

# Full-spectrum Design and Engineering Services



Naval Architecture	Consulting & Plan Review
Conceptual & Preliminary Design	Vessel Acquisition Support
Structural Design & Repair Plans	Performance Optimization
Stability Analysis & Testing	Shipyards Negotiations
Software Development	Site Supervision



## GENERAL ENGINEERING AND ANALYSIS SERVICES

Structural Engineering, Hydrodynamics, Motions, Moorings, Stability, Salvage, Outflow, Intact and Damage Stability, and Transportation Studies.

## LNG TRANSPORT ANALYSIS and SHIP DESIGN DEVELOPMENT

HEC supports owners in designing LNG carriers and bunker vessels, including development and sizing, structural design, cost estimation, and shipyard design evaluation. We incorporate LNG fuel into propulsion studies and are skilled in all containment systems.

HEC has completed multiple LNG fuel retrofits for US-flagged ships

and is ready to assist with future alternative fuels.

## ENVIRONMENTAL PERFORMANCE

We provide the shipping industry with engineering expertise to address complex environmental problems, strengthened by our solid relationships with federal, state, and local agencies and environmental groups.

## REGULATORY ASSESSMENT

We actively participate in rule and standards development with the International Maritime Organization, the United States Coast Guard, and the American Bureau of Shipping.

[ASK ABOUT OUR PROJECTS](#)

## Through design, we venture beyond current practice

Optimized Safety | Efficiency | Environmental Performance



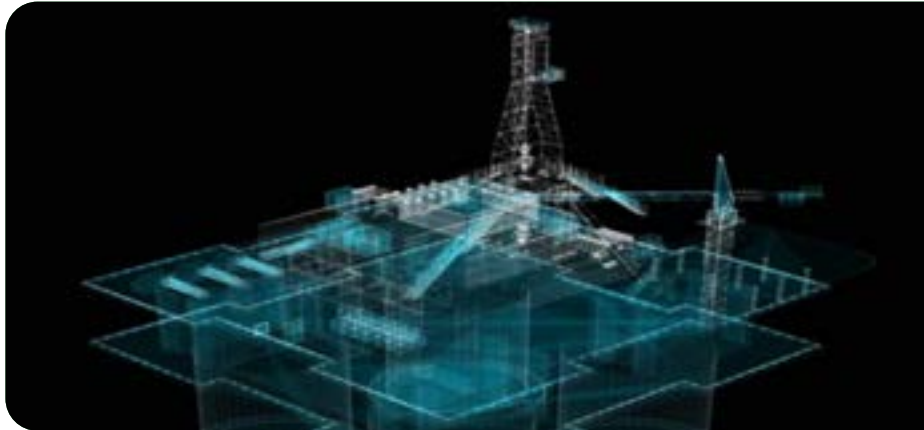
## OFFSHORE ENGINEERING

We navigate the complexities of marine infrastructure with authority, innovation, and an unwavering commitment to unparalleled success.

- LNG Carrier Design & Evaluation
- Floating & Seabed-fixed LNG Terminals
- Floating Offshore Structures
- Semisubmersibles
- Tension Leg Platforms
- FPSOs & Mooring Systems



# Six Decades of Innovation



Expert design and analysis of stiffened-plate structures and fatigue-resistant connection details; our engineers deliver solutions tailored to the rigors of offshore environments. Leveraging deep-rooted relationships with shipbuilders, we transfer efficient ship construction techniques to the offshore sector, ensuring the economical fabrication of floating structures without compromise.

## Comprehensive Suite of Services

### Engineering Services/Solutions

- Conceptual & Preliminary Design
- Structural Design & Fatigue Analysis
- Intact & Damage Stability Assessment
- DWT Surveys & Inclining Experiments
- Heavy Lift Transfer & Sea Fastening
- Lifting Plans for Module Installation
- Non-linear Motions & Seakeeping
- Mooring Systems & Optimization
- Failure Mode & Effect Analysis
- FLNG Load & Discharge Sequencing
- Ventilation Design & Consulting
- Hazardous Area Zoning
- Thermodynamics & Heat Transfer Studies
- Fluid Dynamics Design



### Offshore Drilling

#### Drilling and Mud System Design:

- Mud Cleaning & Degassing
- Flare Boom Radiation & Water Spray Studies

#### Drilling Systems & Equipment:

- Iron Roughnecks, Pipe Handlers & Conveyors, Riser Conveyors
- Mud Pumps, Shakers, Degassers, Hydrocyclones Mixers, Decanters



### Offshore Production

#### Oil & Gas Processing Systems Design:

- Oil Flow Assurance Injection
- Oil Dehydration
- Gas Extraction
- Fuel Gas Skid Systems
- Oil & Gas Export Metering Equipment
- Oil & Gas Export Pipelines



### Offshore Transportation

#### Ship Design & Evaluation:

- Concept Design
- Plan Review & Site Supervision
- Repair & Modification Plans
- EEDI & CII Evaluation
- Performance Optimization
- Route & Fuel Consumption Optimization
- Loading Manuals & Software