

INTRODUCTION TO HOULDER

OVERVIEW

Houlder is an independent provider of all forms of offshore engineering, marine equipment, project management, design and analysis. Working from offices across the UK and in the USA, Houlder supports its clients through each stage of the project lifecycle – from the initial concept through design, engineering, construction, commissioning, installation, start-up, delivery, operation and disposal.

Houlder engineers and managers are experienced in managing the construction, upgrade, conversion and repair of all nature of floating vessels including ice-class research ships, passenger and RORO ferries, offshore support vessels, semisubmersibles, FSOs, FPSOs, and jack-ups. Houlder designs and supplies all forms of marine equipment including mechanical handling, personnel and fuel transfer systems, marine drilling, subsea systems, and bespoke equipment to address clients' specific requirements.

The employee-owned company provides services to the offshore Oil & Gas, Renewable Energy, LNG, Defence and the Commercial Marine sectors.



HOW AND WHERE WE OPERATE

Our People

Houlder employs over 200 talented and experienced individuals who work in multidisciplinary teams to deliver intellectual, technical and commercial rigour to its projects. Houlder directors, engineers, project managers and analysts are fully conversant with all relevant International Codes, Rules, Regulations and Class Requirements.

Houlder is committed to developing new talent through an award winning internship programme and graduate development scheme.

Our Offices

UK: London, Aberdeen, Portsmouth, Tyneside

USA: Houston

Global: Houlder establishes site offices in shipyards and construction sites throughout the world as required to manage ongoing project works.

Our Industry Recognition



WHAT WE DO

Houlder improves performance through the application of effective project management, design, engineering, analysis, innovation, and expert services, adding value to our clients' businesses throughout the lifecycle of their assets. We do this through the delivery of a range of services.

Consultancy

- Project Management
- Analysis
- Engineering Design
- Vessel Design
- Advisory Services

Contracting

- Construction of Offshore Assets
- Life Extension and Upgrade of Offshore Facilities

Support Services

- Asset Lifecycle Management
- Through Life Maintenance

Equipment Design and Supply

- Specialist Marine Systems
- Personnel & Fuel Transfer Systems



PROJECT MANAGEMENT

Houlder mobilises skilled teams of project managers, engineers and administrators worldwide to oversee all aspects of its projects.

- Project Relationships and Control
- QHSE
- Design Review and Verification
- Supply Chain Management
- Construction Oversight
- Testing, Commissioning and Setting to Work
- Commercial Management

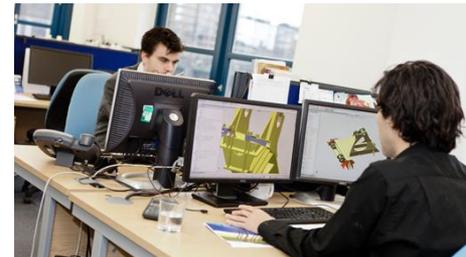
Houlder's experienced personnel work with proven systems to ensure that all projects are run efficiently and cost-effectively in accordance with the agreed contract.



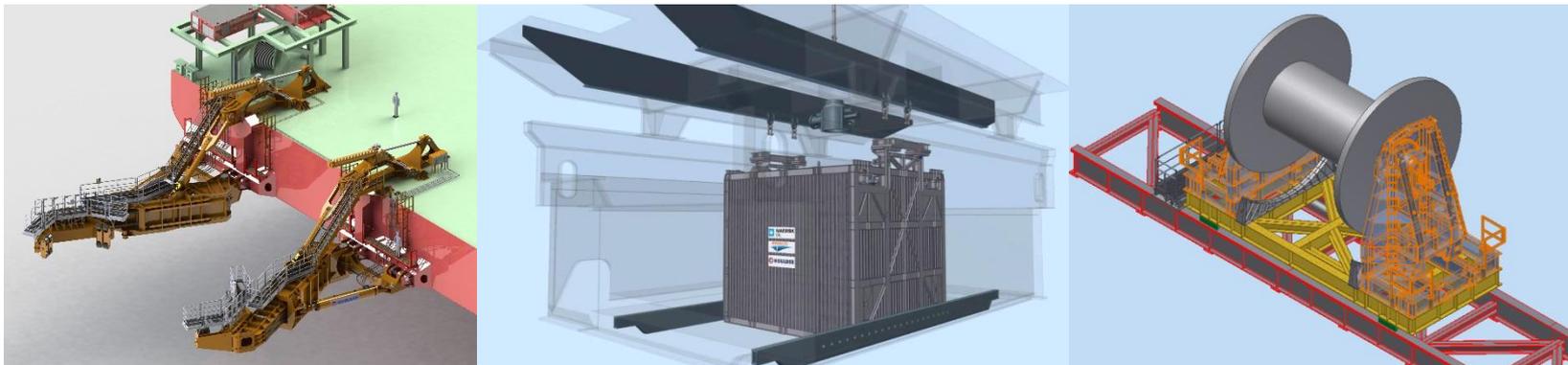
ENGINEERING DESIGN

Houlder's in-house design expertise and project experience is applied to multi-discipline projects, from deadweight surveys and inclining experiments to the design and installation of complex, bespoke equipment on offshore platforms.

