chartered Engineer and has been a Mechanical Engineer at Safety at Sea since 2005. He obtained MEng in Mechanical Engineering with Energy Studies from The University of Strathclyde in 1999. He worked for a consultancy in Glasgow on energy efficiency projects until returning to University of Strathclyde in 2001. He obtained PhD in fluid mechanics research in 2005. His principal role at Brookes Bell Safety at Sea is Computational Fluid Dynamics (CFD) analysis for various hydrodynamic and aerodynamic projects and fire simulations. He has advised clients on a number of legal cases and given evidence in arbitration.

Academic Qualifications

MEng Mechanical Engineering with Energy Studies (with distinction) Strathclyde University Glasgow, UK.

PhD Mechanical Engineering Strathclyde University Glasgow, UK.

Previous Employment History

Cadogan Consultants, Glasgow - Project Engineer.

Energy audit reports and CHP feasibility studies for businesses throughout Scotland.

Queens University, Kingston, Ontario Canada.

Worked in Solar Calorimetry Laboratory on various energy related projects.

Engineering and Consultancy Experience

- CFD analyses cruise vessel superstructures for optimal aerodynamic performance.
- CFD analyses of hull resistance/optimisation.
- Stability fin CFD analyses.
- Propeller/rudder interaction CFD analyses.
- CFD analyses of vessel manoeuvring.
- Manoeuvring/seakeeping analyses.
- Thermal CFD analyses.
- Funnel design analyses.
- Fire dynamics modelling and alternative design analyses.
- HVAC analyses of cruise vessel interiors.
- Wind comfort analyses on cruise liners.
- Wind force analysis on external cabin doors on cruise liners.
- Solar thermal analyses on internal and external cruise liner spaces.
- Wind force coefficient calculations from CFD simulations for manoeuvring calculations.
- Funnel smoke/flake discharge analyses on cruise liners and cargo vessels.
- VOF free surface ship hull resistance calculations.
- Stern/bow thruster analyses.
- Propeller vibration analysis.
- Gas dynamics and dispersion analyses.
- Hydrofoils and stability fins analyses.
- Propeller/rudder interaction CFD and FEA analysis.
- Offshore oil compression and separation train.
- Submersible vessel resistance and propulsion force analyses.
- Sinking/capsizing ship analyses.
- Wave making device studies.
- Liquid cargo enthalpy mixing from sloshing during transport.
- Flow coefficient analyses of damage points for oil spill estimations.
- Thermal and environmental turbulence analysis of offshore patrol vessel helideck.
- Vortex shedding analysis on cruise vessel structure.
- Vessel manoeuvring and stability analyses.
- Investigation of CO₂ fire suppression system effectiveness in cargo hold.
- Investigation of near-shore pipe laying and installation in waves.
- Harbour wave and current analysis.
- Investigation of temperature and solidification of cargo during loading.

- Contamination analyses of cargo holds due to over-pressurisation in pipe system.
- Cross flooding and loading analyses of cargo holds.
- Tank sloshing analysis on capsized barge.
- Cargo heating analysis.
- Wind tunnel testing for wind force coefficient, funnel smoke and wind speed testing and verification on cruise liner studies.
- Records store fire spread/suppression and evacuation analysis.
- Several alternative design analyses requiring Fire Dynamics Simulator (FDS) design fire and evacuation tenability analyses.
- Analysis of non-SOLAS compliant materials on cruise vessels to assess their fire hazard risk in different public spaces.
- Fire test facility analysis.
- Development of dynamic energy modelling software for use on cruise liners.
- HVAC design and system optimisation for cruise liner public space and cabins.
- Dynamic analysis of heavy weather seakeeping for an Alternative Evacuation System.
- Dynamic analysis of crane failure while in operation.
- Azimuth thruster analysis for dynamic positioning vessel.