- Preliminary design
- Detailed design
- Production drawings
- Class approval
- Surveys, including 3D laser scanning



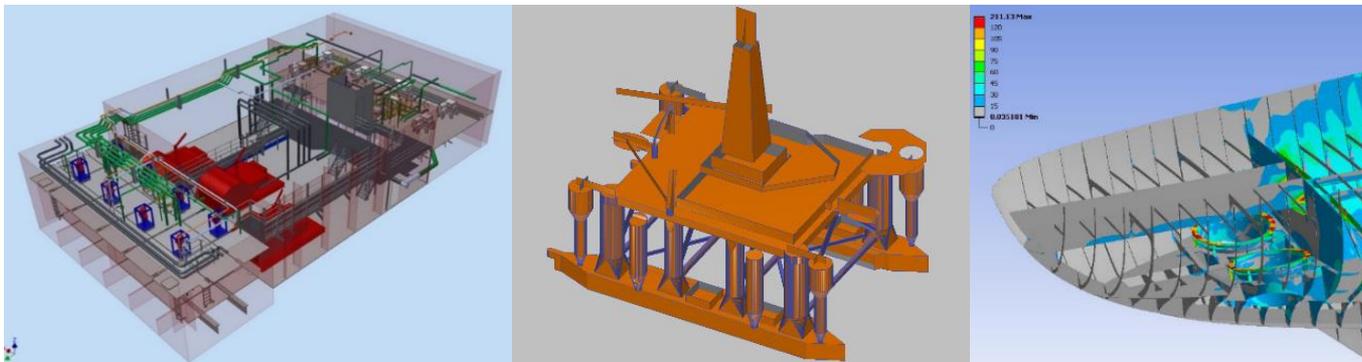
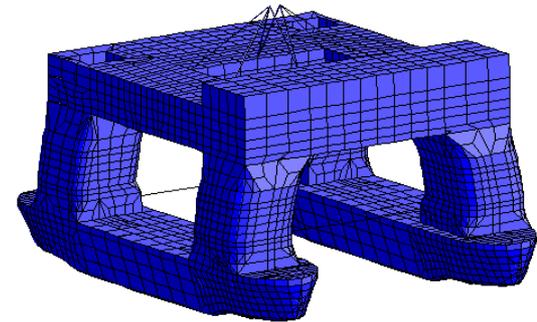
Houlder uses the latest software to produce 3D CAD models used to reveal and resolve design clashes.



ANALYSIS

Houlder's is regularly contracted to perform a range of analyses on existing or new build vessels and structures. Analysis capabilities include:

- Global Structural Analysis
- Finite Element Analysis, Fatigue, Fracture and Redundancy Analysis
- Intact and Damaged Stability
- Motions and Seakeeping
- Mooring Analysis
- Speed and Power



VESSEL DESIGN

Using the latest software and techniques, Houlder's naval architects and marine engineers can produce concept and detailed designs of a wide variety of vessels. Some example vessels worked on by Houlder:



Compact Drillship



Ice-class Research Ship



Passenger Ferry



Wind Farm Installation



LNG Bunkering Barge

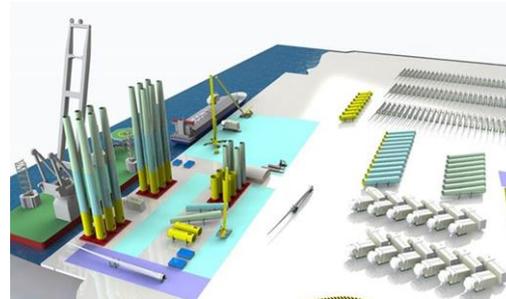


Militarised RORO

ADVISORY SERVICES

Houlder has a wealth of experience in the marine environment, typically its senior staff have chartered professional status and in excess of 30 years experience on which to draw, they are therefore well placed to provide advisory services to their clients, including:

- Client representation
- Expert witness services
- Contractual advice
- Technical Advice
- Logistical Modelling
- Project Management Consultancy



WIND FARM LOGISTICS TIME & MOTION STUDIES

Houlder's Advanced Analysis group simulate Logistics Supply Chains to optimise operations.

Inputs

- Resources (site availability, cranes, SPMT...)
- Hind-cast environment (wind & tide)
- Component delivery schedule

Modelling

- In-house nodal analysis software
- Statistical delay analysis for weather
- Versatility to create an optimised result

Outputs

- Bottleneck avoidance
- Environmental operability
- Optimised process: 3D animated results



Case Study: Siemens Windpower

Houlder modelled pre-assembly load-out operations for Siemens Windpower giving them confidence in the following;

- Achieving and maintaining buffer levels
- Identifying potential process bottlenecks
- Determining likely resource shortages or surpluses
- Achievability of scheduling
- Design of an optimised site layout

CONSTRUCTION AND UPGRADE OF OFFSHORE ASSETS

Houlder can provide shipyard construction teams to undertake new build or life extension projects for offshore assets. Typical aspects of this work include:

- Turnkey delivery reducing client risk
- Onsite supervision of up to 250 works
- Provision of onsite safety advisors
- 24/7 operations
- Steel replacement
- Accommodation upgrades
- VDL Upgrades



Previous upgrade projects have included:

Client	Units
Ensco	E70, E71, E100, E101
Global Santa Fe	GSF I, GSF II, Monarch
Transocean	John Shaw, Development Driller

ASSET LIFECYCLE MANAGEMENT

Houlder's four business streams support the marine asset throughout its life cycle, from Concept to Operations to Decommissioning.

Project Management & Advisory Services

- Procurement support
- Construction management
- Owner's representation
- Yard supervision and technical consultancy during major capital projects

Marine Design Consultancy

- Naval architecture and marine engineering for:
- New builds
- Feasibility studies
- Concept development
- FEED
- Structural design
- Hydrodynamic analysis

Marine Equipment

- Specialist mechanical handling equipment to support offshore construction and installation
 - Pile restraining arms / frames
 - BOP and X-Mas tree handling, deployment and recovery
- Personnel and Fuel Transfer systems
 - Walk to work systems
 - LNG bunkering

Offshore Projects and Engineering

- Brownfield engineering, design and construction services for marine assets: concept to installation, operations and removal.
- Upgrade of offshore assets
 - Hull
 - Equipment
 - Structure
 - Accommodation

EQUIPMENT SUPPLY AND DESIGN

Houlder's engineers have built a reputation for providing bespoke specialist equipment for use in a variety of applications. The complete process from concept through design, fabrication, delivery, installation, and commissioning is closely managed in accordance with proven systems.

Previous equipment developed by Houlder includes:

- Pile gripper arms, handling frames and lifting devices
- LNG transfer systems
- Personnel transfer systems
- Cable storage and handling
- RIB handling davits
- BOP and Xmas Tree Skid Carts
- Pull-in systems



WHY HOULDER?

Houlder is independent; it is wholly owned by its employees and growing. The Company brings the following benefits to its clients:

- Provision of a blend of services with project and engineering expertise from concept through design, construction, installation, commissioning, maintenance and disposal
- Positive Industry presence and is able to engage with and influence regulators
- Proven track record of satisfied clients and a high percentage of repeat business
- Houlder engineers are fully conversant with all relevant Industry Standards, International Rules and Regulations as well as Class requirements

Key features of Houlder's services

- Dedicated professionally qualified and experienced project teams supported by experienced management
- Knowledge of project issues and mitigation strategies
- Cost effective investment to secure delivery of project in line with contract requirements
- Recent and ongoing experience in the delivery of major projects



Drawing on the depth and breadth of our management and technical expertise and experience, we are well placed to provide a full range of services at all stages of your project. All of Houlder's operations are covered by a ISO9001 certified Quality Management System.

WHO WE WORK WITH

Vessel Design

- Commercial Ship Owners
- Government and NGOs
- Defence Prime Contractors
- Windfarm Installation and O&M Contractors
- Offshore Contractors
- Oil and Gas Companies
- LNG Bunkering Operators
- Ferry Operators
- Cruise Ship Operators
- Light House Authorities

Analysis

- Oil and Gas Companies
- Commercial Ship Owners
- LNG Bunkering Operators
- Global Engineering Companies
- Drilling Contractors
- Defence Prime Contractors
- Windfarm Installation and O&M Contractors

Engineering Design

- Drilling Contractors
- Oil and Gas Companies
- Commercial Ship Owners
- Offshore Construction Contractors
- Government and NGOs
- Defence Prime Contractors
- Windfarm Installation and O&M Contractors
- Oil & Gas Companies
- LNG Bunkering operators
- Global Engineering Companies
- Shipyards

Equipment Design & Supply

- Oil and Gas Companies
- Commercial Ship Owners
- Offshore Construction Contractors
- LNG Bunkering Operators
- Global Engineering Companies
- Windfarm Installation and O&M Contractors

Asset Build & Upgrade

- Drilling Companies
- Oil and Gas Companies
- Commercial Ship Owners
- LNG Bunkering Operators
- Global Engineering Companies

Advisory Services

- International Law Firms
- Insurers
- Banks and Financers
- Government and NGOs
- Oil and Gas Companies
- Commercial Ship Owners

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